

Acquisition of Electronic Commerce Capability: The Cases of Compaq and Dell in Sweden

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STOCKHOLM SCHOOL OF ECONOMICS
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Preface

When starting writing this thesis in the autumn of 1997, the interest in electronic commerce was gaining momentum in the US, Sweden and elsewhere, but generally speaking the phenomena was still not at the forefront of public interest.

During 1998-2000 Sweden experienced a booming interest in electronic commerce, inspired and fed by the media, venture capitalists and investment banks. Driven by a mix of strong business aspirations, curiosity and ego, numerous entrepreneurs tried to exploit electronic commerce technology for the sale of socks, CDs, flowers and everything else you could think of. Electronic commerce was momentarily the “Golden Calf”.

Naturally, this turn of events affected the thesis, guided the interviews and the questions and made the research questions more pertinent. Furthermore, as entrepreneurs in Sweden struggled to come up with the right formula, working around the clock to find the right mixture of capabilities, the shifts and turns during this bubble highlighted various aspects and problems with electronic commerce.

At the outset, it seemed to me that Compaq and Dell, both stellar performers, would provide solid examples of electronic commerce put into practice, and therefore important objects to study. Coming closer to the firms revealed that electronic commerce was a more complicated matter than I thought. Access has been excellent and I am grateful for the time, openness and attention that I have received from both firms. I take this opportunity of expressing my thanks to both for their co-operation.

The research project has been funded from a number of sources. The Economic Research Institute and Stockholm School of Economics has provided funds for starting, concluding, and apply for external financing. My key source of financing has been the LE Lundberg Foundation that has supported my work. Without the generosity and patience of the Economic Research Institute, Stockholm School of Economics and the LE Lundberg foundation I would not have been able to carry out the project. I would like to extend my warm thanks for the financial support over the years.

To bring this work about I have received tremendous support from fellow colleagues in the Marketing Area at the School. Anders Lundgren recruited me to the D-section that focuses on distribution, marketing and marketing dynamics. He inspired me, and during the time that we worked together he led me onto the path that I have taken. In a similar fashion, Bertil Thorngren has greatly stimulated my thinking by making information and thoughts about electronic commerce accessible.

Ivan Snehota read my manuscript through, providing me with valuable insights and comments. With his strong grasp of the literature, I was able to gain a better understanding of where my thesis fitted in and to see how my work was linked to the thoughts of others and how I could contribute to the literature. Thank you!

Udo Zander put in a lot of effort in a careful reading of my manuscript. Udo checked my thoughts and their relevance for the resource-based view. He gave the dissertation a partly new, but fruitful direction, by providing criticism at “the pie seminar”, which proved a critical juncture in the process. Thank you!

Magnus Söderlund, Anders Liljenberg and Mats Edenius have focused on the introduction, method and methodology. They have helped me to sort out and clarify my stances and positions. Mats Vilgon and Ulf Essler have stimulated my thinking and engaged me in ample discussions, exchanging ideas, helping me carry out the work on a day-to-day basis over the years. Ulf Essler, with his focus of electronic commerce, has read my manuscript carefully on several occasions. His attention to detail, logic and clarity has been extremely valuable. George Cook has read through the manuscript and greatly improved the English, flow and logic of the text. Claes-Fredrik Helgesson helped me extensively to improve the presentation of the text. Thank you all!

Per Andersson and Lars-Gunnar Mattsson have been my tutors. Per has time after time read my texts, forcing me to constantly move ahead by showing where things could be improved. By adding new aspects and perspectives, Per’s comments and suggestions have greatly enriched the thesis and introduced depth in the discussion and analysis.

Lars-Gunnar has skilfully and patiently supported the writing. He has generously made himself available to me. Without this guidance, I doubt that I would have arrived at all. By creating a relaxed atmosphere, being open to new ideas and theories, regardless of their origin Lars-Gunnar has allowed me to explore my subject freely. This openness has put learning and searching for new insights at the forefront, to a large extent explaining the nature of the results. As one of Lars-Gunnar’s last doctoral students, I feel proud to be a small part of his legacy and of having had the opportunity of sitting in his sofa.

My parents and family have supported me patiently, but from time to time they have been wondering what I have been doing all these years: “Should it be this difficult to get an education?” At last I have something to show them. Thank you for the care and love.

Finally, thank you Maria for being there. Always.

Stockholm, March 20, 2002

Michael Kaplan

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Today we are witnessing the early, turbulent days of a revolution as significant as any other in human history. A new medium of human communications is emerging, one that may prove to surpass all previous revolutions - the printing press, the telephone, the television, the computer - in its impact on our economic and social life. Interactive multimedia and the so-called information highway, and its exemplar the Internet, are enabling a new economy based on the networking of human intelligence, and effort to manufacturing, agriculture, and services. In the digital frontier of this economy, the players, dynamics, rules, and requirements for survival and success are all changing.¹

1. Introduction

Empirical Preview²

At the end of 1997 BusinessWeek reported that Dell Corporation, a leading computer company and one of the top five computer vendors in the world, was growing at the rate of 50 percent annually and that it was expected to achieve revenues of more than USD 12 billion for 1998.³ Dell Corporation designs, develops, manufactures, markets, services and supports a wide range of computer systems, including desktops, notebooks, workstations and network servers, and also market software, peripherals and service and support programs.⁴

Michael Dell, the founder and CEO of Dell Corporation, explained that a key factor in accounting for the success was expanded sales over the Internet which exceeded USD 3 million per week at that time and were growing rapidly.⁵ The success was remarkable given that the attempts by others to sell goods or services successfully on the Internet had either failed outright or had yet to take off.

¹Tapscott, D. The Digital Economy - Promise and Peril in the Age of Networked Intelligence, McGraw-Hill, 1996.

² The empirical preview is included to give the reader a glimpse of the empirical investigation, and also to present a brief summary of the impressions that were gathered. The full investigation is presented in chapter 10.

³ The Best Managers of the Year, BusinessWeek, January 12, 1998. The figure relates to the fiscal year ending January 31, 1998.

⁴ SEC Edgar, 10-K Form, Dell Corporation, April, 1997-1999.

⁵ Magretta, J. The Power of virtual integration: An interview with Dell Computer's Michael Dell, Harvard Business Review, March-April, 1998.

An initial preview of the operations of Dell suggested a number of keys to its success. First, Dell Corporation dealt directly with its customers, being able to address them properly, building long-term relations by interacting with them across a number points of contact. Second, customers were invited to customise their order by configuring their own computers, placing their orders by telephone, fax, e-mail, via a personal sales representative or electronic commerce, or a combination thereof creating personalised customer experiences. Once Dell Corporation had received an order it assembled the computer and shipped it directly to the final user, postponing the start of the production as close as possible to shipment date.

It could be observed that Dell Corporation's major competitors were not following its way of doing business. Dell Corporation's primary competitor, Compaq Corporation, eventually realised the force of Dell Corporation's electronic commerce ambitions. It observed the sales Dell Corporation was deriving from electronic commerce and scrambled to catch up. Compaq Corporation, based in Texas like Dell Corporation, benchmarked itself against Dell Corporation. It tried to mimic Dell Corporation's strengths in electronic commerce, while at the same time keeping its distinct way of operations, working via intermediaries.

Studying Compaq Corporation and Dell Corporation, it became evident that there was a fundamental transformation underway in the computer hardware industry in the late 1990s that centred on electronic commerce and the evolution of distribution systems. Many firms within the computer industry wanted to use or considered using electronic commerce. Many firms perceived that they needed electronic commerce. Many firms had already tried and failed, totally or partly. In parallel there were examples of success and of firms that managed to carve out what appeared to be a competitive advantage. There was great interest among practitioners for knowing more about electronic commerce.

Many concepts emerged in the initial preview, like electronic commerce, the Internet, business models, capabilities, etc. In particular, the concept of capabilities for electronic commerce, as a precondition for competitive advantage surfaced. While these concepts appeared important, they seemed to lack precise meaning. It was decided that the cases of Compaq Corporation and Dell Corporation provided the empirical examples of electronic commerce with which to put the prediction of Tapscott (1996) to the test.

Problem Area

Exchange between sellers and buyers has been transformed in the past two decades primarily because of advances in technology and related processes. Computers, electronic data interchange (EDI), satellite communication systems, handheld scanners, mobile phones, bar code label equipment, and the Internet are among the technologies that have aided this transformation. More important, modern physical distribution systems have dramatically influenced organisational structure and distribution systems.

Electronic commerce is a late example of technologies transforming goods and service distribution, but one that is being rapidly adopted.⁶ Compaq Corporation and Dell Corporation are firms confronted with the issue of managing transformation induced by electronic commerce. This applied technology is highlighted as an important tool for business and an opportunity to obtain cost efficiency as well as to serve customers in new, improved, and more effective ways.

When the Internet is to be used as a sales distribution channel, a variety of different decisions must be taken, such as “should the site be firm-operated or indirectly operated and, if the latter, how many intermediaries should be used?” Channel integration and distribution intensity decisions are likely to have different aspects put on them when the Internet is involved, compared with the considerations put on traditional channels. Also, due to product breadth and support issues, manufacturers, distributors and retailers are likely to use differing applications of the Internet as a sales-distribution channel (Frazier, 1999).

Category of customer support	Million USD
cost savings	
Product manual printing costs	270
Software distribution	130
Telephone technical support	125
Total	525

Table 1.1 Cisco customer support savings.⁷

Use of the Internet as a sales channel by manufacturers and service providers has led and continues to lead to the failure of many intermediaries and consolidation in many industries, especially in service-related industries. At the same time, the Internet as a sales distribution channel is being embraced by intermediaries as a sales distribution channel and is contributing to success. As a result value chains are reconstructed as the economy is transformed in response to the advent of electronic commerce. Research is clearly needed that examines the impact of the Internet as a sales distribution channel (Timmers, 2000).

⁶ Accurate figures are hard to come by. According to www.netcraft.com there were about 135 000 sites by the early 1996, which had translated into over 800 000 sites by early 1997. This growth rate was expected to persist for a number of years, leading to over 10 million sites by 2007. In January 2002 Netcraft reported that there were about 12 million sites in December 2001. However, the growth rate seemed to subside.

⁷ As of 1997, Cisco Corporation, the networking gear company had moved 70 percent of its customer support online, including manuals and software. This move was yielding the company an annual saving of over USD 500 million, which represented about 9 per cent of total revenue or 17 per cent of total operating costs (Margherio et al, 1998).

Firms applying electronic commerce have met with mixed success, despite the fact that its impact has been described as revolutionary and dramatic, challenging every player in every business ((see Kelly (1998) or Evans and Wurster (2000)) for examples). In their view, previous practices in the creation of profit and value for customers is fundamentally questioned, and must often be reformulated - with the implication that firms must learn new skills and acquire new capabilities to become or remain competitive.

Product Group	France	Germany	Italy	UK	Average
Computers and software	25	25	26	25	25
Consumer products	17	20	10	13	15
Finance and insurance	4	4	4	4	4
Manufacturing industry	7	6	8	8	7
Publication and information	10	10	11	10	10
Travel	5	4	6	5	5
Business and professional	18	18	20	20	19
Advertising	12	11	12	12	12
Other	2	2	4	4	4
Total	100	100	100	100	100

*Table 1.2 Revenue generated by commercial web sites in Europe, 1998 percentages.*⁸

In practice, the ability to generate revenue and profit from electronic commerce has fallen way below expectations (see www.kicked.com for a continuously updated list of electronic commerce firms that have failed or are struggling). Can this gap between reality and expectation be attributed to short-term problems of adoption and implementation, or are there limitations to the fundamental reach or scope of electronic commerce? Thus there is more than ever an apparent need to develop our theoretical and practical understanding of how firms adjust to and can manage the advent of electronic commerce.

Given the large variety in usage and success of the various electronic commerce ventures, firms apparently possess specific capabilities that make them distinctly successful in marketing and selling their products and services on the Internet. This capability evidently goes beyond product category, consumer or business market, and industry structure and tradition (Economist, 1997).

Firms offer sites focused on transactions (that is, Internet presence directly generates revenue), while Internet presence of others is a shallow graphical representation, not generating revenue. There is also a large variety in terms of interactivity between the customer and the firm, and in the integration between the Internet interface and the rest of the firm (Quelch and Klein, 1996).

⁸ OECD Report on The Economic and Social Impact of Electronic Commerce – Preliminary Findings and Research Agenda, 1999.

From a firm's perspective, electronic commerce create opportunities in a number of ways. It can 1) create increased penetration on an existing market for an existing product, 2) create new markets for existing products, 3) create new products for the existing market, and 4) create new products for new markets (Ansoff, 1965; Kalakota and Winston, 1996). In addition, the Internet offers a new vehicle for bridging the gap between production and consumption, alone or in combination with other distribution channels. Electronic commerce can be considered a new channel for the delivery of services and products like for instance personal selling by salesmen, traditional physical retailing in all its forms, the telephone, sales offices, mail order and Tupperware parties (Ghosh, 1998).

The novelty and the current rapid adoption of electronic commerce in business offers an attractive arena in which to address fundamental, general issues about the nature of business, strategy formulation, and in particular distribution systems. The preview of Compaq Corporation and Dell Corporation suggests that the ability of firms to implement electronic commerce varies and indicates that the advent of electronic commerce poses a managerial challenge in terms of strategy implementation. Concerning implementation, a key issue would seem to be how to match strategic intent with acquiring the capabilities needed for implementation. Management of learning is emerging as an important task for top management (Prahalad and Hamel, 1990; Quinn, 1992).

Given that management perceives that it needs to engage in electronic commerce in order to remain or become competitive, it must acquire the necessary capabilities for electronic commerce. Questions arise like "what capabilities are needed for electronic commerce?" as well as "how can our firm acquire the needed capabilities for electronic commerce once the needed capabilities have been identified?" and "how should these new capabilities for electronic commerce be integrated in our operations?" Any firm contemplating an investment in electronic commerce capability must find answers to these issues.

Investment in electronic commerce is growing at a rapid pace around the world.⁹ Since the technology is new, and the pressure to invest in it is high, many approaches are tried. The difficulties and differences in implementation indicated by Compaq Corporation and Dell Corporation in the empirical preview suggests that electronic commerce is a difficult technology to implement demanding extensive and enduring capability acquisition to be successful. The high failure rate among dot-com start-ups points in the same direction.¹⁰ Presumably, there are misconceptions about the nature and potential of electronic commerce, which can explain the high failure rate in both stand-alone electronic commerce ventures, as well as electronic commerce ventures within large business organisations.

⁹ OECD Report on The Economic and Social Impact of Electronic Commerce – Preliminary Findings and Research Agenda, 1999.

¹⁰ Death-watch, Feliciano Garcia, Fortune, April 16, 2001.

The differences between Compaq Corporation and Dell Corporation in terms of how they approach customers suggest a potentially fertile ground for investigating capability acquisition. Dell Corporation has established direct contact with its customers and has presumably configured its operations accordingly. In contrast, Compaq Corporation has been remotely connected with its customers, relying on channel members to manage its customer relationships.

There is an expectation that this difference, between direct and indirect customer contact, is a critical aspect likely to yield different ways of learning about and implementing electronic commerce. In addition, the interplay between Compaq Corporation and Dell Corporation, as well as between the customers of both firms, provide additional insight into the learning processes of the two firms.

By studying the acquisition of the skills for electronic commerce, the understanding of electronic commerce is enhanced. This applies in particular, with respect to identifying if there are similarities between electronic commerce ventures that has proved successful. In addition, the example of electronic commerce enhance the business administration literature by focusing on both the potential opportunities and constraints involved in capability acquisition, furthering our understanding of strategy formulation and implementation, and hence the scope for achieving competitiveness.

Purpose

When learning about electronic commerce in the mid-1980s and onwards, Compaq Corporation and Dell Corporation were obtaining capabilities to support their strategies and their competitive advantage. The critical issue that presented itself was how the two firms acquired electronic commerce capability and used electronic commerce to create and sustain their competitive advantages.

The purpose is to investigate the capability acquisition process associated with, and stimulated by, this new technology. This investigation is conducted with focus on the Swedish operations of Compaq Corporation and Dell Corporation. Towards this end, the investigation will address four specific questions, which were selected based on the questions, insights and ideas that emerged in the empirical preview.

- 1) What capabilities did Compaq Sweden and Dell Sweden use in order to engage in electronic commerce?
- 2) What means did Compaq Sweden and Dell Sweden use to acquire the capabilities they needed for electronic commerce?
- 3) Did the capability acquisition processes of Compaq Sweden and Dell Sweden change over time? And if so, how?
- 4) If the capability acquisition processes changed, why did they do so?

The Concept of Capability Acquisition

The definition of capability is discussed in Chapter 4. Given the precise meaning assigned to the word capability in the thesis, the two terms “ability” and “skills” are used to indicate the same or similar phenomena without the theoretical implication and reference. Acquired capabilities are added to and part of a capability portfolio. The capability portfolio concept implies a collection of capabilities that are interrelated and integrated. These capabilities can pertain to the whole of the firm or to a certain part of the firm. The capability portfolio concept is discussed further in the section relating to the resource capability portfolio in Chapter 8.

The term acquiring capabilities is quite similar to the term appropriating capabilities. When a firm acquires capabilities that confer a competitive advantage, the firm appropriates rents, that is profits and other benefits. By appropriating is meant extracting rents or other benefits of having or controlling a capability (Von Hippel, 1982; Levin et al, 1987; Teece et al, 1992a). The literature on appropriability is closely connected to the dynamic capability approach, and is focused mainly on internal sources of innovation.

Despite the fact that the term appropriate is used widely within the dynamic capability approach this term is not used further. The reason is that this term has gained a particular meaning, which is only partially relevant to this thesis. Instead the term “acquire” is used since it arguable more accurately captures the studied phenomena. Below the reasoning is spelled out in more detail.

By acquire is meant the process of acquiring a capability, regardless of its source, inside or outside of the focal firm, and regardless as to whether the actual acquired capability enables the firm to extract rents or benefits from the acquired capability. The term capability acquisition includes internal and external sources of capabilities. By acquiring is meant the process of obtaining the right and the possibility to utilise and access a capability, regardless of the source, in-house innovation or other means of acquisition. Furthermore, capability acquisition can imply a transfer of ownership of a capability, but not necessarily so. The usage of the term acquire to capture this broader phenomena instead of the more limited term appropriate is partially proposed by McKendrick (1994).

Pfeffer and Salancik (1978) used the term “resource acquisition”. Inspired by them, the term acquire is here used to include activities like creating, building, obtaining, leasing, combining, and harnessing a capability. All these activities of a firm are involved in the capability acquisition process. While the spotlight is put on acquisition, this emphasis invariably implies attention upon capability combination as well. The link between capability acquisition and combination is made in Chapter 8 and 16.

The focus is on acquisition of capabilities, not maintenance or discarding of capabilities (see Walsh, 1995 for a discussion on the importance of discarding old capabilities). Although both maintenance and discarding are relevant and interesting issues, and have been treated by researchers (see for instance Abernathy and Clark, 1985) they are largely ignored to limit scope and workload. The potential importance of maintenance and discarding is discussed at the end of the thesis, under the heading of issues for research.

Capability acquisition is understood to mean the process of making available to the firm skills, knowledge, routines, and practices with strategic value, within or outside of the studied organisation. Thus, the actual learning process, i.e. how these capabilities gain content and substance is not primarily investigated, but largely taken for granted. For instance, the process of writing a computer programme to support sales calls is not studied per se. This would demand a specified detailed study in itself. Instead, the computer programme is assumed produced or available for the firm to acquire, internally or externally, and to combine with other capabilities.

The term capability acquisition should not be equated with organisational learning as discussed by Levitt and March (1988), which is a broader concept, encompassing many levels and instances of learning, focusing on the internal learning process. As will be developed in more depth in Chapter 5, capability acquisition is considered a distinct organisational learning process, one among several other learning processes, taking place simultaneously within and outside of a firm¹¹. Hence, the capability acquisition process is thought to span across organisations.

This field or arena is called an industrial network. With industrial network is meant a number of firms and customers that work closely together for mutual benefit. These firms are related to each other and can be dependent on each other to varying degree. The industrial network includes private individuals as customers. The term industrial network is not assigned any theoretical implication beyond the suggestion that there is such a thing as an industrial network. This term should not be confused with the markets-as-networks approach, which is a particular way (i.e. a research approach) to look upon industrial networks. The markets-as-networks approach is described in Chapter 6.

What is investigated is how the firm acquires capabilities. It is assumed that capabilities has already been created, and what is under study is how this created capability is activated and mobilised, in order to be put to use. The separation of capability creation and capability acquisition is a simplification, since there is learning involved in capability acquisition. Capability acquisition is considered a part of the learning related to the organisation. Yet it includes both the internal properties and the external context of the firm.

¹¹ See Harvey and Denton (1999) for a recent discussion on the nature of organizational learning that has inspired this understanding.

To make the research effort feasible, it is assumed that capability acquisition can be isolated from capability creation, and other processes involving capabilities, like transformation or combination. If variation is found in capability acquisition patterns, it will be considered variation in capability acquisition, not capability creation, maintenance, or discarding for instance. The search for patterns is not an end itself, but a way to facilitate the investigation of the capability acquisition processes. The concept and notion of patterns is developed in Chapter 4.

Focus and Delimitation

Studies on capability acquisition have been largely confined to the efforts of innovators and imitators in R&D intensive manufacturing industries.¹² This thesis intends to complement this work by examining potential sources of competitive advantage in manufacturing industries that closely resemble service firms. This research area, as well as research on pure service firms, is relatively neglected by scholars of strategy and technical, and organisational change (McKendrick, 1994).

The concept of distribution systems integrated with manufacturing is rarely treated in the literature on dynamic capabilities. In addition, this study includes the customer as an actor providing capabilities to producers via business relationships and the learning that takes place between sellers and buyers. Furthermore, the focus is on capability acquisition in foreign subsidiaries, based on the assumption that important innovation with relevance to the centre of an organisation can take place at the periphery (Birkinshaw and Hood, 2001).

The focus is on capability acquisition of process or system knowledge rather than on a technology-based product or product-innovation. Thus, the investigation is about innovation of services and services related to physical goods that must be distributed physically, wholly or in part, to the user. Product technology is not excluded from, but it is of secondary importance. This focus is also in line with the classical model of product and process innovation presented by Abernathy and Utterback (1978), who argue that process innovation is a process that largely comes after product innovation has peaked.

This study is not a classical process study that focuses on what actions or streams of action led to a particular outcome. Nor is this study a classical effect study where an outcome is compared before and after, or compared with a reference group. Instead, this study is a hybrid that mixes both process and outcomes repeatedly to allow for an understanding of the phenomena under study. The focus is more on the process of capability acquisition than the outcome of capability acquisition. The description of the capability acquisition is achieved by identifying a number of outcomes along the way. In the description, discussion, and analysis, the understanding emerges, despite the blurring of these two research approaches.

¹² Mark Lehrer in *The Organisational Choice Between Evolutionary and Revolutionary Capability Regimes: Theory and Evidence from European Air Transport*, writing in *Organisational and Corporate Change*, Vol. 9, No 3, Oxford University Press, 2000.

This perspective fits with an understanding of organisation (or organising) as an ongoing accomplishment. This perspective has been an established part of organisation theory since Weick transformed the title of the Katz and Kahn (1966) book, *The Social Psychology of Organisations* (Katz and Kahn, 1966) into *The Social Psychology of Organising* (Weick, 1979). It shifts the focus from what an organisation or a structure is to how it is accomplished. This distinction is not always clear. For instance, Manning (1982) and Weick (1979) have suggested that structure consist of patterned actions. Several researchers have proposed that structure consist of relations between actions and the residue of past actions (Giddens, 1979, 1984; Sewell, 1992; Barley, 1986, 1990; Orlikowski, 1992).

The study is empirically focused on two cases in the computer hardware industry: Compaq Sweden and Dell Sweden. These two major computer hardware firms have been chosen as focal case firms. In addition, there is a complex interplay between the local, regional and global organisations of the firms, both within and between them. The ambition is to illustrate this complexity when possible and offer a perspective on capability acquisition, viewed from the periphery of large organisations, rather than the centre.

It should be pointed out that the cases presented deal with large established firms with significant technological and financial resources. The potential for giving guidance or making inference for improving acquisition of electronic commerce capabilities in small firms, public organisations, spin-offs or start-ups is limited.

This study is on Compaq and Dell in Sweden. This means that the focus is on the Swedish market and customers buying computers in Sweden. When and where global, European or Nordic considerations are important, they have been incorporated. Given the purpose of the thesis and the organisation of the firms, the cases cannot satisfactorily be delimited in terms of geography to Sweden. Hence, how capability acquisition activity is distributed across geographical and organisational levels is of interest and relevance. But it should be pointed out that the focus is on the Swedish market and the Swedish subsidiaries and the empirical investigation deals mainly with Sweden. The relevant scope is the means utilised to acquire electronic commerce capability to serve the Swedish subsidiary and market.

The firm can use dynamic capabilities to acquire new firm capabilities. The term dynamic capabilities are used to indicate both passive and active means, while active ones are named means. Volberda and Baden-Fuller (1998) have made this distinction and it is useful because it put focus that what is under study is those means that management can affect and control, at least to some degree. The notion of means is further presented and discussed in Chapter 4.

The case studies are tailored to illustrate the development of capabilities belonging to the firm in response to the advent of electronic commerce, focusing on what have been perceived to be critical incidents or events (Flanagan, 1954). Accordingly, a lot of information and events related to the firms during the period under study have been excluded. When events have been deemed marginally important for the Swedish context, they have been presented in brief to acknowledge the possible but marginal influence on the firms. The firms are treated as two separate cases, but are presented in parallel to indicate their interdependence and influence on each other.

Care has been taken to assume a user perspective, viewing Compaq Sweden and Dell Sweden as users of information technology and electronic commerce. Thus Compaq Sweden and Dell Sweden are studied primarily in their capacities as users of information technology, rather than sellers of information technology. Both firms have benefited from this double role. As will be illustrated in the case of Dell Sweden regarding the Internet, and Compaq Sweden regarding EDI, their ways of utilisation have convinced many customers of the virtues of electronic commerce and have contributed to sales.

Both Compaq Sweden and Dell Sweden have two main categories of buyers: businesses and private consumers. Since the history of the two firms is mostly connected to business customers, this category is given more attention. As will become evident in the empirical inquiry, both the business and consumer markets are fragmented and consist of a number of sub-markets. In addition, many individuals act as buyers both in their capacity as business people and private individuals, complicating the categorisation of buyers as either businesses or private consumers. Both theoretical and managerial implications are presented in the concluding discussion.

With the term customers is meant the customer that buys the product or service for final consumption and use. For the purpose of simplification the buyer and user is considered the same thing, although this is often not be the case or just partially be the case. When they are not the same, this is pointed out in the text. Within distributions systems many actors may perceive themselves as end customers, when they in fact are middlemen. In a sense everyone is a middleman since many firms that buy computers from Compaq and Dell sell something else, using computers to produce their offering. These remote forms of middlemen are not considered particularly. To avoid confusion actors studied in the cases are assigned various names as told in the beginning of Chapter 10. In particular a reseller, distributor or a solution provider is not considered a customer.

The focus on capability acquisition and customers is studied in terms of how capabilities are acquired, and is made dependent on how the focal firms, Compaq Sweden and Dell Sweden, are related to their customers. Frequently, the terms direct and indirect are used, indicating if the focal firms have direct or indirect contact with their customers. The terms direct and indirect are subsequently used in a number of capacities, as a part of names of business models, as names of theories of business, and as ways to acquire capabilities. Care has been taken in the text to indicate in which capacity the terms are used.

Structure

The thesis is laid out in 17 chapters. The present chapter presents the process that led to the formulation of the issue. Chapter 2 focuses on how this issue can be investigated. In Chapter 3 and 4, key concepts are discussed. Chapter 5 focuses on theoretical assumptions, and in chapter 6 a platform for further research is discussed. Chapters 7-9 develop a theoretical framework for analysing the cases, building and expanding on Chapters 4-6. In these chapters, a framework is developed to generate a number of theoretical tools, to facilitate the analysis of the empirical work following in Chapter 10.

Chapter 10 presents the cases of Compaq Sweden and Dell Sweden. In Chapter 11, the theoretical framework is contrasted with the empirical inquiry to generate a first analysis of the cases. In Chapter 12, the four hypothesised patterns are contrasted with the cases to generate understanding. Chapter 13 presents theoretical explanations, followed by Chapter 14 that summarises the conclusions. Chapter 15 discusses the contribution to the literature on business administration. Chapter 16 picks up areas that could have been developed more and which could be interesting to explore in future research efforts. Chapter 17 draws managerial insights on capability acquisition for electronic commerce.

2. Methodological Considerations

For every research effort, there are implicit or explicit choices made regarding what scientific assumptions will govern the study. The ambition with this section is to make the choices and supporting assumptions explicit and transparent to the reader. This chapter also focuses on key problems encountered while writing this work and so span across the entire text. By presenting this chapter at this early stage, guidance is offered into the construction of the research effort.

The chapter tries to chronologically identify the choices made and then goes on to indicate how this has affected other choices made along the way as this research effort has progressed. By following the path of discovery and writing, insight into the research process is provided, as well as appreciation of the results that can be generated from this research effort.

Choice of Research Object

This work started 1997 with an interest bordering on fascination in the computer hardware and software industry. As indicated, the firms of Compaq and Dell quickly caught the attention of the author and became the starting point. It soon became evident that the primary occupation of firms within the industry was distribution and that their preoccupation centred on the rise of electronic commerce. This general interest in computer hardware in particular was translated into a more narrow focus on electronic commerce. For several reasons, the computer hardware industry was found to be an interesting arena for the study of electronic commerce.

Computer hardware is a relatively homogenous product with a relatively experienced customer base in terms of Internet usage. In addition, the computer hardware industry provides input for other industries, which are set to eventually undergo similar transformations with regard to electronic commerce. Computer hardware could thus be an early representative of other industries and markets. The particular importance of ready-made components also makes distribution one of the few means of differentiation. The high degree of competition, the rapidly changing technology, the standardisation of components, the high growth rate, the focus on distribution for competitive advantage, and the pan-European industrial organisation combine to make the computer hardware industry unique and interesting to study (Economist, 2001).

Work started with empirical emphasis. No particular screening and evaluation was made of these two firms, which were chosen because they appeared to be industry leaders and because the industry and business media covered Compaq and Dell extensively. Compaq Corporation and Dell Corporation were perceived as representing different approaches to distribution and as being in confrontation with each other.

It was also decided that the cases would focus on Sweden and on the Swedish market. The basic view of the firms was thus established, with a focus on the competitive situation in Sweden, rather than the global competitive situation of the two firms.

Choice of Research Method

The focus on Compaq and Dell and on their histories made it natural to use a case method. It was perceived as a distinct value to document the history of the firms in Sweden. This choice of research method was made early in the research process and was closely linked with the empirical fascination. Initially, no thought was given to the benefits or drawbacks of using one or several firms. Later on, the case for choosing a case method was surveyed to find support for the choice made.

Given that our understanding of how firms acquire capabilities is still in a pre-theoretical stage of development (Teece et al, 1992), the case approach is deemed the most suitable methodology for exploratory work aimed at understanding. The case form has been chosen since it is suitable in generating theory form (Eisenhardt, 1989). This research effort does not start from scratch and there are substantial insights that precede this study. A basic premise is that little is known about the specific subject of inquiry, and that it is premature to test specific ideas. These ideas can be generated from this research effort. In addition, the particular direction of this research effort assumes that little is known about electronic commerce, as such, and little is known about capability acquisition in general and about acquiring electronic commerce capability in particular.

A theory-testing positivistic approach and design would not have been adequate for the purpose decided upon, since there were no ready research questions. The case study method allows the study of rich complexity through detailed analysis of a small number of organisations. Given that the purpose is to understand the acquisition of capabilities or know-how and to interpret it in terms of a historically specific context, this appears a reasonable choice in line with the proposition by Merriam (1994), who argues that the stated purpose should govern the choice of method. In this case, it was the other way around. The choice of research object preceded the choice of research method, which in turn preceded the choice of research questions. It was only afterwards that the choices made were thought about in conjunction with established research methodology.

Finding the Research Questions

In writing the cases, it was decided to focus on electronic commerce, since this was the new frontier confronting these two firms. At this time, mid 1997, electronic commerce was at the forefront of attention and the subject of frequent comment in the financial press. Both firms had in various press releases and formal statements indicated that electronic commerce was on their minds. As the cases were written, along the way various research questions were proposed and then elaborated upon:

- Where did Dell Corporation come from?
- How did this new business model emerge?
- Why did Dell Corporation grow much faster than the industry?
- How did this business model gain wider acceptance?
- What process gave birth and health to this approach?
- What process gave speed and momentum to this way of doing business?
- How did Dell Corporation learn to operate in the way it did?
- Was electronic commerce a precondition of its success, or was it of marginal importance?

Another interesting facet was the response of Compaq Corporation. How did it face and handle the challenge posed by Dell Corporation, with its direct business model? How did it reconfigure and learn new things to stay competitive? Did it emulate Dell Corporation or not? What process gave Compaq Corporation direction to adjust itself to the advent of Dell Corporation? How did Compaq Corporation react to the opportunity and threat of electronic commerce? What transformation process did electronic commerce induce on Compaq Corporation and its way of operation?

The notion of electronic commerce and the process of obtaining electronic commerce were given early attention. Both firms seemed to need to master electronic commerce for their competitiveness. At this stage, the concept of capabilities was present, but not at the forefront and it was only later that it would become obvious that the thesis would come to focus on capability acquisition. Instead, as related above, numerous issues and questions were pursued in parallel. Most of these issues would later be integrated into the final research questions, which were formulated during and as a part of the research effort, becoming sharper and more precise as the work progressed.

The focus on capabilities and on capability acquisition was a result of consulting the literature on theoretical insight for the purpose of learning more about electronic commerce. While much had been written on firms learning new skills in general, the subject of electronic commerce did not feature. After all, it was difficult to see how electronic commerce was different from other skills firms needed to learn. Thus, it was considered unlikely by the author that these differences alone if found would provide enough scope for contribution to the literature.

Instead, the learning efforts of the firms themselves were put in focus. The emphasis on electronic commerce was thus reconsidered, and changed into the empirical phenomena that the firms set out to learn more about, putting learning as such at the forefront. Following this path, a language for studying the learning of new skills was developed, providing input for formulating the final research question. The formulation of the research questions were not made initially, but were also an integral part of the research process.

While the theory and the cases initially focused on acquisition of capabilities for offering electronic commerce, the surveyed theory and the empirical inquiry indicated that many previous capabilities as well as capabilities not immediately associated with electronic commerce are necessary prerequisites to offer electronic commerce. Accordingly, the notion of capability acquisition in general is at the forefront of the study. This broader perspective is arguably needed for an understanding of capability acquisition as such and for electronic commerce in particular. As a result, electronic commerce is delegated to an example of capability acquisition. A benefit is that the impact of electronic commerce for overall competitive advantage can also be considered.

Case Study Design

While it was clear virtually from the outset that Compaq and Dell would be the case firms, an ongoing issue was whether the two firms constituted one case or two cases. Designing the form and scope of the case studies implies a trade-off between depth and breadth. One extreme is a case study of one singular object, which supposedly gives a large insight into the particulars of that case. This approach gives little or no opportunity for generalisation and no opportunity for comparison. The other extreme leads us to a large sample of cases, but which implies a sacrifice of the depth for each individual case. Having many cases implies a reliance on representation in a population, which belongs to the positivistic tradition (Yin, 1994). Which path was appropriate in this case?

For guidance in choosing the number of cases, it is worthwhile contemplating what assumptions follow with this choice. One class of assumptions concerns the nature of the being and existence of the phenomenon under investigation. These are the ontological assumptions. The second class of assumptions deals with the appropriate method to use in defining and circumscribing the phenomenon that is whether tightness of control or richness of reality is given more emphasis. These are the epistemological assumptions. Table 2.1 based on Marceil (1977) and Weick (1984) summarises the possibilities.¹³

In conducting a research project, a researcher must make a trade-off between pursuing "richness in reality" and insuring "tightness of control" (Mason, 1988). Going for control, is called "nomothetic" because it uses procedures to achieve exactness and aims to seek general laws (Hempel, 1965). Going for richness, is called "idiographic" because the uniqueness of a particular situation is stressed (Marceil, 1977). Rarely is a research effort confined to just one quadrant. Instead it consist of combinations of two or several quadrants (Mason et al, 1997). This study is ideographic in its design and centres on intensive examination of just a few subjects. It was more difficult to settle for an ontological position. Compaq and Dell were two different firms, but were they two different cases?

¹³ This matrix is drawn from Mason, R., McKenney, J. L. and Copeland, D. G. An Historical Method for MIS Research: Steps and Assumptions, Management Information Systems Quarterly, Vol. 21, No 3, September, 1997.

Epistemological Assumptions	Ontological Assumptions	
	People and events are more alike	People and events are unique
Nomothetic – selective examination of many subjects	Statistical research yielding central tendencies	Cluster of factor analysis
Ideographic – intensive examination of just a few subjects	Comparative case studies	Historical research

Figure 2.1 Possible epistemological and ontological assumptions

Initially, a comparative case study methodology was opted for, because the belief was that this was a more adequate way for answering the emerging research questions. This choice was based on the assumption that it would generate a fruitful understanding of the issues stated in the purpose. Furthermore, the opportunity to produce tentative knowledge that could function as input for further nomothetic inquiry and eventually generate knowledge capable of being generalised across geography and industries and culture was found to be attractive, as proposed by Yin (1994).

A number of factors contributed to this expectation. First, the cultural and geographical background of the two firms was similar (Texas, USA). Second, both firms have used the same key suppliers, mainly Microsoft and Intel, making them similar also in this respect. Third, both firms have offered a similar set of products and services. Fourth, both firms were started about the same time and have expanded similarly over time. Fifth, both firms have to a large degree served the same customer groups over time. Finally, a lot of staff working at the two firms have changed jobs within the firms or left the firms. Staff has also moved between these two firms. In addition, many people that have joined the firms have previous experience in various related high-tech businesses or businesses which have applied electronic commerce. These factors together made it reasonable to assume that there are similarities as to how the two firms have acquired electronic commerce capability.

By comparing two similar cases with regard to the phenomenon under study, i.e. capability acquisition, the two cases were expected to be similar enough to allow for an ontological viewpoint, where people and events are alike. Presumably, by uncovering similarities, understanding would be enhanced. This choice of ontological position was adopted and guided the case writing. This choice eventually ran into trouble, because the firms were similar in many respects, but not in the dimension particularly under study.

In addition, the interplay between Compaq and Dell introduced an additional analytical dimension, which implied that the cases in fact could be seen as one case. Eventually, it became evident that the link between the firms was not of marginal importance, since it was found that they acquired capabilities from each other, as well as from their customers and channel members and channel partners. A rewrite of the cases would have indicated even further and deeper interplay between Dell and Compaq, moving the cases more clearly into the realms of historical research. In practice this would have been beyond the possible, because of lack of data.

Consequently, this thesis is also to some degree an example of historical research. The principal product of historical research is context, or one case - an understanding of the organisational, individual, social, political circumstances in which the studied phenomenon presents itself (Mason et al, 1997). As a result of this unexpected and unplanned turn of events, a middle ground has been achieved, creating room for comparison to facilitate analysis as well as historical research (Tesch, 1990). Compaq Sweden and Dell Sweden are considered representative cases of two distinct ways of organising distribution. A small number of other firms, such as Gateway2000, IBM, HP, and Apple, as well as the computer industry, are studied in order to deepen the understanding of the context in which Dell and Compaq reside.

The unclear ontological position taken as a result should be considered a strength, because it has allowed the research effort to take multiple and simultaneous directions, and actually facilitate clarity with respect to what is similar and dissimilar in the cases. In fact, a question in the thesis is whether the capability acquisition processes of Compaq Sweden and Dell Sweden are unique or not, and if it is one or several capability acquisition processes.

Information Sources

The cases are built upon a number of information sources. In order of importance they are: interviews with present and former executives and staff, employees and outside analysts, annual reports and taxation returns, written corporate sources and web sites, other research reports on the industry, its firms and business magazines, and daily newspapers.

While industry executives have been helpful to up to a point, the most valuable people to interview have been personnel who have worked in the industry for a long time. The rapid turnover in people has made the "memory" of the organisations short and patchy. Neither of the organisations has tried to record history in a systematic way, complicating data collection. Compaq Sweden after a while became reluctant to share information and refused to warrant interviews, citing shortage of time.

A questionnaire was prepared before each interview with open questions. This questionnaire was constantly reworked and augmented as the study went along (see appendix 3 for a representative example). The people interviewed were asked to point to other relevant persons who could be interviewed or who might provide information. If possible people were interviewed two or three times. (See the table enclosed that reports the interviewees, including title and main responsibility).

The interviewing continued until the incremental learning from another interview became minimal, as suggested by Pettigrew (1990) and Eisenhardt (1989). A number of interviews had to be cut short because of lack of time for the interviewed. In the case of Compaq Sweden, the problems with getting interviews and obtaining useful information made the author focus on other actors in its distribution system. The behaviour of Compaq Sweden was also peculiar in that those who were interviewed focused on getting information from the author, rather than giving information.

A key reason for the differing experiences at Compaq and Dell in Sweden has been the turnover of people in Compaq Sweden. The key person Per-Olof Berg, who was the Chief Financial Officer of Compaq Sweden at the time, and who had accepted the research project in 1997, during 1999 left for a new position in Munich at the European headquarters of Compaq EMEA. Since then, access was limited. The same thing happened at Dell Sweden, when Ulf Sandmark, the managing director of the Nordic Region, left. But in the case of Dell, responsibility was transferred to Per Eriksson, the in coming managing director for Sweden who maintained the relationship. A related difficulty has been the varying commitment and attention given to the project from the case firms. Sometimes, the feeling has been that they have been ready to have contact with the author if they had had a good quarterly result, and vice versa.

In addition, there was a constant feeling with many interviewed persons that they were careful with what they said, and that they frequently resisted answering questions. Notes were returned to each person interviewed shortly after the interview. The interviewed person was then allowed to comment and correct his or her statement. Objections raised by the interviewee were always accepted to safeguard the trust with the organisation and the interviewed person. In some cases the opportunity to change the statement afterwards altered the content of the interview substantially.

A striking feature of the interviews was that statements often were in conflict with each other. All information, regardless of source, had to be evaluated and related to other pieces of information, making the case study writing the result of a cumbersome puzzling exercise. When there have been controversies of major importance they have been indicated or presented. But in general, the author has made an interpretation of the data available and presented his view of what happened.

Various drafts of the general case descriptions were sent to the firms to receive feedback and check for errors or misconceptions. Suggestions and comments were collected for a final version that was also checked with the firms. One critical problem was the turnover in people and the change of staff that these firms encountered. In some cases, the interviewed person had only served a short time period, limiting the ability to provide information. During the most intensive period of interviews, the autumn of 1998, most people were available and accessible. While about 40 interviews were carried out in total, the attempts to make about additional 40 interviews were unsuccessful, as the people contacted declined to participate. Often Compaq Sweden executives who declined stated that they were forbidden to participate because of the sensitivity of the questions posed and because they were ordered to decline by senior management.

Despite repeated attempts it has been impossible to gather any meaningful data on how the management teams acquired capabilities from competing firms. Virtually all interviewed people were extremely careful with regard to imitation and emulation of competitive behaviour, and persistently stressed their own internal ability to generate new innovations. Time after time, indications could be found of cross-fertilisation in how the firms behaved over time, which suggested that they also acquired capabilities from each other. This dimension is difficult to capture because there are numerous competitors that affect the firm, as well as customers, channel members, channel partners and suppliers. Sorting out the various influences in a systematic manner has not been possible.

The struggle in collecting data has been a severe problem, which has been difficult to solve satisfactorily. This has had considerable bearing on how the cases have been constructed and what research issues have been posed. It has been disturbing sometimes to be restricted by the empirical material, rather than being able to conduct a more free inquire about the firms. Funnily enough, the restricted access and inability to study capability creation shifted attention towards capability acquisition, a data type considerably more accessible.

The difficulty in gathering primary data inspired the attempt to complement the cases with as many numbers as possible. In order to substantiate the cases, a number of sources for quantitative data have been utilised to produce figures on R&D spending, new product launches, number of segments served, and number of configuration combinations.

All data, regardless of type, are analysed and applied qualitatively in the study as proposed by Trost (1997). It should be noted that many figures are questionable and in many cases it has not been possible to assess how they have been compiled. Comments on the quality of the data are made in connection with the presentation of that data. Where possible, the figures have been cross-checked to uncover inconsistencies and as a general rule, firm sources have taken precedence over other sources, because they have been deemed trustworthier. With regard to the figures there are two particular disturbances. First, it has not been possible to gather quantitative data on the performance of the local Dell Sweden unit. Secondly, the corporate figures are not comparable, both with respect to definitions and scope: they are presented as is.

Presentation of the Cases

The presentation of the cases is a methodological issue. The case descriptions are subject to an extensive filtering process in several steps: the selection of the cases, the time periods, and the focus on Sweden. The emphasis on particular types of events, the information gathered, the emphasis given to various types of sources, and the identification of both static capabilities and the means to acquire them is a result of a subjective thought process. This process cannot be easily repeated or reproduced, and the same or similar research effort made by the same researcher yield a different result. The presentation of the cases is of great importance since they represent the final result of the data gathering process.

While the ambition has been to present the reader with events that appeared to be of fundamental importance to the development of electronic commerce, subjectivity and chance cannot be controlled adequately. In order to reduce the subjectivity, the context has been kept and maintained throughout the cases. When available, richness in detail and figures has been incorporated, both to support the interpretation of the author and to offer room for alternative interpretations of the data presented.

The overall aim with the structuring of the case studies has been to support theory building, in line with the overall objective of the thesis, and as proposed by Yin (1994). In addition, a goal has been to facilitate comparison and contrasting, both between the cases, but also between different time periods of the cases. The key processes identified in the problem area have come to govern the empirical presentation. The theoretical framework as well as the interpretation and concluding discussions have also been organised accordingly. It is readily acknowledged that the phases, i.e. business models, presented in the thesis are the creation and construction of the author and is a result of an individual process of interpretation, to facilitate understanding of the phenomenon.

An effort has been made to make the cases cover the same time-period within the structure of the thesis, particularly in the empirical investigation. The cases are presented chronologically as far as possible within their sub-structure. That is, under a given business model the cases are presented chronologically. The cases have been made comparative where possible (Yin, 1994). The cases can be described as embedded in their design (Yin, 1994). The cases are presented on a number of levels; the cases focus on Sweden, but touch upon Europe, and global issues for the companies. Within the cases there are also small sections focusing on particular issues, in order to enrich the cases and the understanding of the capability acquisition process.

The business models serve as constructs in which to arrange the empirical material (the business model concept is discussed in Chapter 4). The business model concepts were initially found in the case of Compaq Sweden, which used the Optimised Distribution Model and the Customer Choice Model to depict the evolution of the business. The delimitation of the business models has been made as carefully as possible, but carries arbitrariness. The shift from one business model to another is gradual and hard to link to a certain point in time. Rather than guess on the precise date of a particular event, events have instead been grouped in business models. The positions in time of the business models have been checked with both Compaq and Dell in Sweden.

In the cases and subsequent analysis it will become evident that there are alternative ways to describe and delineate the cases. A possible description of the cases would be to suggest that there is basically one business model for each firm. An alternative would be to describe the case without any division into business models. Or a stricter chronological or more thematically oriented presentation would be possible. The main motive for using the business models was that they fitted the stories nicely.

The cases have been written as if they portray a single true story. There is no such story, but it was thought impossible to present alternative views because of lack of access to data. The cases cover too much ground and too many events, making it unworkable to present controversies and parallel interpretations. In addition, in the view of the author it would not strengthen the quality of the cases, since the choice and presentation would also entail choices and so suggest an unwarranted degree of objectivity.

Instead, there has been focus put on finding data that is high on accuracy, with regard to the fact that it actually has happened. Events have been crosschecked on numerous occasions. Since the focus is on capability acquisition, a key task when writing the empirical cases has been to identify capability acquisition which most data sources, would confirm had happened.

The research project itself has taken a number of years. Gathering of data started towards the end of 1997 and continued during 1998-2001. Most of the process has been studied ex post, save for the last business models. This implies a number of disadvantages. Individual views and impressions change over time. What was a motivator for a particular event and what reasons were given for a particular event are reconsidered and reformulated over time. This is particularly so since the interpretation of what has taken place in the organisation is constantly evaluated and reinterpreted as the process evolves.

There can also be instances of political considerations that are aiming at the future, explaining why events are depicted as more or less significant than they actually were (Jarrick and Soderberg, 1993). In collecting data, there is already an element of history writing and synthesis that has been made by others before they provide input, further diluting the data collecting, interpretation and writing process. By following the firms over a prolonged period of time, it has been possible to avoid or reduce these potential fallacies.

Understanding and Explanation

Given the choice of research objects, the choice of research method, the nature of available data, and the presentation of data, as discussed above, a key issue is what kind of results can be readily obtained from this research process.

Within the field of marketing, strategy and organisational behaviour, two approaches can be identified regarding assumptions on how the world is constructed. The first one is the positivistic view on science that tries to depict a concrete, objective reality, and is in search for causal patterns that explain how various objects are related to each other (Friedman, 1953). These casual patterns are presumably stable and will repeat themselves in new settings, and lend themselves to generalisation and to prediction. In addition, this view on science postulates an external objective reality, which is independent of the researcher and which can be observed without any cognitive fallacies, which alter or confuse the objective reality (Hunt, 1992).

The second approach's scientific viewpoint is that of an interpretative view on science that tries to understand phenomenon within its own context. No stable pattern can be identified that can be expected to repeat itself or lend itself to generalisation and prediction. In addition, the researcher is not independent in relation to the object of study and will also distort and confuse the inputs generated during the study (Suppe, 1977).

The two approaches are not considered as mutually exclusive. Instead they are regarded as complements to each other. Since the phenomena are not well understood the initial focus is put on understanding. For instance, the concept of capability acquisition is unclear, like the relation between it and other critical concepts utilised in the study. Furthermore, the nature and scope of the results that can be derived cannot easily be predicted. According to Miles and Huberman (1994), focus on understanding a phenomenon provides a foundation for further research. Understanding of capability acquisition will primarily be sought for in this study, with a secondary ambition to provide explanations, as found typically in more positivistic research approaches.

The notions of understanding and explanation should not act to prohibit exchanging tools and methods between the two scientific approaches, especially on a lower level of abstraction where complementary methods can be used (Arbnor and Bjerke, 1994). This stance can be called the pragmatic positivist, implying that the social construction of reality is accepted.

The causality presented, despite being imbued with an aim of external and internal consistency as well as persuasiveness, still remains a subjective understanding. In particular, this becomes clear when the variations in sources and the differences between the sources are considered. Instead of presenting controversies or different views, one subjective interpretation of the cases has been made.

Knowledge cannot exist outside of context. The pre-understanding decides the interpretation and the new emerging understanding. Thus knowledge is created on the basis of a given pre-understanding. (Helenius, 1990). This view can be contrasted with Glaser and Strass (1967) in their discussion on "The discovery of Grounded Theory", in which they suggest that inductive knowledge is created without pre-understanding or theory. Pre-understanding is considered ever present, influencing the knowledge creation process. A personal antecedent, beyond education, general experience as a computer user, and culture, is that the author has been a customer of both Compaq and Dell in Sweden during 1995-2000. Hence, the author has been able to follow the firms consistently from a customer perspective.

Accepting that there is pre-understanding that influences the research process, one of the most important moments for a study is to clarify the frame of reference or theory on which the interpretation is based. This is done in coming chapters, particularly in Chapter 4, where a research vocabulary is created. The circular process contributes to the development and change of this frame of reference during the study. It is through the clarification of the circular process that the validity and reliability of the study is safeguarded. The knowledge creating process thus becomes important in itself, not only the final result of the study (Helenius, 1990; Alvesson and Sköldbberg, 1994).

The pre-understanding of the phenomenon generates an orientation of pragmatic validity. The importance of capability acquisition in general and for electronic commerce in business is perceived as highly relevant. Electronic commerce is thought to contribute positively to the evolution of the industry and to the application and improved usage of electronic commerce. On this basis, knowledge creation about this phenomenon is regarded as important, and may in turn contribute productively to the firms and organisations within and outside of the computer industry considering utilisation of electronic commerce applications.

Knowledge building involves two marked traits of synthesis and history. Synthesis is created as a sum or order, which arises among many seemingly disparate elements: the pre-understanding of the author, the pre-understanding of other researchers, the behaviour and relationships between the actors, and resources available to the actors in the studied empirical material. History implies that individuals, firms, or networks of firms are not black boxes, but are embedded into a context and driven and motivated by meaning set in time and place (Helenius, 1990).

It is possible to formulate contrasting hypotheses and test them separately, and not integrate them into synthesis. A classical example of this is Allison (1971) who explained the same phenomenon, the Cuban missile crisis, by posting three competing theories. In this case, the reader was presented with three conflicting interpretations, and the production of synthesis rests mainly with the reader. Knowledge is created through a synthesis of different perspectives on the phenomenon in question. Thus the different perspectives used are allowed to complement each other, rather than just compete, and are thereby invited to enrich and augment the presented understanding.

Taking this additional step implies that the hypotheses can either stand alone, or be integrated and contribute incomplete facets of understanding. This can be called aspect viewing or using interpretative keys. An aspect must convey insight to be valid or useful for the synthesis creation. Using aspect viewing, the phenomenon does not occur in itself like a riddle that has always been there and now awaits its uncovering and solution. Instead, by constructing various hypothesised patterns to analyse the phenomenon, new interesting things can be seen and understood. These insights can then in turn form a basis upon which to formulate precise hypotheses.

The attempt to explain the capability acquisition process is manifested in four hypotheses that separately or together are expected and assumed to explain it. The hypotheses are the 1) supply pattern, 2) the resource portfolio pattern, 3) the trajectory pattern and 4) the performance pattern. These patterns are hypotheses, i.e. possible explanations of the identified patterns. The term pattern is used to indicate that the hypotheses are broad and indicative, rather than precise and ready for testing and measurement. Hence, the focus is more on understanding than explaining.

The search for understanding is translated into a focus on developing theory on the economic organisation of business models and the evolution of theories of business, with a particular focus on a certain type of firm learning processes i.e. capability acquisition. The thesis builds on previous research and expands on what already has been done, contributing to knowledge building in the chosen area of research.

Dependent and Independent Variables

Having noted that explanation might ideally emanate from a research process, but that it is likely that understanding can be generated at best, it is nevertheless worthwhile discussing on somewhat disciplined terms what is investigated. The ambition is to enhance understanding of how firms acquire new capabilities. The starting point in the thesis is that firms acquire static capabilities to become and stay competitive, by using a number of dynamic capabilities. These concepts will be discussed in detail in Chapters 4-9, where the active dynamic capabilities (the means) are put in focus. The usage of dynamic and static capabilities is understood to be an ongoing process - a "capability acquisition process", without any clear start or end. Furthermore, capabilities as such gradually change, mature and grow, making them elusive objects of study. The author sets out to try to understand and explain this process - the dependent variable.

A difficulty is that of delimiting a capability acquisition process. The cases are likely to include numerous instances of capability acquisition. Should they be considered one or several processes? Does it matter if they are considered one or several processes? The adopted view, whatever that view is, of what constitutes a process lead to less attention on the interplay between the capability acquisition processes, focus on the wrong capability acquisition process, or some other fallacy. To avoid missing out on interesting insights, each firm will be considered as involved in one capability acquisition process, involving numerous sub processes of which a few will be focused upon.

The capability acquisition process may or may not exhibit a pattern. Whether there is a pattern or not is subject to question. This pattern may be composed of various combinations of means and capabilities that exhibit themselves over time in expected or unexpected combinations. Finding the pattern is expected to reveal and confer insight into what can explain the capability acquisition process. Accordingly, by searching for patterns, it is assumed that it will be possible to obtain understanding about the capability acquisition process. Accordingly, the capability acquisition patterns are a proxy for the capability acquisition process.

While it is clear what is to be understood and explained, namely, the capability acquisition process, the nature of the independent variables is blurred, since there is multi-causality with circular influences that over time forms the capability acquisition process. Despite this problem, a number of influences are identified as sources for understanding and explaining capability acquisition processes. It should be pointed out that these influences are part of the process, and cannot be considered as independent variables, particularly over time.

The reason for the preoccupation with the capability acquisition process is to create strong theory on capability acquisition. As expressed by Sutton and Staw (1995): “theory is about the connections among phenomena, a story about why acts, events, structure, and thoughts occur. Theory emphasises the causal relationships, identifying what comes first as well as the timing of such events. Strong theory in our view, delves into underlying processes so as to understand the systematic reasons for a particular occurrence or non-occurrence”.

The ambition in creating strong theory is to investigate the capability acquisition process, being a key facet of strategy making. As a way to achieve this, the question of whether there are patterns of capability acquisition is posed. For a capability acquisition pattern to emerge the implicit assumption is that firms and industries evolve over time under regularity. The position assumed here is that of Nelson (1995 and 1996), who argues that firm and industry development involve both random elements that generate and sustain variety and systematic elements and shaping forces. The task is to uncover any pattern or patterns, i.e. to identify the systematic elements, and, if they can be found, to understand them and hopefully translate them into insights about the capability acquisition process. Finding that there is no pattern also deserves attention in terms of understanding and explanation.

There are two approaches to the task of uncovering patterns and evaluating them. By using previous literature and research, various hypothesised patterns may be developed, refined and tested using a deductive approach (Cooper and Emory, 1995). Alternatively, the empirical cases at hand can be investigated in a grounded theory approach, using an inductive approach, whereby theory is generated based on the findings in the empirical cases. The advantage with a grounded theory approach is that it allows for discovery of patterns previously not thought of and generate more novel theory and truly new understanding (Strauss and Corbin, 1990). The disadvantage is that the search for patterns can become unstructured and uncover seemingly interesting patterns, which upon further investigation mostly provide confusion.

The search for patterns is carried out using both inductive and deductive chains of reasoning in a sequential manner. The dominating approach is inductive, despite the structure and presentation of the thesis. The findings are generated by the gathering of anecdotal facts or pieces of evidence, both from the empirical inquiry and the theoretical framework. The findings presented are based on an inferential jump beyond the evidence presented. While the explanations presented may be true, there may be other explanations that may also be true, not uncovered by the research effort (Cooper and Emory, 1995).

The Role of Managers

As will become evident and is discussed in Chapter 5 the role of managers is of importance in the thesis. It is therefore worthwhile to make the standpoint taken clear. This thesis takes a voluntaristic micro-perspective as a starting point. This view assumes that management of a firm has choices. Choices are perceived as bounded in rationality and limited by deterministic influences from the firm environment. This position is in line with the resource-based-view and the dynamic capability approach, which have explicitly adopted bounded rationality as a key assumption about decision-making behaviour (Simon, 1957; March, 1978; Schoenmaker, 1990; Amit and Schoenmaker, 1993). This position has come under increasing pressure, as work in the resource-based view and the dynamic capability approach has progressed.

From the outset it was thought that the micro-voluntaristic view would suffice also for this study. But studying a process that involves managers demands comments on the role of managers. In particular since it is difficult to delimit independent and dependent variables satisfactorily. If managers controlled the capability acquisition process entirely, focus could be put upon the actions of managers and the rationality of their behaviour. If managers do not control the process at all, focus should be put upon other factors or influences. But what if, as is likely, they have partial influence? How does this affect how the capability acquisition process should be understood?

		Deterministic	Voluntaristic
Macro	View	Natural Selection	Collective-Action
	Structure	Economically and technically determined	Network groups interact to construct their collective environment.
	Change	A natural Evolution, the economic context circumscribes the direction	Collective bargaining, conflict and negotiation
Micro	View	System-structural	Strategic choice
	Structure	Roles and position arranged to efficiently achieve the function of the system.	Organised to serve the choices and purposes of people in power.
	Change	Divide and integrate roles to adapt to changes in environment, technology and size.	Environment and structure are enacted and embody the meaning of actions

Figure 2.2 The possible roles of managers in firm decision-making

There are several problems with the micro-voluntaristic position and view on strategy that should be pointed out. This study identifies and relates extensively to the firm and its context or environment. What happens outside of the firm at the macro level or semi-macro level, at channel partners, channel members, customers, and competitors, affects the firm. Regarding the macro perspective, industrial networks and relationships with other firms are incorporated in the analysis as means available to the focal firm for capability acquisition. Managerial choice is not only limited by bounded rationality (Simon, 1957), but also by both deterministic and voluntaristic influences at the macro level, beyond the full control of managers. For instance, voluntaristic collective strategy making by distributors is likely to severely affect managerial choice for computer manufacturers at the micro level.

Already Schumpeter (1942) discussed the declining importance of the individual entrepreneur (and to some degree managers in general). Schumpeter claimed that by means of modern modes of organisation and technology, the innovation process would become increasingly automated. Innovations would no longer be associated with the efforts and brilliance of an individual.

Mölleryd (1999) shows that entrepreneurship should be understood as a function that could be carried out by a broad variety of agents. He views entrepreneurship as originating from three sources: 1) the individual as entrepreneur, 2) the firm as an entrepreneur, and 3) the network as an entrepreneur. It can be inferred from Mölleryd that entrepreneurship is a broad and multifaceted activity and hence that the role of managers can vary considerably over time and between firms.

Another related problem is the basic assumption adopted that strategy is not created on one level in an organisation. This implies a view of strategy, where the role of the subsidiary is not only or primarily to adapt global strategies to local circumstances (Chakravarthy and Perlmutter, 1985). Instead people, organisation, technology, partners, geography, competitors, and the environment at large by different expressions, bearings and implications are believed to influence the strategy creating process. This implies an organisation where assets are dispersed, interdependent and specialised, with knowledge developed jointly and shared world wide making the firm transnational (Bartlett and Ghosal, 1989), and so further indicate that both micro and macro-deterministic influences should be acknowledged.

In fact the various theoretical perspectives employed complement the dynamic capability approach in this respect. Confusingly enough, they are not easy to categorise simply as micro-macro or deterministic-voluntaristic. For instance, the markets-as-networks approach rests on the integration and bridging of a micro-deterministic view with a macro-voluntaristic perspective. The same can be said for much of the literature on distribution channels and market systems. While evolutionary economic theories start with a macro –deterministic view, they then flirt with the degree of managerial agency, thereby considering a micro-voluntaristic possibility. Furthermore, the author is attracted by the virtues of a macro-deterministic view, considering firms as “supertankers” that are hard to manage or control by the individual manager. The writing of the cases with a small role assigned to managers reflects this attraction.

Regardless of view, the focus of the study is on change, the shifting from one structure to another. Strategy is considered “created” in an ongoing fuzzy process that cannot be defined or simply identified either as micro-macro, or as deterministic or voluntaristic. The role of managers cannot satisfactorily be delimited. Instead, the large focal firms studied can be considered hierarchies that exploit competitive advantages derived locally, in a global context (Hedlund, 1985). Furthermore, the organisations are considered multi-focal, implying that firms can shift the location and logic of decision making from a national to global level and back, depending of the decision at the given point in time (Doz, 1986). The same process can be imagined between individuals and management teams as various levels, with individuals within and in other organisations momentarily assuming critical roles.

Reflecting this understanding of strategy, it has been deemed necessary to present and discuss events that take place on different levels of analysis, where both micro and macro aspects are included. Furthermore, it will later be argued that the understanding of strategy creation can be enhanced by the study of events on different levels of analysis. Compaq Sweden and Dell Sweden can be understood in several ways, depending on whether a micro-macro, voluntaristic-deterministic perspective is taken. The benefit of thinking in terms of the matrix is more for categorising various parts or aspects of a phenomenon to enhance the analysis.

In order to provide a foundation on which to analyse both voluntarism and determinism, the study is longitudinal and it is believed that change must be studied under a relatively long time period in order to allow for in-depth understanding. In fact, the electronic commerce phenomena occupy different roles and positions vis-à-vis the firms over the studied period, making flexibility with regard to analytical view important. The studied learning effort implies that the role of electronic commerce changes. The content of the empirical investigation is focused on a time period, the late 1980s and 1990s, when information technology made it possible to distribute and manage information electronically and to apply electronic commerce for business (Jonscher, 1994). The importance to the firms of this technology has changed dramatically during that time period.

Arguably, the research questions posed can be addressed more successfully, if it is possible to consider and combine various positions in the matrix. The relative importance of voluntaristic and deterministic influences with regard to electronic commerce and on the strategy development process is an area for exploration and investigation. Comparing and contrasting the hypotheses and ideas that emanate from taking different positions can advance understanding and explanation.

The Quality of the Results

Framing this discussion in terms of the classical concepts of validity and reliability, the issue is how they can be approached within the context of qualitative research in general and the path taken here. Validity is defined as the absence of systematic measurement errors. Validity can be divided into internal and external validity. Internal validity is a measure of the degree to which measure instruments measure what they are supposed to measure. External validity is the degree to which the measures yielded by the instrument correspond with the phenomenon that the author is trying to assess (Lundahl and Skarvad, 1999).

Merriam (1988) asserts that if understanding is the major motive behind an investigation, there is a need to use different criteria for evaluating the results as compared to an investigation that aims at testing a hypothesis. According to Merriam, external validity is meaningless within case research, since the cases are being selected based on usefulness rather than probability. Case research should be chosen when a certain situation, person, or incident is to be analysed in-depth, not when the aim is to make generalisations.

While the cases have been selected precisely because of their particular characteristics, there is an attempt to introduce a degree of external validity by claiming that the two cases serve as fair representations of two theories of business, namely that of indirect and direct. The argument being that companies tends to use either a direct or indirect theory of business. Thus these cases not only have particular characteristics, but also serve to illustrate two general approaches to organise capability acquisition in the distribution system.

During the course of the research effort a degree of internal validity has been obtained by triangulation, where several sources of information have been used to validate the data. Furthermore, the firms have been involved and have participated in frequent discussions during the research process. All those interviewed who have provided information have had the opportunity to assess the descriptions and interpretations.

In addition, the longitudinal cases, as well as the information gathering as such, has facilitated consistency checking and repeated observations of the same or similar phenomena. This last aspect has been important for building up the confidence of the researcher in finding and arguing for the quality of the results (Merriam, 1988).

Bonoma (1985) claims that there is a trade-off between external and internal validity, i.e., precision in measurement is often obtained at the expense of the contextual richness of the findings. In the present work, richness and precision in measurement has been attempted simultaneously. This ambition has implied a cost in terms of reduced external and internal validity. Both with regard to precision in measurement and contextual richness, the nature of the research effort make it difficult to establish the degree of external or internal validity. Hence, both external and internal validity must be considered low.

Bonoma (1985) suggests that depending on research purpose, different methods are more or less useful. When the existing body of theory is well developed, methods oriented towards quantification and falsifications are recommended. When research is more oriented towards building theory, description, classification, comparison, are more suitable research methods. Again this thesis takes somewhat of a middle ground, using hypotheses to structure and frame the discussion and analysis, which is mainly focused on building theory. In this regard, the tasks of description, classification, and comparison does not become less relevant in obtaining as strong internal and external validity as possible.

Lundahl and Skarvad (1999) define reliability as the absence of stochastic measurement errors i.e. the measurement is not affected by the person who conducts the measuring or the conditions in which the measurement is made. In this present work reliability is low. The notion of reliability is based on the assumption that there is only a single reality that will yield the same results if studied repeated times by using a method with a high reliability. This is particularly problematic here, since, by using qualitative research methods, the task set out is to identify and isolate patterns of human behaviour, and to understand and explain these patterns.

There is great risk that the search for patterns affects information gathering and the construction of the cases. One way to reduce the extent of this problem is to strive to enhance reliability, by providing transparency with regard to how this research effort has been carried out. As indicated in Chapter 2, there have been numerous difficulties in carrying out this research effort. A key problem in this regard has been access to the two organisations, and the difficulty in maintaining neutrality, disassociating personal views, biases and perspectives, both as regards the author as well as the interviewed.

By explicitly describing the observational procedures, similar studies can be carried out. If future stories of Compaq and Dell in Sweden during the same time period prove similar to this particular account, and then the reliability of this study can at that time be evaluated as legitimate. Until then, the stories of Compaq and Dell in Sweden as well as the interpretation, understanding, and explanation should be considered accounts of capability acquisition processes, which have been produced with many influences distorting the research process and shortcomings in terms of reliability. Further studies should be opting for other research designs and methodologies that try to remedy these shortcomings.

Documenting the cases constitutes an interpretation in and by itself, in the selection of the case firms and events included and excluded. While the ambition has been to offer a rich description, neither the empirical investigation nor the empirical presentation is exhaustive in the true sense of the word. The information gathered is far from complete and the presentation and organisation of the cases imply further interpretation and filtering. As a result, the nature of the results is tightly linked to the research process. Repeating the same study of the same firms but looking from a different angle might yield a different description of the cases and accordingly a different interpretation.

To summarise, the results of this study should be considered as ideas that have not been proven or substantiated, but which are posed for further inquiry. The results are by no means valid or applicable in a general sense. The task of this thesis is to make a persuasive case for the importance and relevance of capability acquisition, and to create an agenda for further studies that build on this thesis and more carefully address and investigate ideas and issues presented here.

3. The State of Electronic Commerce

The ambition with this chapter on electronic commerce is to focus on three themes. Firstly, the concept of electronic commerce is discussed and defined. Secondly, research on electronic commerce is summarised. Thirdly, by relating this study to other research efforts in sociology, economics, consumer behaviour research, supply chain management and the general information systems literature; an attempt is made to identify previous research. The ambition is not to be exhaustive, but to sketch out antecedents and in particular to point out literature that has influenced this research effort.

The New Economy

Several writers (see for example Negroponte, 1995; Tapscott, 1996; Dertouzou, 1997; and Bakos, 1998) have depicted the new emerging digital reality, generated by the advances of computers and communications during the second half of the 20th century. Kelly (1998) suggested that there were new rules of business that would be applicable for the economy, inspired by Toffler (1980).

One early contributor to the study of the information revolution was Bell (1973 and 1979). Bell suggested that the merging of computers, telephones, and television would transform society profoundly. Not only would the information revolution change the way business would be done, but he also discussed the possible impact on personal liberty, distribution of power in society, the diversity of cultural expressions. According to Bell, technology does not determine social structure; it simply widens all kinds of possibilities. It is up to society to decide on how the new technology should be used.

Zuboff (1984) focused on how work and organisation would be transformed by the digitalisation and computerisation of society. Zuboff discussed how the computer could influence humanity, exploring such themes as decision-making, knowledge redistribution and human behaviour. Zuboff predicted human dependence on computers and introduced the computer as an actor into the social system, with powers beyond “traditional machines”.

Turkle (1995) made a contribution, with regard to how computers influence humanity, writing of culture on the Internet. Interaction between people via computers was the key phenomenon. She explores such subjects as identity, sexuality and gender in a framework of human-computer interaction, and in particular discusses the confusion that computers can create by mimicking humans, introducing the notion of people and machine as two interacting actors that are difficult to identify and separate from each other.

Brown and Duguid (2000) have offered a critical commentary on how technology tends to focus on individuals and obliterates social organisation. They argue that information driven technologies breed “tunnel vision”, i.e. neglect of wider social and organisational context. With regard to learning they point out two aspects, which they argue are materially enhanced in an information dense society. The first aspects relate to the possibility to interact and build relationships with other people, in particular people who are leaders in their field. The second aspect relates to interaction between people or firms that are at the same knowledge level, enhancing overall learning.

The contributions of Bell (1979), Zuboff (1984), Turkle (1995) and Brown and Duguid (2000) focuses on the impact of information technology on society and humans, with some reference to business. The key question posed is how information technology changes how humans interact, work and organise themselves. A common theme in their understanding of the economy has been a prediction that new digital tools will cause fundamental transformations. One of those transformations is electronic commerce.

The Electronic Commerce Concept

The definition of electronic commerce adopted is the one presented by the Encyclopaedia Britannica. It defines electronic commerce as “maintaining business relationships and selling information, services and commodities by means of computer telecommunications networks”. Encyclopaedia Britannica traces the concept of electronic commerce to a standard for the exchange of business documents, such as orders or invoices, between suppliers and their business customers (Encyclopaedia Britannica).

This standard was initiated during the 1948-49 Berlin blockade and airlift, when the US army discovered that the normal manner of transacting business via paper could not keep up with the necessary flow of goods into Berlin. In order to break the paper bottleneck, Edward A. Guilbert, a logistics officer in the army, set up a system, to order via telex, radio-teletype and telephone. Various industries elaborated upon this system in the ensuing decades before the first standard was published in 1975, resulting in the EDI protocol (Encyclopaedia Britannica).

Electronic commerce is a relatively new concept and did not emerge in the business vocabulary until the 1970s. During the mid-1990s, the term became a buzzword. Broadly speaking, electronic commerce has come to include any form of economic activity conducted via electronic networks. The width of “electronic commerce” spans from electronic markets to electronic hierarchies and also incorporates electronically supported entrepreneurial networks and co-operative arrangements (Wigand, 1997).¹⁴

¹⁴ One of the first actors to challenge the electronic commerce term was IBM, which in 1997 used the term e-business (www.ibm.com/97-11-15). An important point which has been linked with the e-business concept is that it is integrated with firm operations and that it connects critical, hitherto internal business systems directly with customers, employees and suppliers via Intranets, Extranets and via the Internet (Amor, 2000). The author has found no clear difference between the two concepts.

Putting electronic commerce into a historical context, Christensen and Tedlow (2000) compare electronic commerce with previous innovations in retailing. They view the electronic commerce as the fourth stage in the evolution of retailing. The first stage was department stores that were facilitated by railroad technology that enhanced the transportation of goods. The second stage was the mail order catalogue, which was enabled by rural free mail delivery. The automobile was the driving force behind the third stage and resulted in malls and discount department stores.

By now the term "electronic" commerce includes the selling and buying of goods and services include searching, locating, ordering and delivering goods and services electronically, i.e. most aspects of distribution. While electronic commerce has been associated with the PC and the Internet, it can be enacted via PDAs (personal digital assistants or handhelds), Digital TV, mobile phones and many other devices or platforms which can link buyers and sellers electronically (Wigand, 1997).

Categorising Instances of Electronic Commerce

Electronic commerce is the overall term used to connote the phenomenon under study.¹⁵ There are several perspectives that can be taken with regard to electronic commerce. First, from a communications perspective, electronic commerce implies the delivery of information, products/services, or payments via telephone lines or computer networks. Second, from a business perspective, electronic commerce is the application of technology to automate business transactions and workflow. Third, from a service perspective, electronic commerce is a tool to cut service costs while improving the quality of goods and increasing the speed of service delivery (Kalakota and Whinston, 1996).

Various instances of electronic commerce constitute a number of different sets of working methods with distinct properties. Kalakota and Whinston (1996) have proposed the following categorisation of electronic commerce:

1. EDI. The method for conducting business-to-business commerce has traditionally been EDI, which can be defined as the application-to-application exchange of business documents between trading partners. EDI stands for Electronic Data Interchange. EDI relies on software that creates documents such as purchase orders and invoices to a recognised standard format. Because these documents follow a standard syntax their processing can be automated. The arrival of a purchase order from a customer can automatically trigger production, inventory, delivery, and invoicing operations. The benefit of EDI is that by automating the flow of documents in the supply chain, users reduce their administration costs, reduce errors caused by manually retyping information, cut inventories, and respond more quickly to customers.

¹⁵ The term Internet relates to the worldwide network of computer networks that use a common communications protocol, TCP/IP (Transmission Control Protocol/Internet Protocol. TCP/IP provides a common language for interoperation between networks that use a variety of local protocols (Ethernet, Netware, AppleTalk, DECnet) (MacKie-Mason and Varian, 1997).

2. Internet. The Internet is a web-based open, non-proprietary vehicle for interaction and trading with any business or customer. The openness and visibility of the Internet to the public has made most people associate electronic commerce with the Internet.
3. Intranet. The Intranet is a web site devoted for internal firm use. The Intranet provides information that the firm distributes to its staff and access is usually restricted with a password. The Intranet is not different in any technological sense compared to the Internet, save for the restriction in access and what type of information and interaction that can be facilitated.
4. Extranet. The Extranet implies the restricted access of outside partners of the firm, for instance suppliers or buyers, to web-based information or ordering resources. The Extranet is similar to the Intranet because it is designed for a particular audience, since access is typically restricted with a password. In terms of technology it is not different from an Internet web site.

There are several opportunities for a business considering venturing into electronic commerce. Businesses can trade with each other in a number of ways: 1) via EDI on both traditional VANs, 2) via corporate Extranets, especially as they connect trading partners, 3) and via Internet storefronts aimed at businesses rather than consumers. Consumers can trade with each other and businesses via Internet and Extranets.

EDI has typically been sent over a proprietary value-added network (VAN). EDI is also expensive and inflexible compared to the Internet: while it works where links between trading partners are formalised and well established, it is not a good working method for informal or sporadic customer-supplier relationships. As a result, it has been largely limited to large corporate and vertical sectors where a single major vendor dominates the supply chain and can force its smaller trading partners to implement EDI, as in the automotive business or retail business (Kalakota and Whinston, 1996).

The Internet in contrast has lately become the choice for businesses. According to Forrester Research the number of businesses connected to the Internet rose from 4 percent in 1997 to 33 percent in 2000.¹⁶ Its high approval and use by business-to business organisations can be attributed to two factors. First, to the interoperable idiosyncrasy that constitutes an overwhelming advantage over other competitive information networks (such as VANs, EDI systems, Intranets, etc), since it entails significantly lower set-up and operational costs and elimination of switching costs (Roche, 1995). Secondly, it can be attributed to its enhanced informational and interactive communicative abilities, which enable the Internet to be used as both a communication tool and a marketing channel, thus indicating the development of more effective inter organisational relationships and the emergence of new co-operative opportunities (Hoffman et al, 1997). The various forms of electronic commerce vary in terms of openness, with EDI and Internet taking opposite roles.

¹⁶ Forrester Research, Business Marketing, May 2000.

Open or Closed Electronic Commerce

The discussion above on various categories of electronic commerce, indicate that they differ in their degree of openness. Focusing on electronic commerce enacted between PCs or terminals, there are two principal technologies that are widely used, open or closed systems and protocols. Closed systems can be associated with EDI, which is restricted to business partners, which have decided to link up electronically, and open systems, which can be associated with the Internet, which is open to the public.¹⁷ In practice many open systems are less open than the user perceives, demanding for instance registration and passwords. The notion of open or close systems entails a large grey area of semi-closed systems.

The notion of open and closed systems can be linked to research that has been focusing on the interplay between business and information technology. In particular, there are studies that discuss technological innovation and its implications for competitive advantage. During the 1980s and 1990s, a strong link was made between effective corporate strategy development and use of information technology as a competitive tool. (see Benjamin et al, 1984; Porter and Millar, 1985; Wiseman and MacMillan, 1984; Ives and Learmonth, 1984; Rackoff et al, 1985; Brady, 1986; Clemons, 1986; Bakos and Treacy, 1986; Copeland and McKenney, 1988; King et al, 1988; Weill and Olson, 1989; Hopper, 1990; Jarvenpaa and Ives, 1990; Cash et al, 1992; Sethi and King, 1994).

Most of the studies cited have been focusing on internal information systems like BankAmerica's (McKenney et al, 1997) or SABRE, an airline reservation system (McKenney et al, 1985). The typical "EDI-subject" has been diffusion, adoption, and implementation of EDI (Clemons and Row, 1992; Drury and Farhoomand, 1996; Grover, 1993; Massetti and Zmud, 1996; O'Callaghan et al, 1992; Reich and Benbasat, 1990; Saunders and Clark, 1992).

These studies have mainly taken a single firm perspective, but have to some degree acknowledged the importance of inter-organisational aspects (see for instance, McFarlan, 1984). However, there are relatively few studies on information systems from an inter-organisational perspective (see Johnson and Vitale, 1988). Furthermore, the inter-organisational studies have focused on closed or semi-closed systems relying mainly on EDI.

¹⁷ There does not exist a generally accepted definition of the Internet. It consists of a "loosely organised system of interconnected computer networks" (Essler, 1998). The preferred way to define the Internet is to tie it to the TCP/IP protocol, which was invented by Vinton Cerf and Robert Kahn in 1974. They pioneered the open systems approach and when TCP/IP was adopted as ARPANET in January 1983 it became the facto standard for interconnecting networks (Hart, 1992) when the National Science Foundation created the NSFNET in order to provide connectivity to its supercomputer centres. Already in the late 1960s the Advanced Research Projects Administration (ARPA), which was a division of the US Defence Department, had developed ARPANET to link together universities and high-tech defence contractors. The TCP/IP technology was developed to provide a standard protocol for ARPANET communication (MacKie-Mason and Varian, 1997).

Findings generated in the EDI oriented literature are likely to be relevant for the Internet. For instance, the Internet is likely to provide the technological capacity to share information across organisational boundaries more conveniently and more flexibly, while considerably lowering transmission costs, compared to EDI. The EDI literature can act as a starting point, example and reference, from which insights can be extended to the Internet (Hart and Saunders, 1998).

Research on information systems within firms and between firms provides an antecedent to the present study in electronic commerce. The current thesis builds on this research tradition and on the literature on information systems. The argument being that electronic commerce relies on and involves the utilisation of information systems. This work, as does much work on electronic commerce, represents a shift in focus from closed systems to open systems.

The Dynamic Properties of Electronic Commerce

Introducing electronic commerce or any type of information system changes the organisation or organisations involved in terms of what they do and focus on. Furthermore, organisations over time change information systems as they encounter new needs and come up with new ideas on how to use electronic commerce. The degree of openness is likely to change over time, as is the degree of interaction with other firms. Differentiating among forms of electronic commerce over time becomes difficult, when this dynamic capacity of information systems is included (Avlonitis and Karayanni, 2000).

This dynamic capacity makes organisational boundaries change or disappear. In addition, market co-ordination finds a place also within organisations themselves. Writing on industrial convergence. Greenstein and Khanna (1997) have argued that products increasingly become complements and substitutes to each other because of digitalisation. This process, in the view of the author, applies also to electronic commerce as an increasing numbers of tasks have become possible to conduct via digital means. As a result value-added chains are transformed and value-adding activities are distributed anew, forming new webs or networks of activities (Benjamin and Wigand, 1995).

In addition, electronic commerce can be broken down into a number of separate, but not always distinct, areas: business to business, business to consumer, consumer to business and consumer to consumer, suggesting infinite possibilities to construct novel forms of exchange. The possibility to create new forms of exchange often implies a changing role for the customer. A principal change is that customers can become part of the value-adding process, and consequently private citizens become entrepreneurs on their own (cf. Chen, 2001).

One of the most highlighted accounts of change due to electronic commerce is the market place - market space terminology, where Rayport and Sviokla (1994) present their understanding of the differences between physical markets compared with virtual markets. They focus on how value is created on a transactional level, and suggest that value is being created differently in the marketplace compared to the marketspace. Their argument is that there are three critical differences between a marketplace transaction and a marketspace transaction. First, the content of the transaction is different: information about the goods often replaces the goods. Second, the context in which the transaction occurs is different: electronic interfaces replace face-to-face interaction. Finally, the infrastructure is different: the transaction occurs via computers and communications lines.

Choi et al (1997) have offered an alternative classification, according to the type of product, purchasing process and delivery agent. A product can be physical or digital, an agent can be physical or digital and the process can be physical or digital. This creates eight possible types of business ranging from businesses that are purely physical (physical product, agent and process) to purely digital (digital product, agent and process).

As pointed out by Bailey and Bakos (1997) and Riggins (1998), electronically based markets in many ways constitute a new arena in which to conduct business. Furthermore, Malone and Rockart (1993) argue that under the influence of electronic commerce, markets gain increasing importance as forms of co-ordination. The effects come in many spheres affecting the product offering, i.e. the selling of information goods, the aggregation and disaggregation of assortments, changing production costs, transaction and distribution costs, new forms of search behaviour, and price discovery (Bakos, 1998).

To summarise, electronic commerce allows for the creation of new forms of exchange where the notion of seller and buyer is less straightforward than often thought. This is so because electronic commerce enhances the opportunity for sellers and buyers to interact in forums where many sellers interact with one buyer, or many sellers interact with many buyers, or where one seller interacts with many customers - that also interact with themselves (Armstrong and Hagel, 1995).

Electronic commerce incorporate aspects of both consumer and business-to-business markets and an attempt to generate insights on the nature of electronic commerce should draw on both spheres. Work which is relevant for electronic commerce has largely been carried out within seemingly different research areas.

Business-to-Consumer Research on Electronic Commerce

In the current literature on customer behaviour and electronic commerce, there has been a marked emphasis on advertising (see Dahlén, 2001). A key focus is on how to achieve marketing success on the Internet, where the traditional toolbox for marketing and advertising has been extended and applied to electronic commerce (see Bickerton et al, 2000 for an recent example).

Taking an alternative direction, Petersen (1997) focuses on the properties of buyers and products with regard to Internet. Phillips et al (1997) suggest that the Internet is more suitable as a revenue generator when 1) customers are geographically dispersed and their interest is specialised, 2) products are information based, 3) the goods are low-risk and low-cost. In addition, they argue that the Internet fits sellers that are small and weak and have nothing to lose, and that upscale, high-risk goods can only be sold from firms with ultra-high reputations.

Gupta and Chattarjee (1997) propose six factors that explain Internet marketing success related to various products. 1) The product has a good fit with the profile of the typical Internet user. 2) The product requires that the shoppers process a lot of information. 3) The product costs a substantial amount of money to purchase. 4) Information and transaction is information intensive. 5) Products can be tried and delivered digitally. 6) Buyer and/or seller markets are thin and therefore benefit from a larger geographic base.

From what can be inferred from these studies presented above, most consumer-oriented research on electronic commerce has focused on the Internet. Furthermore, emphasis is put on the interface between seller and buyer. The seller is still considered remotely interested in the individual customer, and focus is put on aggregated attitudes (Mehta and Sivadas, 1995). In addition, there is not account of what the seller and buyer must know and do in order to make exchange possible beyond the interface with customers.

Neither Gupta and Chattarjee (1997) nor Phillips et al (1997) discusses what capabilities separate successful and less successful electronic commerce merchants in a given product or customer category. In Kalakota and Robinson (1999), the issue of capability acquisitions is addressed in their discussion on how to design and implement electronic commerce within an established organisation. They focus on capability acquisition and the learning effort involved for a firm to become enabled to conduct electronic commerce. Their focus is more oriented towards business-to-business and is mainly directed to managers. However, their approach provides a starting point for focusing on capability acquisition for electronic commerce in large established organisations.

Business-to-Business Research on Electronic Commerce

Most research oriented on electronic commerce has been descriptive, conceptual and speculative (see Rayport and Sviokla, 1994; Deighton, 1996; Porter and Millar, 1985). The view of the author is that there is a particular lack of research that put electronic commerce in a contextual perspective beyond a focus on the site or on the direct interaction with customers. There is research focusing on business-to-business contexts that adopt a more holistic approach.

The impact of the Internet on industrial organisations has been addressed in several studies (Cronin, 1994; Thompson and Kaul, 1995; Stump and Sriram, 1997). These contributions suggest that electronic commerce have the potential to enable businesses to better cope with shrinking markets, increase of competition, and technology turbulence. By utilising electronic commerce organisations can implement and stimulate structural changes in the organisations and in their marketing channels (Avlonitis and Karayanni, 2000). These studies are few and carry little theoretical or conceptual value in the view of the author.

One potential remedy is the supply chain management literature. Arguably, this is an interesting example of research relevant for electronic commerce. Lancioni et al (2000) have proposed the close link between electronic commerce and supply chain management. They argued that the greatest potential for the Internet would be realised in business-to-business settings, by speeding up communications between customers and their suppliers, improving service levels, and reducing logistics costs. They depict the extent to which the Internet, Extranets, and Intranets are being applied in regard to transportation, purchasing, inventory management, customer service, production scheduling, warehousing, and vendor relations.

Supply chain management has traditionally been practically oriented, lacking theoretical rigor, but accumulating insights from firms that have achieved noticeable results from their logistical operations (Aronsson, 2000). Oliver and Webber¹⁸ first proposed the term supply chain management in 1982 according to Kotzab and Otto (2000). While there is no universally accepted definition of supply chain management, there are commonalties. Traditional goals have been cost minimisation, increased levels of service, improved communication among supply chain companies and increased flexibility in terms of delivery and response time (Lancioni et al, 2000).

¹⁸ Oliver, R. and Webber, M. (1982) Supply Chain management: logistics catches up with strategy. In Christopher, M (1982) Logistics: The Strategic Issues, London, pp 63-75.

Houlihan (1985) suggests that supply chain management embraces the following concepts: 1) The complete process of providing goods and services to the final user. 2) Inclusion of parties and logistics operations from supplier to customer within a single system. 3) The scope of the supply chain includes procurement, production, and distribution operations. 4) The supply chain extends across organisational boundaries. 5) The supply chain is co-ordinated through information systems accessible to all members. 6) The primary objective of the supply chain is to service customers, balanced against costs. 7) The objectives of the individual supply chain members are achieved through the performance of the chain as a whole.

As pointed out by Ballou et al (2000) supply chain management emphasises interaction between marketing, logistics and production. With the advent of the supply chain management literature, the perspective was changed. From one of distribution channels, where each firm operated on its own, seeking to make the highest profits, to a perspective that focused on the benefits of co-operation between firms in the distribution channel (i.e. retailers, wholesalers and manufacturers). A key issue for the current supply chain management literature is to understand competition between supply chains, rather than between firms (Cox, 1999).

Gattorna and Walters (1996) argue that the key to the development of the supply chain concept has been the rapid progress in information technology and the increased cost for holding inventory. Chandra and Kumar (2000) believe that the underlying philosophy of managing supply chains has evolved to respond to changing business trends, for instance, the heavy reliance on purchased material, outsourcing and outside processing, the reduction of the number of suppliers and the change from mass production to customisation.

As discussed by Hulthén (2001), the supply chain is seen as having a one-way direction, most often starting with the raw material and ending at the focal firm, sometimes including all actors, even the customer. Recent supply chain management literature has proposed that a better term is demand chain management, starting with the customer and moving backwards to analyse the requirements of fulfilment (Gattorna and Walters, 1996).

Summarising, the literature on supply chain management provides a number of attractive conceptual insights, in the view of the author, for understanding electronic commerce. Firstly, it proposes that we should think of competition in terms of complex systems beyond singular firms that compete with each other. Furthermore, these systems encompass several functions including logistics and marketing, and are broader and deeper than the seller-buyer interface. In addition, the demand of customers is a critical starting point for the organisation of electronic commerce. But it must be balanced with insight about what processes that support fulfilment and how they interact.

The Present State of Research on Electronic Commerce

Electronic commerce is a new research area that presently receives attention from business and academia alike. The number of books and contributions dealing with aspects of electronic commerce has increased rapidly (Avlonitis and Karayanni, 2000). Most of these contributions are practically oriented, descriptive, conceptual, and often with a cocktail approach, bringing up numerous issues in a brief way (see Amor, 2000, for a good example of this). In particular, the author has not been able to identify any longitudinal in-depth study that follows the process of acquiring electronic commerce capability.

Given the brief period, during which electronic commerce has been of general interest to business, it is natural that thorough research into this new phenomenon is modest. As this chapter illustrates, the literature is fragmented within many disciplines that occasionally has addressed overlapping issues. A common thread is found in the pre-occupation with how technology changes the empirical phenomena under study, by expanding or altering the human or organisational behaviour. While writers have tried to identify new rules for business, for instance Kelly (1998), it is unclear how general and how valid these rules are.

The position taken here, based on the discussion and survey of the literature in this chapter, is that studies of electronic commerce by itself can be expected to generate limited theoretical insights about learning, management or strategy. In fact electronic commerce is an empirical phenomenon which does not appear to lend itself to insights beyond checklists or manuals for implementation. Electronic commerce is one of many technological or organisational advances that managers have been challenged to adapt to, limiting the degree of novelty.

A key understanding is that theoretical insights pertaining to electronic commerce is generated when it is studied and analysed within the organisational and managerial context in which it is applied. By augmenting and changing the scope, from a focus on electronic commerce as such to viewing electronic commerce as a technology to be acquired, theoretical insights about electronic commerce and capability acquisition as a process can be generated. For this purpose, electronic commerce should not be narrowly defined and delimited when studied.

In addition, the presumption is that it is more fruitful to treat electronic commerce as a mainstream technology among others that can be applied to business. It is argued here that because traditional rules of business apply, the likelihood that established theories within business administration developed over time could offer insights into electronic commerce is obvious. This literature will be consulted in coming chapters.

4. Development of a Research Vocabulary

In Chapter 4, the literature on business administration is consulted. The ambition with this chapter is to facilitate further analysis of capability acquisition processes by identifying the setting in which firm capabilities are acquired. This setting is developed in terms of concepts and links between these concepts, forming a vocabulary for analysing capability acquisition.

The notion of acquiring capabilities is linked to theories of business, business models, and means and patterns of capability acquisition. The goal is to establish where in the literature the research questions raised in Chapter 1 fits and where they are related to previous research.

Inspiration is gathered from a broad range of research traditions: organisational learning, evolutionary economics, the resource-based view of strategic management for competitive advantage, the dynamic capability approach, the Austrian school, and the markets-as-networks approach. An eclectic and integrative use of theory is tailored to gain insight about capability acquisition.

From a Theory of the Firm to a Theory of Business

In classical economics a theory of the firm should address three basic questions (Conner, 1991; Holmstrom and Tirole, 1989). First, why do firms exist and what is their central purpose? Second, why are there differences in the scale, scope and types of activities between firms? Third, why are there performance differences among firms? Using Conner's (1991) definition of what a theory of the firm should encompass, there is a trinity and links between the three issues. As proposed by Conner (1991) there is a hierarchy in how the questions involved in the theory of the firm should be answered. First, the existence and purpose must be answered, then the scale and scope can be addressed, and finally performance differences.

According to Conner and Prahalad (1996) numerous fundamental issues remain unresolved and debated regarding the theory of the firm. In particular, there is no consent on what a theory of the firm is or should be, as different research traditions propose different theories of the firm towards answering the questions put by Conner (1991) and Holmstrom and Tirole (1989).

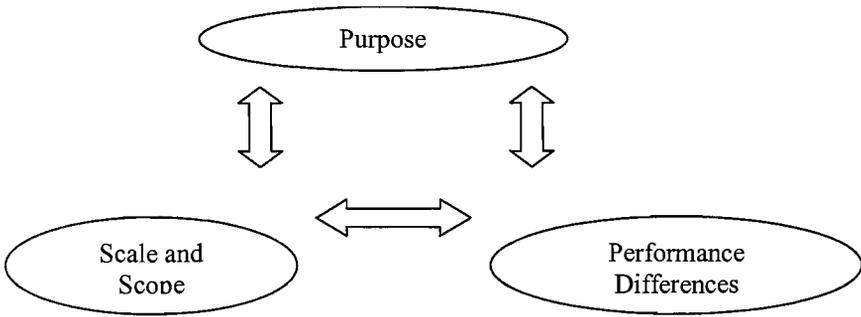


Figure 4.1 Components of a theory of the firm as proposed by Conner (1991)

The focus of these research traditions has been different. Some have focused on explaining the existence of the firm; some have focused on explaining the scale and the scope of the firm, while some have focused on explaining performance differences. Conner and Prahalad (1996) argue that strategic management and organisation scholars have given less attention than economists have to the explicit development of a theory of the firm. One reason given is that they have regarded the theory of the firm as an essentially completed topic, given the works of Coase (1937), Simon (1951, 1957) and Williamson (1975, 1985).

The most influential research traditions are with regard to a theory of the firm: 1) The neo-classical theory of the firm, which considers the firm a production function, where combining inputs to generate outputs of greater value than the inputs is the key (Holmstrom and Tirole, 1989). 2) The behavioural theory of the firm regards the theory of business as resulting from the cognitive abilities of managers (Cyert and March, 1963; Barnard, 1938; March and Simon, 1958; Simon, 1957). 3) The transaction-cost economics theory of the firm, which considers the firm a solution to market imperfection and inefficiency and the resolution of lack of trust with opportunism as the driving force (Coase, 1937; Williamson, 1975; Conner, 1991). 4) The resource based theory of the firm, which views the firm as a superior entity in which to conduct business, since it can organise economic activity in a form which mobilises resources and knowledge in an economically viable and competitive way (Andrews, 1971, Penrose, 1959; Selznick, 1957; Barney, 1991). 5) The markets-as-networks approach, that stresses the exchange between firms and regards the firm as a nexus of external relationships (Mattsson, 1987, 1998; Håkansson and Snehota, 1989).

Scholars in strategic management and organisation, have focused their attention on performance differences between firms (i.e. competitive advantage) and have considered this issue to be the separate and only remotely of interest to the broader issue on the theory of the firm (Conner and Prahalad, 1996).

While the theoretical discussion on a theory of the firm is not directly related to the managerial perspective taken, managers struggle with similar issues. Following from Conner, (1991) and Holmstrom and Tirole, (1989), every manager of every firm must continually confront the same set of issues, albeit expressed in somewhat different terms. Instead of asking why firms exist and what their central purpose is, a manager or director focus on the profit motive, personal satisfaction, carrying on the tradition, or making any other group of stakeholders content. Instead of asking why there are differences in the scale, scope, and types of activities between firms, a practitioner focus on what customers it should have, what products it should sell and what technology and skills it needs. Instead of asking why there are performance differences among firms, a practitioner focus on how survival, growth, and competitiveness of the firm can be ensured.¹⁹

The distinction between theory and practice is arguably artificial. The pre-occupation with creating a theory of the firm in academia is a reflection of the same issue being asked in practice. It is proposed that there is a practical equivalent to the theory of the firm. Taking a popular managerial stance, Drucker (1994), using the term theory of business instead of theory of the firm, indicates the close relationship between the managerial perspective and theoretical perspective. Drucker suggests that a theory of business consist of three questions or assumptions that must be answered simultaneously by managers. First, there are assumptions about the environment of the organisation: the society and its structure, the market, the customer, and technology. Second, there are assumptions about the specific mission of the organisation. Third, there are assumptions about the capabilities needed to accomplish the mission of the organisation.

Managers create and recreate their theory of business, finding answers to the same questions posed in the theoretical context of theory of the firm. Using Drucker's (1994) terminology the standpoint taken is that the theory of business is a conceptual and intellectual idea and vision about what the firm is and can do for its customers and other stakeholders. It is firmly linked to the entrepreneurs or managers who create and manage the firm in the spirit of Schumpeter (1934) and Kirzner (1973) as they search for an opportunity to formulate novel ideas on how to make money. The perception of the author is that theory of business is closely related to the birth and the early period of the firm, but can and does also change over time.

¹⁹ Some researchers, mainly in economics, use the term theory of the firm, while some researchers, mainly in business administration, use the term theory of the business. In this thesis they are regarded as synonymous concepts as in the author's view they address the same issues, albeit from a somewhat different perspective. The focus in economics is more positivistic than the focus in the literature on business administration, which is more normative. While economics tries to focus on explaining the nature of firms, business administration is more occupied with prescribing and suggesting managerial action.

Business Models

As entrepreneurs and managers convert the conceptual theory of the business into practice, the theory of business is represented and manifested by the business model. Using Conner's (1991) terminology, the scale and scope of the firm, or the activities of the firm, would be the closest term. The reason for separating the theory of business and introducing the concept of business model is that there are differences between the desired scale and scope and the actual. The difference between what is vision and what is reality creates a gap in performance. In order to handle this gap, the theory of business is considered purely conceptual, while the business model is the actual representation of the activities, actors, relations, channels, and processes that the firm participates in.

Timmers (1998) investigates the concept of the business model. He indicates that a business model must contain a description of the sources of revenue, a description of the potential benefits for the various involved actors, and the architecture for the product, service and information flows, including a description of the various business actors and their roles. This understanding concurs with that of Hornbach (1996), which is adopted here.

The adopted definition of business model is formulated by Hornbach (1996) as "the totality of how a firm selects its customers, defines and differentiates its offerings, defines the tasks it will perform itself and those it will outsource, configures its resources, goes to market, creates utility for customers and captures profit". The term business model is similar with the term "business design" which is used by Slywotzky, (1996), indicating the view of the firm as constructed, consisting a many artefacts, people, and processes.

The term business model is difficult to delimit in a satisfactory manner. But it is considered wider in scope than distribution channels (cf. Stern et al 1996), since it incorporates actors that are horizontally or otherwise related to the focal firm, but are not part of the distribution channel. Instead the focus is on direct and indirect relationships with actors that are close in the network, the focal net (Mattsson, 1997).

In addition, a business model cannot be equated with a singular firm, since activities performed by suppliers, customers, or third parties are included in the production and delivery of the firm offering. Thus, a business model is a subset of the network, larger than the channel, since it includes both horizontal and vertical positioned actors in relation to the focal actor. It is a meso-phenomenon (Glete, 1987) where every firm, looking outwards from its own viewpoint, is a focal actor (Anderson, 1994).

The term business model has become an accepted term in the computer hardware industry to describe how a firm operates (Fortune 1998; Magretta, 1998). The origin of the term business model can in academia be traced to information systems modelling (see Tolis and Nilsson, 1996). The fact that the term business model has become accepted as a general business term might be considered a tribute to the growing importance of electronic commerce based business models.

In Foss and Knudsen (1996) the link between the theory of the firm and the capabilities of the firm are explored. Their central argument is that there is an interplay and interdependence between what the firm is and what it knows. The same link is made, but with the introduction of the added layer of the business model, which connects the theory of business with firm capabilities. The business model is considered a manifestation of the theory of business. The business model is understood to be composed of a large set of firm capabilities that the firm has accumulated during its existence. At the same time, this large set of capabilities represents the capabilities presently available to the firm.

Firm Capabilities

The concept of firm capabilities is not new. As early as in 1776, Adam Smith noted that specialisation was intimately linked with wealth creation (Smith, 1937). The benefits of specialisation stems from the principle of the division of labour which implies that factory workers could attain higher productivity if the production tasks were divided, whereby the workers could specialise and deepen their expertise in making components of the whole product, improving performance. The idea of specialisation is the governing idea behind the literature of firm capabilities: by specialisation in what the firm knows well, it will achieve competitiveness.

The concept of capability is used extensively in this study. It is derived from a rich literature on firm capabilities and core competence, of which the most seminal works are Penrose (1959; Rosenberg (1982); Nelson and Winter (1982); Wernerfelt (1984); Prahalad and Hamel (1990); Prahalad and Hamel (1994); Teece et al. (1992a); Leonard-Barton (1992); Dosi and Marengo (1993). This literature is called the resource-based view and its origins can be traced to Penrose (1959).

Richardson (1972) introduced the term firm capabilities, to refer to the skills, experience and knowledge that a firm possesses. Writing on the attributes that firms build on in choosing the scope of their activities, Panzar and Willig (1981) have used a wider definition than Richardson (1972) has. These include capacity in marketing, production, raw material procurement and finance, as well as managerial or entrepreneurial knowledge, skills, and experience. The term capabilities also featured in the strengths and weaknesses component of the early business policy frameworks (Andrews, 1971). Most of these early frameworks provide ample insights, but lack the theoretical foundations to develop strategic thinking beyond indiscriminate lists of strengths and weaknesses (Day, 1994).

Dierkx and Cool (1989) make a distinction between assets and capabilities. Assets are the resource endowments the business has accumulated (e.g. investments in the scale, scope, and efficiency of facilities and systems, brand equity, and the consequences of the location of activities for factor costs and government support). Capabilities constitute the glue that holds these assets together and enables them to be deployed advantageously. Following from Dierkx and Cool (1989), capabilities are based on resources, but cannot be limited or equated with resources.

Leonard-Barton (1992) defines a particular capability as knowledge sets that have four interdependent dimensions: 1) knowledge embedded in people, 2) technical systems, 3) managerial systems, and 4) values and norms. An aspect of this definition is that even though individual level knowledge is a necessary and inseparable dimension, capabilities cannot be reduced to individuals. Instead it is something that is ingrained in the organisation.

Accordingly, capabilities and organisational processes are closely entwined, because it is the capability that enables the activities in a business process to be carried out. Because capabilities are deeply embedded within the fabric of the organisation, they can be hard for management to identify. Mapping out firm processes will usually show that capabilities and their defining processes span several functions and organisational levels and involve extensive communications (Day, 1994).

Not all capabilities possessed by a firm are equally important. A firm presumably wants to build competitive advantages that last over time. Thus the value of capabilities increases if they are difficult to copy and difficult to transfer between firms, specific for a given organisation, and non-substitutable (Peteraf, 1993). To be strategic, a capability must be honed to a user need (so that there are customers): unique (so that the products/services produced can be priced without too much regard for the competition), and difficult to replicate (so that profits will not be competed away). Thus, a capability that is homogenous and can be bought and sold at an established price cannot be all that strategic (Barney, 1986).

In a similar vein of thought, capabilities can be categorised as distinctive and non-distinctive (Selznick, 1957). Distinctiveness is taken to mean those capabilities that support a market position that is valuable and difficult to match. An attribute of distinctiveness is that those capabilities are robust and can be used in different ways to speed the firm's adaptation to environmental change (Boynton and Victor, 1991; Prahalad and Hamel, 1990).

To summarise, firm capabilities are in the resource-based view understood as critical resources that through their harnessing and combination underpin the competitive advantage of the firm. Yet it is in the view of the author unclear what firm capabilities are. In subsequent chapters a key ambition will be to try to develop and augment the literature on firm capabilities in order to arrive to an informed understanding about the nature of capabilities.

Despite the lack of conceptual clarity, firm capabilities is extensively treated in the literature, and the strategic implications of having or not having or being able to access a particular capability have been discussed (see for instance Hamel and Prahalad, 1990, 1993 and 1994). The resource-based view has tended to focus on static balance sheet observations of sets of capabilities and discussions on the sustainability of derived competitive advantage (Priem and Butler, 2001).

In the early work on the resource based view made by Penrose (1959) there was a marked focus on the growth of the firm and on change over time. Penrose discussed the evolution of the firm and touched upon the implications of time and the harnessing and ingraining process that took place over time. The focus on capability acquisition links back to Penrose. However, in subsequent work in the resource based view this focus was long neglected (two exceptions are Dierckx and Cool, 1989 and Wernerfelt, 1984).

Means of Capability Acquisition

The process of how capabilities became accessible to the firm is of secondary importance or is not given attention at all in the resource-based literature (Foss, 1998). The capabilities are assumed acquired because of strategic action undertaken by management, thereby becoming accessible to the firm in the present competitive situation.

This shortcoming in the resource-based literature has been addressed by the dynamic capability approach, which classifies firm capabilities in terms of static and dynamic capabilities.²⁰ In the dynamic capabilities approach the firm is looked upon from an inside-outside perspective with strong focus on acquisition, combination, maintenance and discarding of capabilities within firms (Wernerfeldt 1984; Barney 1986, 1991; Teece 1988; Prahalad and Hamel, 1990; Leonard-Barton 1992; Hamel, 1994).

The distinction between static and dynamic capabilities offers a basic framework in which to analyse firm activity and organisation devoted to learning. Either firm activity is devoted to produce the offering, i.e. existing knowledge, and thus the static capabilities are used, or firm activity is devoted to obtaining new knowledge that the firm can use for future production of the offering, i.e. dynamic capabilities. Static capabilities are the capabilities that are currently providing competitive advantage for the firm. They provide competitive advantage if they are based on a collection of skills and complementary assets that are difficult to imitate (Dierckx and Cool, 1989).

²⁰ Kor and Mahoney (2000) define resource-based theory to include 1) the resource-based view (Wernerfelt, 1984); 2) commitment (Ghemawat, 1991); 3) dynamic capabilities (Nelson, 1991; Porter, 1991; Teece et al, 1997); and 4) the knowledge-based view (Kogut and Zander, 1992, 1996; Spender, 1996). Citing Williamson (1991) these four areas blend into each other. In this thesis, the dynamic capabilities approach is focused upon, and it is considered a better collective term encompassing the recent literature in this field.

Dynamic capabilities are the ability of the firm to acquire new static capabilities. Teece et al (1997) define dynamic capabilities as “the ability of an organisation to learn, adapt, change and renew over time”, which “involves search, problem finding, and problem solving” and “the firms ability to integrate, build and reconfigure internal and external competencies to address rapidly changing environments”. The term dynamic capabilities emphasises the key role of management in appropriately adapting, integrating, combining and re-configuring internal and external organisational capabilities toward a changing environment (Teece et al 1991).

This way of thinking about dynamic capabilities is related to Hamel and Prahalad’s (1990, 1994) core competence terminology. Prahalad and Hamel (1990) provide a definition of core competence: “the collective learning in the organisation, especially how to co-ordinate diverse production skills and integrate multiple streams of technologies”. There is however difference between “competence” and “capability”.

Both concepts emphasise “behavioural” aspects of strategy in contrast to the traditional structural model (i.e. Porter, 1980), but core competence emphasises technological and production expertise at specific points along the value chain that are distributed within and among the involved firms. The dynamic capabilities approach is a more broadly based concept, encompassing all actors, activities and processes that contribute to the acquisition of new capabilities. In this respect capabilities are visible to the customer in a way that core competencies rarely are (Stalk et al, 1992).

Stalk et al (1992) have offered a popularised version of the dynamic capability approach. They argue that the building blocks of corporate strategy are not products and markets, but business processes, and that competitive success depends on transforming a company’s key processes into firm capabilities that consistently provide superior value to the customer. In addition, they argue that companies create these capabilities by making strategic investments in a support infrastructure that links together and transcends traditional SBU’s (strategic business units) and functions.

In the dynamic capability approach the capability acquisition process itself is analysed. The main pre-occupation is product research in high-tech or biotech industries with an emphasis on turning research into products and the product development process as such (West, 1997; Iansiti and West, 1997). These studies have taken it as given that in-house innovation is the key means for obtaining and maintaining a competitive advantage.

Key objects of study in the dynamic capability approach have been patents and R&D spending, which has been contrasted with various other economic performance oriented variables, like profits, growth rate or firm size (Vernon and Gusen, 1974; Jensen, 1987; Grabowski and Vernon, 1990). A common result is that firms that are large and who have ample resources at their disposal are at a competitive advantage (Grabowski and Vernon, 1977).

Furthermore, studies have detected consolidation within industries and attributed it to economies of scale not in production, but in innovation (Grabowski and Vernon, 1994). Pavitt et al (1987) in a study of over 4000 significant innovations in the UK found that there was a U-shaped relationship between innovation and firm size, suggesting that very small firms and very large firms are the most innovative ones.

As indicated by the presentation of the results generated by the dynamic capability approach, it is primarily concerned with how to use existing capabilities within the organisation to create new capabilities (Teece 1988; Leonard-Barton, 1992). The mechanism not investigated so far is the means, that is the institutional forms utilised as managerial tools, by which firms engage in the accumulation of new capabilities and internalise them into its operations. However, there are exceptions. Ideas on what constitutes means are presented below.

Acknowledging the dynamic character of competition and the importance of time in competition, Volberda and Baden-Fuller (1998) offer a conceptual discussion on how firms acquire new capabilities within and outside of the firm. Their principal argument is that firms use both passive and active means of acquisition. Volberda and Baden-Fuller do not discuss the relative merits of different means of acquisition and do not address the notion of trade-offs or factors affecting the choice of means of acquisition. They identify four means: selection, hierarchy, time, and networking. In their classification, selection is a passive means, whereas hierarchy, time, and networking are active ones enacted by management.

In the view of the author the classification by Volberda and Baden-Fuller (1998) is questionable. While the managerial activity is considered influential, it is thought by the author to be set within a context of many influences, of which some are beyond the reach of management. There is no persuasive explanation to why hierarchy, time and networking are active and there is no allowance for situations where certain types of means are partly active and passive. Furthermore, it is unclear why these four means should be considered and what means that have been omitted.

The notion of means of acquisition is adopted, as a useful way to indicate that what is under study is not only dynamic capabilities per se, but the capability acquisition process. That is by which process, or set of events, actions, circumstances that a firm acquires capabilities. A key assumption is that this process can be influenced by managers and the degree and scope of this influence is large, but that this process involve a mixture of both active and passive means. Furthermore, a key belief it that these active and passive means can be better described and delineated than the one offered by Volberda and Baden-Fuller (1998).

Patterns of Capability Acquisition

Schumpeter, in his *Theory of Economic Development* (1934), saw economic development as consisting of a process where entrepreneurs dipped into a stream of technical opportunities ostensibly made for reasons independent of particular markets and brought those innovations to market. The successful innovator achieved a monopoly in a particular market by bringing to the market something that was unique, only to have that monopoly successfully whittled away by the entry of imitators. The strategic problem facing an innovating firm in a world of Schumpeterian competition is to decide upon and develop difficult-to-imitate processes and paths most likely to support valuable products and services. The dynamic capability approach is a descendant of the Schumpeterian tradition.

This implies that firms compete with static capabilities on the basis of product design, quality, process efficiency, and other attributes. While at the same time, in a Schumpeterian world, firms are also seeking to create new capabilities as well as new combinations of capabilities, and rivals are continuously attempting to improve their capabilities. Rivalry to develop new capabilities or to improve existing ones is critical in a Schumpeterian world. What competitors do and how they act affect future capability acquisition. Such processes drive creative destruction (Schumpeter, 1934).

Following from Schumpeter, it can be inferred that the search for capabilities can take place simultaneously both in the product market, where the firm competes and interact with its customers, suppliers, channel members and channel partners, as well as in the “market for capabilities”.

The market for capabilities is here defined as the arena in which firms compete for capabilities. It is considered a market because it is assumed that all capabilities can be acquired. A basic belief of the author is that the market for capabilities is overlapping with the product market. It is argued here, that many of the same actors that the firm encounters in the product market are also present in the market for capabilities. Since the product market can also confer the firm with capabilities, attention should be augmented to include capability acquisition in the product market. Firms compete simultaneously for capabilities in the product market and in the “market for capabilities”.

Differences in firm ability to improve and renew its static capabilities play a critical role in shaping long-term firm competitiveness, and thus the realisation of strategy. In the dynamic capability approach, a fundamental issue for every firm striving for competitive advantage is the ability to acquire new capabilities. Dierckx and Cool (1989) argue that managerial choice about how much to spend on different possible capabilities is central to firm strategy. Choices about which capabilities to acquire are influenced by a number of considerations, some under the control of the management, some beyond the control of the management. What the firm can do and where it can go is thus heavily constrained by the topography and properties of its processes, positions, and paths (Levinthal, 1992).

Accordingly, past choices affect the scope for new choices. At any given point in time, firms follow a certain trajectory or path of capability development. This path not only defines what choices are open to the firm, but it also puts limits to what the capability portfolio of the firm is likely to be in the future. Thus firms, at various points in time, make long-term, quasi-irreversible commitments to certain capabilities. Deciding, under uncertainty which long-term paths to commit to, and when to change path, is the central strategic problem confronting the firm, in the interpretation of the dynamic capability approach (Ghemawat, 1991).

The notion of pattern and patterns of innovation is widely used within the dynamic capability approach and in the earlier contributions to this line of research (Abernathy and Utterback, 1978). The notion of pattern and patterns of innovation has been used in a more limited sense focusing on in-house innovation: process or product innovation and radical and incremental innovation, a variation on this theme (see Utterback, 1994). The notion of patterns of innovation is broadened and reinterpreted to include all firm activities involved with the acquisition of new capabilities and the patterns reflecting these activities. Mintzberg (1978), who discussed strategy formation in terms of patterns in a broad sense, inspires this understanding.

The focus on capability acquisition can be traced back to traditional economics. In microeconomics the firm is regarded as a production function. The firm utilises inputs as capital, labour and knowledge and combines them to produce outputs. This output should be of higher value than the input employed in the production process (Bower, 1970). Acquiring capabilities is a modern variation on the same theme, focusing on the sub-process of obtaining the relevant key inputs that later can be transformed and combined into an offering valued by customers. While classical microeconomics does acknowledge the need for obtaining inputs, it does not account for how this process takes place.

Noda and Bower (1996) view strategy making as a process of repeated resource allocation. They build upon classical economics and merge their idea with novel insights about strategy. They suggest that firms allocate resources through iteration, and make choices about which projects to support and fund, thereby forming strategy. This idea about repeated resource allocation arguably pre-supposes repeated capability acquisition. Accordingly, inspired by Noda and Bower (1996) capability acquisition can be expected to be repeated in time, as a reflection of strategy making, as the firm with regularity has to replenish its capability portfolio.

As a result, innovation and change take place simultaneously and to varying degrees in various divisions or departments is in line with how Chandler (1962) describes the multidivisional firm. With reference to Chandler, capability acquisition is understood to be an ongoing process, which is broad and rich in terms of the number and type of capabilities that are acquired. Reflecting this understanding, the notion of means of capability acquisition is complemented by the notion of patterns of capability acquisition. With patterns is meant by which order that the means of acquisition is used to acquire new capabilities.

Main Concepts and Proposed Relationships

To discuss and further investigate the issues posed in Chapter 1 in a structured fashion a framework is proposed below in which the main concepts that have been presented and defined in this chapter are summarised. These main concepts and the relationship between them are at the forefront. By defining the concepts and proposing relationships between them, the aim has been to develop a theoretical backbone that anchors the notion of acquisition of firm capabilities in the literature. At the same time, the aim is to provide a new and independent view of capability acquisition to facilitate further interpretation of theory and the empirical material.

Concept:	Definitions and Proposed Relationships:
Theory of business	The basic underlying rationale for the existence of the firm
Business models	Large organised sets of firm capabilities and a manifestation of the theory of business
Firm capabilities	Critical routines that underpin the competitive advantage of the firm
Means of capability acquisition	Tools the firm use to acquires firm capabilities
Patterns of capability acquisition	The order in which the means of acquisition are used to acquire firm capabilities

Table 4.1 Main concepts and proposed relationships.

5. Firm Strategy and Network Learning

Searching for patterns of capability acquisition with a dynamic capability approach implies a number of assumptions about how strategy is created and how organisational learning occurs. As touched upon in chapter 4, the managerial choice about how to acquire capabilities is constrained and conditioned. The challenge is to identify these constraints and assess their implication, thereby providing a foundation for uncovering the possible patterns of capability acquisition. This is the task in focus in Chapter 5. It should be pointed out that this chapter draws on a number of theoretical positions and traditions, and integrates them.

The Adaptive Perspective on Strategy

The understanding of capability acquisition presented above implies an assumption about how strategy is created. There are three basic perspectives on how strategy is created (Chaffee, 1985). The linear and planned strategy perspective is probably the best known (Chandler, 1962; Ansoff, 1965; Andrews, 1971; Porter, 1980, 1981, 1985). The second perspective is interpretative strategy making by social interchange, in which perceptions are affirmed, replaced, or modified in a socially constructed world (Berger and Luckmann, 1966; Pettigrew, 1977). The third perspective is the adaptive perspective on strategy making where opportunities and risks in the external environment are matched against the internal resources and capabilities of the firm (Hofer and Schendel, 1978).

The adaptive perspective on strategy traces its origin to theories that used the concept of fit. Good management consisted of the alert tracking of competitive conditions and the implementation of adjustments between strategy and structure. A high performing firm had a product market strategy that was consonant with the opportunities and constraints imposed by the competitive environment and additionally had an organisational structure suited to its strategy. The trouble with the fit theory was that it failed to adequately explain why all firms were not fit (Rumelt, 1987).

This weakness of the fit theory made strategy researchers within the resource-based view turn to concepts that emphasised the special histories and resource bundles of each firm. For example, Caves and Porter (1977) saw firms as having initially different “traits” and build competitive positions around these differences. This shift in focus occurred in parallel as the literature on fit struggled. From the notion of fit and the inadequacy of the concept to explain why firms successful firms more attention was given to the internal properties of the firm. It seemed reasonable to find explanations of firm success and competitiveness within the firm, rather than by looking at the context.

Not before long the focus on firm properties was challenged as well. Lippman and Rumelt (1982) modelled differences among firms as stochastically generated and difficult to imitate because of causal ambiguity. With casual ambiguity is meant that it is far from clear what role resources (and capabilities) play in the success of firms. A key result following from Lippman and Rumelt (1982) is that both firm property and firm context can contribute to plausible explanations of competitiveness, or lack thereof. In the view of the author, as a response and synthesis of these various contributions, the adaptive perspective emerged, which included both the properties and the context of the firm as possible sources and explanations of competitiveness.

In the adaptive perspective, firms are viewed as open systems dependent and interdependent on the environment of the firm. While a closed system perspective on firms has been the dominating view among researchers (Perrow, 1986), the open systems perspective has gained wider acceptance (Stinchcombe, 1965; Thompson, 1967; Hannan and Freeman, 1977; Pfeffer and Salancik, 1978). The adaptive model assumes that there is a two-way flow of information and knowledge between the firm and its environment, and incorporates the customer in the analysis (Scott, 1978).

Capability Acquisition as an Adaptive Process

The adaptive perspective views strategy and thus capability acquisition as a continuous process where the external environment and the internal environment are constantly aligned. The process is continuous and simultaneous with parallel processes taking place. In the adaptive perspective, planning, formulation and implementation as distinctive notions are surrendered for parallel processes at all three levels (Mintzberg, 1994). Strategic change is in this perspective not only connected to product and market mix issues, but also includes more subtle dimensions like style, values and quality (Chaffee, 1985).

The adaptive perspective does not emphasise the management of the firm, since it does not view planning as important. Strategy is in this perspective a decentralised, fuzzy, multi-faceted phenomena, compared to the linear perspective (Chaffee, 1985). In the adaptive perspective, strategy is a more or less uncontrolled and ambiguous process focusing on the organisational change processes where strategy is an output rather than input (Cohen et al, 1972; Lindblom, 1959). The management team is not made obsolete in terms of strategy making, but managers are not only decision makers, they are actors that have to share the decision making with other internal and external forces and contingencies (Chaffee, 1985).

Goshal and Moran (1996) make a distinction between organisational logic and market logic, in effect catching the essence of the adaptive perspective on strategy. They argue that individual firms adapt autonomously in markets in response to market signals. This form of autonomous adaptation occurs automatically as the available supply of goods and services is cleared with the current demand. It unfolds, as an emergent process, without any concern for the direction it takes or for its future states. In parallel, and in contrast to autonomous adaptation, organisations are capable of purposive adaptation (Barnard, 1938), which allows organisations to pursue new options, and expanded scope of activities, beyond those that markets alone can produce or signal.

Taking an inside-out perspective of the firm entails a belief in managerial supremacy and in voluntarism: managers affect and change the firm and its environment. Taking an outside-in perspective suggests a belief in determinism and the assumption that the fate of the firm is actually decided by forces beyond the control of the individual firm (Mintzberg, 1994). As a consequence, the adaptive perspective brings multi-causality; anyone can affect and direct the process of change. The firm affects the outside; the outside affects the firm. Expressed in terms of Chandler (1962) who argued that structure follows strategy, the opposite, that strategy follows structure, is considered equally likely.

Viewing capability acquisition in the manner discussed above implies that it is a continuous process involving extensive adaptation. Both external and internal circumstances are seen to affect this process. Both managers as well as other actors are seen to affect this process. It takes place at several levels, social, cultural, mental, technological and organisational, that affect and influence each other. Furthermore, it involves experimentation, chance and luck, as well as planning and deliberation. As Mintzberg and Waters (1985) persuasively argue, the strategy formulation processes lie in a continuum between deliberate and emergent ones, and there is interplay between different types of strategy formulation techniques and processes.

The Adaptive Perspective and Bounded Knowledge

In terms of managerial control, Pfeffer and Salancik (1978) have argued that managers think that they control the flow of resources in their firms, but in the end it is the stakeholders, among them customers and investors, that dictate how money will be spent within organisations. This view makes a distinction between what managers think is the case in terms of the domain of control and what is actually the case. Multiple views on who controls and directs the firm are likely. In addition, since knowledge is assumed distributed, the roles in and contributions to the strategy making process are likely to change over time, and be most unclear even to the involved actors. Since knowledge is distributed it is unclear to the managers of the firm which actor that possess desired knowledge, or even from where knowledge is and can be acquired.

The concept of bounded knowledge proposed here, can be linked and attributed to bounded rationality, with each individual actor focusing on its own role and sources of information and knowledge. Developing the understanding of bounded rationality (Simon, 1955), Leibenstein (1976) has suggested that rationality is selective i.e. not always applicable. Regner (1994) has suggested that strategy is a result of simultaneous multiple rationality with procedures based on perfect rationality being suitable for certain kinds of decisions and those based on imperfect rationality being more suitable for others. Implying that managers have considerable room to adapt actively, not being left out to deterministic external forces and that rationality is not only bounded, but is different for different firms (Schoenmaker, 1990). Understanding strategy making in this way explains why there are variations among actors, managers and firms. Firms will differ in coping with the various complexities and accordingly exhibit different strategies (Regner, 1999).

A basic assumption of the dynamic capability approach is that entrepreneurs are rational actors who try to maximise outcomes, but are restricted by bounded rationality. This makes explicit the fact that managers utilise models of firm and competitor behaviour that is incomplete and frequently in error (Rumelt, 1984). While this established understanding is attractive, a key point made here is that over time the content of that bounded rationality changes, as the distribution of knowledge changes.

In fact the capacity to change the content of the bounded knowledge is tentatively proposed as the principal source to create and maintain competitive advantage in line with Nonaka (1994). This capacity to change the content of knowledge is intractably connected with the environment. Thinkers within the resource-based view, and the dynamic capability approach for that matter, have often decided to take the environment for the firm to move and position itself in, as given and stable. However, when this assumption is relaxed and the moving context of the firm is acknowledged new insights can be generated. The firm and the context may move simultaneously, at the same speed, or slower or faster or in a different direction (Andersson, 1996).

Adaptation and Learning

Adopting the adaptive perspective on strategy in turn implies assumptions about how organisational learning take place. In fact, strategy creation and capability acquisition is an example of organisational learning. The terms learning and adaptation are often used interchangeably, but they imply quite distinct processes. Learning occurs when knowledge is processed and the range of potential behaviour increases (Huber, 1991). Organisational learning is typically taken to mean the cumulative development of skills and knowledge in an organisation (Argyris, 1977; Fiol and Lyles, 1985; Levitt and March, 1988; Huber, 1991; Stata, 1989).

In this interpretation, adaptation can be considered a comparative static and a statement of contingency theory and does not refer in a direct way to the processes of learning (Lawrence and Lorsch, 1967). That is, adaptation is defined to have occurred when an organisation changes its strategy, structure or some other core attribute to fit a new environmental contingency. The essence of contingency is that the success of a particular organisational strategy or structure depends upon the presence or absence of other factors.²¹

The notion of adaptation implies changes that enhance the survival prospects of an organisation; it is more appropriate to consider adaptation as neutral with respect to the survival implication of such changes. For instance, March (1982) notes that given the risk of reorganisation, efforts to survive will have speeded up the process of failure for some organisations. In a similar line of thought, Hannan and Freeman's (1989) discussion of structural inertia reflects this dual nature of change processes in the analysis of organisational mortality.

Bringing organisational learning and adaptation together as interpreted above indicates that there are two parallel processes taking place. One is that of organisational learning, that is the accumulation of knowledge, whereas adaptation is the organisational response to what has been learnt. The knowledge generated through what Argyris and Schon (1978) termed double-loop learning supports a firm's ability to understand the consequences of past actions and respond to new environmental stimuli (Inkpen, 2000).

This understanding of how organisations interact with their environment is common. For instance, the Levitt and March (1988) characterisation of organisational learning is that organisational behaviour is based on routines and that these routines change in an incremental manner in response to feedback about outcomes based on current routines. Learning is a process by which repetition and experimentation enable tasks to be performed better and more quickly and new production opportunities to be identified in response to experience (Lewitt and March, 1988).

²¹ The term adaptation should not be confused with adaptability. Writing on human behaviour as a system, Ackoff and Emery (1972) define adaptability as the ability of an individual or system to modify itself or its environment (p.124). Hence, adaptation refers to the process of modification and adaptability to the ability to achieve modification. In this thesis what is in focus is both adaptation and adaptability. But instead of adaptability, the term capability acquisition is used, describing and addressing some aspects and instances of adaptability. In this thesis, conscious adaptability, demanding cognitive managerial effort, is considered capability acquisition. Indeed, capability acquisition focuses on augmenting our insight into how adaptability reflects itself in the process of adaptation.

Models of organisational learning (Cyert and March, 1963; Levitt and March, 1988) generally assume that change is driven by the relationship between the organisation's current performance and its aspiration level (March and Shapira, 1992). An issue is how quickly current performance changes with changes in the firm environment and how rapidly a firm aspiration level changes to reflect these new performance levels.

As Hannan and Freeman (1983) point out, the question of whether change occurs at the population level or at the level of an individual organisation is an issue of the rate of change of organisations relative to the rate of change in their environment. One may fail to observe an organisation respond to its changing environment, either because the organisation is unable or unwilling to make such changes or because the organisation fails prior to such efforts.

Organisational change is thus a result of organisational learning and adaptation, and occurs because firms are buffered from selection pressures so that the firm obtains time to learn and apply new knowledge. Firms are buffered from selection pressures for a variety of reasons. In particular, the selection forces that confront the firm are not solely the result of economic efficiency. To an extent, organisations are buffered from selection pressures as a function of the institutional environments in which they operate. Expanding on the work of Abernathy and Clark (1985), firms have a variety of attributes that have influence on the probability for survival. Those firms that survive a disruption in their environment are those firms that possess distinctive capabilities that are still of value in a new epoch of competition.

In addition, features of the institutional environment of the firm shield the firm from selection pressures. As DiMaggio and Powell (1983, p 149) state: a wide range of factors – inter-organisational commitments, elite sponsorship, and government support in terms of open ended contracts, subsidy, tariff barriers, and import quotas, or favourable tax laws, reduce selection pressures in a competitive organisational field. Thus, while a pure market system would rely heavily on change via the death of existing firms and the birth of new firms, many options are possible. Most firms face more complex institutional environments involving a variety of interest groups that have considerable stakes in fostering the survival of the firm apart from its economic viability (Meyer and Zucker, 1989).

At the least, survival of firms is prolonged for extended periods of time. As suggested above, buffering occur as a result of firm attributes or properties that retain their value or equally likely linkages, dependencies, common activities or personal relationships with external actors (Miner et al, 1990). A key argument advanced here is that the presence of either firm properties or contextual aspects increases the likelihood of observing organisational level adaptations. In addition, both the external and the internal dimensions of the firm contribute to buffering.

These buffering mechanisms also influence the impetus for organisational level adaptations. Furthermore, given that a firm is given sufficient breathing space by buffering from environmental demands, the presumption is that the firm will attempt to learn new skills and adapt to new environmental circumstances in order to sustain or regain competitive advantage. To adapt in order to survive and remain competitive the firm will have to acquire new capabilities (Levinthal, 1992).

Capability acquisition is here regarded as a specific type or instance of organisational learning. This enables the discussion on capability acquisition to be informed by the literature on organisational learning.²² By establishing a link between capability acquisition and organisational learning, a link can in turn be established between capability acquisition, inter-organisational learning, and individual learning and knowledge, as related below. Furthermore, it allows for a development of the notion of capability acquisition. Kim (1997), who discusses the link between individual and organisational learning, inspires this understanding.

Individual Learning and Individual Knowledge

The Austrian school of economics describes the dynamics of economic change by focusing on the unique knowledge held by each individual, rather than common knowledge shared in organisations. Hayek (1945) argued that knowledge is subjective and cannot be treated as fixed. Hayek (1945) was a pioneer in drawing attention to the importance of implicit, context specific knowledge and how changing circumstances continually redefine the relative advantage of knowledge held by different individuals.

Polanyi and Kegan (1966), with their distinction between tacit knowledge and explicit knowledge, augment Hayek's understanding of knowledge. Tacit knowledge is personal, context specific, and therefore hard to formalise and communicate. Explicit or "codified" knowledge, on the other hand, refers to knowledge that is transmittable in formal systematic language.

Polanyi and Kegan (1966) contend that human beings acquire knowledge by actively creating and organising their own experiences. Thus, knowledge that can be expressed in words and numbers represents only the tip of the iceberg of the entire body of knowledge. Following Hayek (1945) and Polanyi and Kegan (1966), the accumulation of tacit knowledge is considered an unknown quantity and process, which is beyond the scope and reach of the present study. However, tacit knowledge resides only at the individual level.

²² Levinthal (1991), who argues that effective organisational learning result in an enhancement of organisational capabilities, proposes this link.

Individual Knowledge and Organisational Learning

Knowledge can be defined as consisting of information and know-how, where information is knowledge that can be transmitted without loss of integrity once the rules for deciphering it are known. Know-how is the accumulated practical skills or expertise that allow for smooth and efficient execution (Kogut and Zander, 1992).

In contrast to tacit knowledge, explicit knowledge can be transferred from one individual to another. It can be stored, retrieved and manipulated in a structured fashion. Nonaka and Takeuchi (1995) provide a framework in which they build further on Polanyi and Kegan (1966), and focus on “knowledge conversion”, that is, how knowledge is converted from tacit to explicit knowledge. Four modes of conversion are identified: socialisation – tacit to tacit; externalisation – tacit to explicit; internalisation – from explicit to tacit; and combination – explicit to explicit.

An argument put forward by Nonaka and Takeuchi (1995) is that interaction between tacit and explicit knowledge yields organisational learning by extending the existing knowledge base of an organisation. This interaction is produced and shaped by shifts between different modes of knowledge conversion. The organisation has to mobilise tacit knowledge created and accumulated at the individual level, which is then amplified through the four modes of knowledge conversion.

Nonaka and Takeuchi (1995) view organisational knowledge creation as a spiral process, starting at the individual level and moving up through expanding communities of interaction, that crosses sectional, departmental, divisional and organisational boundaries. The spiral process uses individual learning and knowledge as input, and then through amplification extends this knowledge beyond a single individual. Following from Nonaka and Takeuchi (1995) what can be seen and studied is explicit knowledge, but it should be known that individual tacit knowledge is present and supports explicit knowledge.

Organisational Learning and Capability Acquisition

Following from Nonaka and Takeuchi (1995), for capability acquisition to take place it must be preceded by individual learning, knowledge creation, and organisational learning. This conclusion is consistent with Spender (1996), who argues that individual learning must be preceded by organisational learning, and Mahoney and Pandian (1992), who claim that learning in firms involves and includes the development of both organisational as well as individual skills. Furthermore, individual learning must have resulted in the successful creation of knowledge, or otherwise there would be no valuable knowledge to transfer to the collective level, where the knowledge can become used or applied as a capability (Grant, 1996).

Kim (1997) has pointed out that individual learning fail to translate into organisational learning for a number of reasons. 1) Learning is situational – when the individual forgets or does not codify the learning for later use. 2) Learning is fragmented – learning is decentralised and not dispersed hampering the spreading of the learning. 3) Learning is opportunistic – when the standard learning path is bypassed because the established way is seen as an impediment to new learning, making it difficult to integrate the new knowledge once obtained.

Linking Hayek (1945), i.e. that knowledge resides at the individual level, with the view adopted here that capabilities reside at the organisational level, yields further suggestions on how capabilities are acquired. Individual learning results in individual knowledge. Individual knowledge is transferred to the collective level via organisational learning. A subset of all organisational learning that is taking place is harnessed and combined into firm capabilities, by emergent or deliberate action. Organisational learning, as opposed to individual learning, is learning at a collective level, and occurs as knowledge is transformed from an individual to a collective state (Spender, 1996).

A point following from Hayek (1945) is that since knowledge is dispersed in an asymmetrical way among individuals, capabilities can be assumed to possess the same properties (Barney, 1986). Capabilities can reside within the organisation as well as reside in another organisation and in the intersection or combination of two organisations. Since capabilities are dispersed, the need for exchange between individuals as well as firms with different sets of capabilities is elicited (Hayek, 1945).

Acquiring a capability or set of capabilities involves acquiring various combinations of capabilities acquired internally or externally. Regardless, if a capability is acquired internally or externally, or if it is static or dynamic in nature, the same knowledge conversion process is assumed to have formed the capability. Admittedly, this is a strong assumption given that what is sought is patterns of capability acquisition, i.e. variation and regularity in that variation. In addition, Nevis et al (1995) have argued that organisations possess learning styles. They argue that how knowledge is created varies depending on for example firm culture, knowledge source, documentation mode, and dissemination mode.

This variation in learning style is of principal nature, with regard to the adopted adaptive perspective on strategy. This view on strategy does not imply that an instance of capability acquisition by necessity is of a reactive kind, where managers acquire new capabilities to cope with new managerial challenges. Because managers are assigned some leeway and agency, capability acquisition may also be proactive or generative, in anticipation of future anticipated need for a capability (Senge, 1990).

From Organisational Learning to Learning in Networks

Barney (1991) has pointed out that there are two fundamental assumptions in the resource-based view. Stated in terms of capabilities: 1) capabilities are distributed heterogeneously across firms, 2) capabilities cannot be transferred from firm to firm without costs, which often are substantial. The notion of heterogeneity and distribution of capabilities is consistent with Hayek (1945). In the classical resource-based view, this could be taken as a cue for interpreting the world as static, forcing firms to rely on what they have learnt. Thereby being both beneficiaries and slaves under stickiness (Montgomery and Wernerfeldt, 1988; Montgomery and Hariharan, 1991), that is being stuck with their existing capability portfolios.

What should put in question in the view of the author is the notion of stickiness and the scope for transfer, mobilisation, co-development, and utilisation of external capabilities. In the literature this has often been considered as inter-organisational learning, where inter-organisational refers to external interactions among organisations and between organisations and their environment (Jaffe, 2001). These include relationships with suppliers and distributors, markets and clients, government and regulatory agencies, labour organisations, financial institutions and competitors.

The acknowledgement of stickiness implies that since capabilities are distributed among actors, it is impossible to rely on only internal capabilities or internal capability acquisition. Making exchange between actors as well as other external means of capability acquisition important for acquiring the right set of capabilities, including learning indirectly. For instance, learning from the suppliers of your own supplier.

This does not mean that internally generated capabilities are not important. Nor that a firm can rely solely on external capabilities. But since capabilities are distributed among actors and even can arise as a result of a link or relationship between two actors, internal capability acquisition is not sufficient. Instead, there is a complementary need, which goes beyond internal capability acquisition, and which is not captured in the dynamic capability approach and makes it imperative to augment this approach with an adequate toolbox for understanding and explaining capability acquisition in this regard. This toolbox must include the firm context, i.e. the network and the position of the firm in that network.

While the dynamic capability approach focuses on the acquisition of new capabilities, the lack of treatment of context beyond competitors is shallow at best, and often non-existent. In addition, the treatment of competitors is static and does not focus on the possibility of a dynamic interplay between two or more competitors. Key actors are not only competitors in the environment, but are also customers, intermediaries, and suppliers, sometimes in parallel or in sequence.

A key reason for searching beyond the dynamic capability approach is that, in the view of the author, it has become stuck with its own static starting points, and has been unable to truly move beyond them. In particular, while the dynamic capability approach has been noting that there are different orders of learning, a commonly used way to distinguish between different levels is that of lower and higher level learning (Fiol and Lyles, 1985), it is problematic to define and delimit these constructs. For instance, static capabilities can be considered as first order, while dynamic capabilities are regarded as second order capabilities. But how should capabilities that are devised to acquire dynamic capabilities be considered?

Wherein the ability to learn to develop effective capabilities is in itself a resource, the ability to establish an environment that encourages such learning is a resource, and onward in an infinite regress of subsequently higher order levels of learning (Priem and Butler, 2001; Collis, 1994). Thus, it is important to find a workable distinction and understanding, between what is known and what it takes to learn something new, and how what is known becomes what is applied.

Starting with the nature of individual knowledge and learning, and then moving on to the nature of organisational learning and knowledge, and inter-organisational learning. Arguably, the next step is to move up beyond the single firm and dyads of firms, thereby shedding further light on the link between strategy creation, knowledge creation and knowledge use. It is here argued that inter-organisational learning should be reconsidered by relating firm learning and organisational learning to network learning. Network learning, as defined here, is inter-organisational learning taken one step further since it also includes indirect learning (as discussed in Håkansson and Johanson, 2001).

With indirect learning is meant that capability acquisition occurs through the learning from and of others. In particular, the experience of others complements the experience generated through one's own direct experience (Levitt and March, 1988). Consequently, many related or seemingly unrelated actors are perceived involved in the capability acquisition process of the focal firm. An ambition is to introduce these players in the context, not primarily as actors, but as sources of new capabilities on equal footing with internally generated capabilities. This demands the utilisation of alternative and complementary theoretical approaches beyond the dynamic capability approach.

Support for taking this road can be found in Håkansson and Johanson (2001) who discuss network learning. They suggest that "exposure to a wide set of business relationships, that differ with regard to history, technology, culture and strategies, can be expected to lead to higher-order learning more frequently than does the absence of such exposure". Assuming that Håkansson and Johanson (2001) are right, and that with every firm follows an unique set of relationships, it can be inferred that the present literature on firm capabilities and capability acquisition, as reported in Chapter 4 and 5, fail to consider important dimensions of capability acquisition.

Network Learning and the Role of Customers

Slater and Narver (1995) suggest that learning organisations are moving from adherence to Porter's 1980-model, in which the strength of competitive forces dictates strategic choice, to the recognition of collaborative forces as major influences on firm strategy and performance. Basing their argument on Glaser (1991), Kanter (1989) and Webster (1992) they note that organisations learn from customers, distributors, suppliers, alliance partners, universities and many others. The notion of context has gained a new meaning since it has become more than an arena for competing for customers; i.e. an arena for competing for capabilities, in order to serve customers better.

As pointed out by Zander and Zander (2000) the role of customers has long been neglected within the resource-based view and the dynamic capability approach. The role of the customer is currently being re-evaluated. The process of integrating insights with regard to customers, not as consumers or end users only but also as co-producers is underway. This process is driven both from within the resource –based view and the dynamic capability approach, as well as from other research approaches or even disciplines, making this work a representative of this process.

For instance Nohria (1992) argues that relationships in a network are potential conduits to internal resources held by connected actors. Langlois (1992) has pointed out that capabilities created within a network of competing and co-operating firms often complement internal resources. Burt (1992) has emphasised that the rate of return on internal resources is determined by how well structured the network is. In particular, it can be inferred from Burt that the degree and type of control exercised by the firm over the flow of capabilities from itself to the related actors, and between the related actors, influences competitive behaviour.

It has also been suggested that the position of a firm in a network contribute to the acquisition of new capabilities. By mobilising strong as well as weak ties in the network the firm can mobilise the learning of others (Granovetter, 1973; McEvily and Zaheer, 1999). The mobilisation of ties can in turn enhance the ability of the firm to attract and strengthen new relationships (Powell, Koput and Smith-Doerr, 1996).

Zander and Zander (2000) have pointed out that the active employment of customer relationships can be a way of generating rents, securing long-term growth, and creating a sustainable competitive advantage. They argue that direct contact with customers confer the firm with asymmetric access to information flows from established customers, rapid assimilation of new and previously unexplored capabilities, and protection against imitation through time compression. Furthermore, they suggest that direct customer contact confer the firm with a unique capability to sense and exploit a succession of new product and service ideas. In addition, Zander and Zander note that Penrose (1959) already raised this issue and conceptualised it as the "inside track", but since then has been neglected in the resource-based view (and the dynamic capability approach for that matter).

Why then should it be assumed that the role of customers is important for capability acquisition? There are contributions not related or only partially related to the resource-based view and the dynamic capability approach that proposes that customers can be of critical importance for capability acquisition. These contributions suggests that customers are important for product development (Bidault et al, 1998); for the success of new product launches (Gruner and Homborg, 2000), and for innovation during adoption (Douthwaite et al, 2001). These contributions share an emphasis on seemingly small matters that add up to substantial capability acquisitions.

Orlikowski (1996) provides a major source of inspiration. Focusing on why organisations change, focus is put on the micro-level changes that actors enact over time. Taking a “situated change perspective”, Orlikowski explore change which is enacted more subtly, more slowly, more smoothly, but no less significantly. Viewing organisational change as an ongoing process grounded in actors experimenting with everyday contingencies, breakdowns, and exceptions of all kinds, opportunities and unintended consequences. Through a series of ongoing accommodations, adaptations, and alterations, sufficient modifications are enacted over time to achieve fundamental change.²³

Orlikowski (1996) explains: “there is no deliberate orchestration here, no technological inevitability, no dramatic discontinuity, just recurrent and reciprocal variations in practice over time. Each shift in practice created conditions for further breakdowns, unanticipated outcomes and innovations, which in their turn are responded to with more variations. And such variations are ongoing; there is no beginning or end point in this change process” (p.66).

Following from Orlikowski (1996), who is partially focusing on customers, it is the author’s fundamental belief that customers interacting with sellers reside in a context where situated change occurs in terms of many micro-level changes and adaptations. The argument made here is that capability acquisition processes involving customers have been overlooked or neglected. It is argued here that because of the neglect of the customer as an actor involved in the capability acquisition process (and the context at large for that matter), a number of topics remain undecided or need more work in the dynamic capability approach. By focusing on customers, and moving from the notion of organisational learning to network learning wherein situated change occurs, this can be remedied.

²³ Orlikowski (1996) suggest that the situated change perspective is a complement to, and not a substitute for, a number of existing change perspectives which assign varying importance to the role of managers, like perspectives focusing on planned change, technological imperatives and punctuated equilibrium. (These perspectives have been commented upon in this Chapter 5 and are further commented upon in Chapter 8). Orlikowski (1996) suggests that organisational change occurs through a variety of types of change, but the argument provided is that the critical role of situated or contextual change has been neglected.

6. Creating a Platform for Further Research

This chapter starts with a discussion on how performance differences can be explained, followed by an identification of the shortcomings of the dynamic capability approach with regard to its ability to explain performance differences. The notion of performance differences links back to Chapter 4.

In this chapter an attempt is made to find various additional theoretical insights that can complement the dynamic capability approach. Towards this end three other research approaches, the transaction cost approach, the literature on distribution systems, and the markets-as-networks approach, are surveyed for their potential to complement the dynamic capability approach.

Among the alternative research approaches, the markets-as-networks approach is singled out as the one offering potential remedy. This conclusion is arrived at based on the discussion in Chapter 5, which is developed here. The chapter concludes with an integration of the dynamic capability approach and the markets-as-networks approach, to create a common platform for further research.

Explaining Performance Differences

Several research approaches have attempted to explain competitiveness and performance differences by focusing on the relative position of the firm visavi other firms that are sellers of the same or a similar product or service. These approaches have used the notion of market or industry as the proxy for the firm context in which performance differences arise. Not coincidentally, this is a feature of SWOT analysis (strength and weakness versus the opportunities and threats in the competitive environment (Learned et al, 1965; Andrews, 1971).

Furthermore, there is a common denominator with Porter (1980) and the notion of generic strategies (cost based or differentiated), as well as his structural analysis of the market. Furthermore, Buzzel and Gale (1986), who packaged and summarised the PIMS principles (profit impact of market strategy), illustrate how closely the focus on the relative position of the firm is connected with the notion of marketshare. Both the Boston Matrix and GE Matrix are variations on this theme, linking the products (and to some extent capabilities) of the firm, with the relative contextual position in terms of growth and market-share (Kotler, 1997). Interestingly, these managerial tools for analysis and prescription include the context in a rudimentary manner.

The competitive forces approach (Porter, 1980) and the related entry deterrence approach (Ghemawat, 1990), which have been important paradigms in the strategy field, have a clear answer to the question of how superior performance is achieved (Teece et al, 1992). These approaches claim that the intensity of competition in the industry and market segment that determines profitability. What matters is achieving a defensible cost or differentiation position in an attractive market and keeping rivals off balance through strategic investments, pricing strategies, and signals about future intentions (Day, 1994).

In the competitive forces and entry deterrence approach to strategy, the firm is considered a black box. In contrast, the parameters identified in the dynamic capability approach regarding strategy, competition, and competitive advantage are different; competitive advantage arises from the continuous development, experimentation, exploitation, and protection of firm-specific assets (Teece et al, 1992).

The resource based view and the dynamic capability approach both regard the underlying resources, not the cost and value of the offering per se, as the key towards understanding and explaining competitiveness. Competition is not a matter of offering the right products or services, but of possessing the right routines and resources. The focus is shifted from the product market to the market for capabilities.

The dynamic capability approach takes the resource based view one step further, with its emphasis on knowledge creation rather than knowledge use. Explaining competitiveness with a dynamic capability approach imply certain shortcomings and fallacies that should be pointed out. In particular it is unclear what insight that the dynamic capability approach can confer upon situations which involves several firms and customers that work together, and acquire capabilities together.

Performance Differences in the Dynamic Capability Approach

In the dynamic capability approach, as will be explained below, the notion of performance differences is closely related to the issue of element and structure, which is extensively discussed in the dynamic capability approach. With element is meant: what is a capability? With structure is meant: what is the relationship between capabilities? Unfortunately, the elements and structure of capabilities still remain unclear, and so the ability of the dynamic capability is arguably limited in its capacity to explain performance differences.

Pioneering research efforts defined capabilities as a collection of organisation specific “resources” such as technologies, patents, channels, brands, etc. (Penrose, 1959; Wernerfeldt, 1984; Barney, 1986; Itami, 1987). The major shortcoming of the early classifications is that they failed to incorporate the organisational aspect as well as the interdependence between numerous capabilities within and between the firm and other firms.

In addition, no attention is given to the aspect of time and evolutionary processes. Later researchers working in the resource-based view have been surprisingly unspecific and shallow on the issue of what capabilities are (see for instance Hamel and Prahalad, 1990).

A key contribution regarding the element of a capability came from Nelson and Winter (1982), who used the concept of organisational routines. They argued that routines are patterns of interactions that represent successful solutions to particular problems. These patterns of interactions are resident in-group behaviour through subroutines that is partly resident in, but not limited to individual behaviour. This understanding of the element of firm capabilities is well received and has been adopted by many researchers on capabilities.

Furthermore, it is posited by Nelson and Winter (1982) that competitive advantage of firms stems from high performance routines operating inside the firm, embedded in the firm's processes, and conditioned by its history and its trajectory. However, and in contrast, it will be argued, in line with Freiling (1997) that capabilities can reside outside of the boundaries of the firm. In effect, proposing that relationships, alliances and agreements, constitute capabilities in the fullest sense. Hence, the notion of element and structure tie into each other.

Regarding the structural dimension of research on firm capabilities, both Hamel and Prahalad (1990) and Hayes and Pisano (1994) have suggested a link between firm capabilities and competitive advantage. In its classical interpretation firm capabilities is something that the firm safeguards, protects, and keeps secret. It is an internal phenomenon. Accordingly, capabilities are ways of organising and getting things done that cannot be accomplished by using the price system to co-ordinate activity (Teece, 1982; 1986). The essence of firm capabilities, according to the dynamic capability approach, is that they cannot be readily assembled through markets (Kogut and Zander, 1992).

This viewpoint co-exists with the notion that competitive advantage requires the exploitation of both existing internal and external capabilities possessed by other firms and of developing new ones. These thoughts are partially developed by Penrose (1959), Wernerfelt (1984), and Teece et al (1992a). The resource-based view and the dynamic capability approach have from time to time considered the external dimension of the firm, with regard to its potential for capability acquisition. Yet in general the context is neglected or downplayed or treated in a static manner. The focus is on both the elements and structure of capabilities, considered within as well as externally to the firm.

Furthermore, focusing on the issue of capability acquisition with regard to customers can presumably generate insight into the nature of both the elements and structure of capabilities. Given that several other research approaches within business administration have devoted considerable thought to the external dimension of the firm, it should prove worthwhile to incorporate insights from the literature on transaction costs, distribution channels, and the markets-as-networks approach.

Opportunism and Knowledge

Coase (1937) delineated the area of transaction costs as a research topic and established the comparative organisational reasoning crucial to the transaction cost theory. Based on Coase (1937), Williamson (1975; 1985) developed the transaction cost theory, which recognises the existence of transaction costs related to the general equilibrium model prevalent in the neo- classical economics view. The neo-classical economic paradigm views the market as an efficient mechanism for conducting exchange.

In contrast, transaction cost theory argues that markets fail in many circumstances, as markets never or rarely possess the structural conditions necessary for perfect competition, such as undifferentiated inputs and products, large number of buyers and sellers, free entry into and exit from the markets, and perfect information.

In Simon (1957), the motivating behavioural assumption of bounded rationality was advanced. In addition, in Simon (1951) the employment – authority relationship was established as the distinction between firm and market. Williamson (1975) builds upon these assumptions, arguing that since people have limited cognitive competence for solving problems, all contracts supporting transactions formed under complexity and uncertainty are inevitably incomplete because of the bounds of rationality. Furthermore, Williamson (1975, 1985) introduced opportunistic behaviour as a determinant of organisational mode: hierarchy or market. Adopting transaction cost theory for the purpose of this thesis, it proposes a mechanism for understanding firm context and firm properties in one integrated setting, suggesting that there is interplay or interdependence between them.

The suggestion by Williamson (1975) that opportunistic behaviour determines organisational mode or institutional form has received attention and is followed by a large body of work in the transaction-cost tradition (see Ghosal and Moran, 1996, for a recent review and evaluation). The basic idea of transaction cost theory is that the producer will internalise those functions that the producer is able to perform at a lower cost, and will rely on the market for those functions where other providers have an advantage. This idea can be extended to the notion of firm capabilities and ties back to the literature on distribution channels. Transaction costs supply an explanation towards why capabilities reside internally and externally respectively with regard to the focal firm.²⁴ By analysing distribution systems in terms of transaction costs, a persuasive explanation of why capabilities are configured the way they are is obtained.

²⁴ This section draws on Mika Gabriellson, Sales Channel Strategies for International Expansion – The case of large companies in the European PC industry, Doctoral Dissertation at the Helsinki School of Economics and Business Administration, 1999.

The dynamic capability approach and the transaction cost theory are tightly linked in terms of explaining how firms exploit market imperfections or market frictions. Those firms that exploit market imperfections by necessity possess the firm capabilities to do so. Actually, having spotted and learnt how to exploit a market imperfection explain the source of a competitive advantage as well as the existence of the firm.

However, the transaction cost theory focuses more on explaining the existence of the firm, while the dynamic capability approach focuses more on explaining competitiveness or performance. In many cases, when there are no market imperfections that are easily identified, or a group of firms are equally situated to exploit a market imperfection, other possible explanations of performance differences must be consulted. Transaction cost theory does not account for the sources of competitiveness i.e. resource heterogeneity and how rents are actually generated (Kor and Mahoney, 2000).

A problem with the transaction cost theory is the assumption of opportunism. Transaction cost theory posits that firms because of opportunism will refrain from sharing and exchanging their capabilities with other firms. The focus on transaction costs and opportunism is inadequate in explaining a wide range of firm behaviour (Rindfleisch and Heide, 1987).

Instead, other grounds and sources of explanation must be found. Organisational mode or institutional form and behaviour are important phenomena subject to inquiry. But reasons for their occurrence and change are not sought primarily in opportunism, but in the construction and distribution of knowledge and learning. This is in line with the argument advanced by Conner and Prahalad (1996), who argue that it is possible to develop alternative or complementary explanations for understanding organisational forms and formation, without relying on opportunism as the key explanation.

The Channel Metaphor

Early treatments of channel structure focused on institutional form and physical attributes of channels. Topics like channel length, distribution intensity, and functional responsibility were addressed (Clark, 1937). Using the channel as the key metaphor, the focus was on which tasks or functions were performed in the channel and by whom.

The distribution channel as an arena for capability acquisition brings up the notion of a middleman and the role this middleman plays. According to Stern et al (1996), there are a number of marketing channel flows and functions that a product or service must go through to pass from producers to consumers. They highlight the flow of information, promotion, negotiation, ordering, financing, risk taking, physical possession, payment, and title.

Distribution channels can be viewed as a set of interrelated and interdependent components that interact to achieve common objectives (Stern et al, 1996). This view takes the overall channel as a unit of analysis, rather than the perspective of individual actors.

By looking at several actors at the same time, they are considered to be dependent on the co-ordinated behaviour of each other. Distribution channels can be considered as behavioural systems where a specific division of labour is established between the participants who are interrelated to each other (Alderson, 1957, 1965).²⁵

As pointed out by Kotler (1994) singular tasks in the channel often are carried out more efficiently through specialisation, as individual actors can reap economies of scale in their operations. In addition, whoever performs a task in a channel must commit relevant resources to the performing of that individual task. Furthermore, someone must perform these tasks but they can be performed by many, i.e. which actors that should perform a particular task is not given and may well change over time.

Gadde and Håkansson (1992) discuss what determines which actor in the channel performs which task in the distribution system and suggest that there are two basic approaches towards answering this question. From a classical economic perspective, the notion of relative efficiency becomes paramount; those actors who can perform it most efficiently will perform the flows and functions. The other approach is the institutional perspective where historically established patterns of conduct and roles provide an alternative set of explanations to why flows and functions are configured as they are. Using an institutional perspective, relative inefficiency can be explained and understood as well as obstacles to efficient future outcomes. The efficiency perspective is in their view more future oriented and provides a framework for understanding and explaining dynamic channel transformation and change.²⁶

The notion of tasks and functions can be looked upon as examples of organisational routines and be extended to firm capabilities, with the addition that routines reside not only within firms, but also between firms. Accordingly, a new definition or at least understanding of firm capabilities must be produced. The guiding principle adopted is to identify firm capabilities not only as organisational routines within firms, following Nelson and Winter (1982), but also as routines carried out between firms in the channel context.

Taking a helicopter perspective, follows a long tradition in the distribution channels literature, focusing not only on a singular firm but on “the group of channel members to which a set of distribution tasks has been allocated” (Rosenbloom, 1991, p 20).

²⁵ This section draws on Gadde, L. E. (2000) From Marketing Channels to Differentiated Networks – distribution dynamics in a historical pattern, in Dahiya, S. (eds) *The Current State of Business Disciplines*, pp 2441-2462, Spellbound Publications.

²⁶ *Distribution - Marknadsföring* 303, Kurskompendium, Del 1, by Hans Kjellberg, 1996, Handelshögskolan i Stockholm.

This literature has not focused on capabilities and learning. Instead it has focused on channel structure which has been explained by the microeconomic or classical sales channel approaches: the “characteristics of goods” approach, (Aspinwall, 1958), the “market and services” approach, (Bucklin 1965), the “functional spin-off” approach (Mallen, 1973) and the “scale of economics” approach (Frazier, 1990). Aspinwall (1958) offers managerial suggestions based on product characteristics and requirements for customer service, yielding a channel structure.

The premise of the distribution literature is an ambition to understand how the gap between production and consumption was bridged with a focus on cost (Lewis, 1968). The gap involves distance, time, and technology (Alderson, 1954). Productivity gains were attained through mass production and standardisation (Hayes and Pisano, 1994). Mass production introduced a gap between production and consumption, and in turn required mass distribution (Chandler, 1977). To bridge the gap producers created inventories to ensure that products were available when demanded. The need to manage these inventories was the origin of various intermediate levels such as wholesalers and retailers. In this distribution system the intermediaries composed assortments of intermediate stocks that were determined by the requirements of the functions performed (Gadde, 2000).

The channel context that was considered was the vertical one, where various actors had pre-ordained tasks and roles. Mallen (1973) applied Stigler's (1951) notion of functional specialisation to channel structure and argued that channel structure evolves as business functions are assumed or spun off to minimise total distribution costs. Over time, that process enhances or diminishes opportunities for specialised functional intermediaries and affects channel length. The “scale of economies” approach centres on the optimal size of the market in relation to the optimal scale of the producer (Frazier, 1990).

These approaches explain the vertical dimension of distribution channels based on the environment, market, product, producer, customer or channel specific factors (Gabrielsson, 1999), but do not relate to capability acquisition. Yet, it can be inferred that for the distribution system to function adequately as a whole, a number of capabilities must be acquired. Since, tasks change and move around in the distribution systems, who should make capability acquisition is an open question and change over time. While the literature on distribution systems does not account for capability acquisition, it discusses innovation in distribution systems.

Innovation in Distribution Systems

McCammon (1971) has suggested that radical innovation would present itself outside of established channels, indicating that established distribution systems could be expected to be limited in their ability to acquire new capabilities. Instead, it can be inferred from McCammon (1971) that truly new capabilities are introduced into the channel in the form of new entrants who can contribute a new set of capabilities.

McCammon (1971) also opens up for focal actors who, because of their position and power, can enforce a particular change in the distribution channel. Accordingly, change in the structure of distribution channels, and capability acquisition, can be expected to come either from incumbents or challenging outsiders.

This view can be contrasted with McVey (1966), who raises doubts that distribution channels really behave in accordance with the managerial view - where the producer designs the best selling organisation for its products. McVey (1966) argues that producers seldom have the opportunity to choose between various alternative channel configurations. The ability of the producer to control what takes place in the distribution channel is limited. Power is not given for once, but can change over time, and seldom encompass everything in the channel. Accordingly, capabilities become available as a result not only of managerial action and intention, but also of social circumstances and relationships. Consequently, where the capabilities will reside is a function and consideration of both social and economical aspects.

McVey (1966) claims that middlemen to a larger proportion see the product from the possibilities on the market - customer oriented point of view, and not from a production point of view. A producer must realise that he or she both sells to his middlemen and through them. For a producer who tries to create and introduce a new product, the support from the channel is critical although the parties have different points of departure.

Furthermore, a single middleman can obtain a strong local position through his or her contact with customers and through knowledge about the assortment of the middlemen. In such a situation the only opportunity of a producer to get access to a market is to sell through this middleman. The options of a producer are thus limited, indicating the importance of having the right customer relations, and they can constitute critical capabilities.

Mallen (1972) discusses relations between actors and the aspect of power in channels that McVey touches upon, showing that both producers and retailers have various strengths and weaknesses. Mallen (1972) argues that the channel must act as one to obtain maximum efficiency. Jones and Riley (1992) suggest that by changing perspective, optimisation rather than sub-optimisation in the overall system is achieved, compared to when every single actor in the system tries to manage its flow on its own. Interpreting Mallen (1972), he also offers a suggestion for why sub-optimal behaviour occurs - as individual actors maximise their efficiency, the total channel is not optimally configured. Extending on Mallen, capability building occur across the distribution channel in a co-ordinated way to avoid sub-optimisation.

Nyberg (1998) provide an elaboration by pointing out that the characteristics of innovation are not fixed, but shaped in interaction with the potential adopter. The demand side is complex because in many situations the adoption decision is not made by an individual, but by a group of individuals or customers.

Furthermore, Kjellberg (2001) has shown that artefacts themselves contribute to the shaping of the distribution system in interaction with the actors in the system. Accordingly, they way boxes, trucks, services and products are designed effect the configuration of the system, and the capabilities that can and must be acquired. Building on Nyberg (1998) and Kjellberg (2001) capability acquisition implies not only co-ordination with other actors in the distribution system, but also with customers as well as artefacts.

From Channels to Networks

The idea of co-ordination of actors and artefacts can be related to the notion of specialisation. The literature on distribution channels assumes multi-functional actors where information flows and material flows are kept together, and should be contrasted with currently emerging distribution systems with activity specialisation and greater need for co-ordination. These new distribution systems integrate products and services, and involve several actors that jointly serve the customer. This change has come about because firms face customer pressure to develop distribution solutions that fit with the specific requirements of particular customers (Gadde, 2000).

Gadde (2000) argues that the classical model of distributions systems is flawed and inadequate to describe and understand distribution of today because of advancement in manufacturing and distribution technology: “Distribution is no longer about channelling a product manufactured on speculation through an organised system of intermediary firms. Today it is more important to take the input operations of the customer as the starting point. Doing so will identify the different distribution needs of various customers. Satisfying these needs of various customers will call for the services of a network of actors with complementary capabilities”.

The new emerging reality causing new distribution arrangements can be characterised as “differentiated distribution” (Gadde, 1997). The new arrangements tend to be different from “traditional channels” in three respects: 1) They are formed as network structures rather than channels, 2) They rely on specialised intermediaries rather than on multi-functional distributors, and 3) Manufacturer-intermediary relationships are based on co-operation rather than confrontation (Gadde, 1997).²⁷

²⁷ The notion of network has by now gained wide acceptance. There is a proliferation of terms including the word network. For instance: business networks, industrial networks, network approach and the markets-as-networks approach are some of the most often used. Although these terms are more or less similar there are notable differences that should be pointed out. Indeed, since many writers have been inventing their own variations and terms, while borrowing extensively from each other, defining the term network is a rather confusing exercise. Since, this thesis focus on utilising the markets-as-networks approach the focus here is put on trying to distinguish the properties attached to the markets-as-networks approach.

Accordingly, the classical distribution systems literature, which is a reflection of the focus on mass production not accounting for the new forms of actor specialisation and the increased need for co-ordination between actors, offers little guidance for discussing acquisition of capabilities in a firm context. Looking upon the channel as a network can fulfil the need for complementary or alternative conceptualisation (Gadde, 1997 and 2000).

The markets-as-networks approach draws inspiration from a number of research efforts conducted in Sweden. These efforts were made within three different fields: distribution costs and systems, industrial structural change, and internationalisation (see Johanson and Mattsson, 1994 for a detailed description of the history of the markets-as-networks approach). A key finding was that relationships were long-term and that sellers often built relationships with a small number of major customers (Forsgren and Kinch, 1970; Johanson, 1966).

The markets-as-networks approach was developed as an alternative way to look upon markets and channels. It was first presented as a distinct view of marketing and markets in two books published in 1982 (Hägg and Johanson, 1982; Hammarkvist et al, 1982). This alternative conceptualisation made researchers focus on what happens between organisations, rather than within them. The markets-as-networks approach came to focus on business-to-business markets, the context of the buyer and seller, and the relationship between them.

Furthermore, the new approach came to rest on the notion of exchange and of relationships as contributing to a governance structure. In the markets-as-networks approach, exchange implied co-ordination of activities and resources controlled by one actor with the activities and resources controlled by others actor (Johanson and Mattsson, 1994).

Emphasising the dynamic character of relationships, Håkansson (1982) and Håkansson and Wootz (1975) focused on the interaction between two actors, a seller and a buyer, i.e. dyads. A key point was that interaction – including exchange and adaptation - over time can capture important aspects of business-to-business marketing and markets. This focus on interaction was eventually augmented to include many dyads, i.e. a network of relationships (Johanson and Mattsson, 1994; Håkansson and Snehota, 1995; and Ford et al, 1998).

The markets-as-networks approach can be linked to sociology and the concept of embeddedness (Granovetter, 1985). Astley and Fombrum (1983, p 48) write: “a true understanding of organisation strategy formulation and implementation requires that we move beyond the focal organisation to an appreciation of the network of relationships in which one single organisation is embedded”.²⁸

²⁸ This section draws on Annalisa Tunisini (1997) *The Dissolution of channels and hierarchies – An inquiry into the changing customer relationships and organisation of the Computer Corporation*, doctoral dissertation, Department of Business Studies, Uppsala University.

Zukin and DiMaggio (1990) have identified four aspects of embeddedness. They argue that cognitive, political, cultural and structural aspects influence the interfirm network and competitive behaviour. A central point is that the firm and managerial action is embedded in a network of relationships that influences competitive behaviour (Gnyawali and Mahavan, 2001). Subscribing to this view of how strategy is created is consistent with Granovetter (1985) and his notion and criticism of both under socialised and over socialised conceptions of human action. Following from Granovetter, understanding of the scope for managerial action and agency is that managers have limited, but still considerable leeway.

In the markets-as-networks approach the firm is looked upon and studied from an outside-in perspective. The nature and quality of internal capabilities is downplayed. In similar fashion, the innovation, development, cultivation, maintenance, and discarding of internal capabilities is not considered important by the markets-as-networks approach (two notable exceptions are Andersson, 1994 and Waluszewski, 1990). But, the markets-as-networks approach acknowledges the interdependence and interaction between actors, activities, and resources as taking place partly within the firm, partly sharing with the dynamic capability approach the understanding of the nature of the “atoms”.

Instead of focusing on firm capabilities, the social capital created between organisations, expressed as relationships and trust formed over long time is made paramount. The markets-as-networks focuses on firm context and includes social and economical aspects of firm behaviour, and uses relationships or firm dyads as the basic building block, forming networks (Acrol et al, 1983; Heide 1994).

Håkansson (1987) has conceptualised the connectedness of individual actors, activities and resources in relation to other actors, activities and resources. This connectedness implies that what happens in a relationship affects – positively or negatively – what happens in other relationships within the network (Blankenburg and Johanson, 1990). In addition, individual dyadic relationships provide access to other relationships because of inter-connectedness (Easton, 1992).

Strategy Making in the Markets-as-Networks Approach

In the markets-as-networks approach, a firm’s role and position in relation to other firms defines its strategic identity. Håkansson and Snehota suggest that the relationships of an organisation with other organisations in the network constitute in themselves one of the most valuable resources that it possesses (Håkansson and Snehota, 1989). By partly referring to Pfeffer and Salancik’s view of a company’s dependence on other resources, the authors add that “through relationships with other parties, resources and activities are made available and can be mobilised and exploited, in order to enhance its own performance” (Håkansson and Snehota, 1989).

Jarillo (1988) have stressed the importance of strategy making in networks. The argument is that the position in the network strongly influences the basis of a company's future development of exchange relationships, i.e. it forms the basis for the actor's strategic action. It affects the effort to influence (change or preserve) its position in the network. Mattsson (1987) distinguishes between network-integrative strategies, aimed at adapting to the network structure, and network-changing strategies that imply an interaction to change the network structure. Competing is therefore more a matter of adapting to and/or changing the network (Thorelli, 1986).

A singular organisation should not be viewed as a solitary unit confronted with faceless environments (Astley, 1984). Instead, the network relationships in which the firm is involved constitute its environment, which is neither faceless nor totally competitive (Axelsson, 1992). The performance of a firm depends primarily on its capacity to effectively establish, develop, and maintain relationships with its market context. This includes actors with whom it only has indirect relationships, i.e. which have business relationships with an actor with whom the focal actor has a business relationship (Håkansson and Snehota, 1995). The relevant unit to study from a markets-as-networks perspective is not the individual firm, but a focal firm in its network context.

To be competitive in the network is therefore a matter of managing relationships, not of actor attributes. Acquiring capabilities in this context is a matter of exchange and interaction via relationships to induce learning and capability acquisition. Critical activities are those activities that serve to establish, maintain, develop and sometimes break relationships, to determine the exchange conditions, and to handle the actual exchange (Mattsson, 1996).

In reflection, an inter-organisational perspective of business strategy can be taken (Aroyuo and Easton, 1995), where a business strategy is primarily conceived and analysed as an exchange interaction strategy. The role and scope of the single company is not to be primarily a locus of production of goods and services, it is primarily considered to act as an exchange interaction entity (Snehota, 1990).

Because of its dependency on "external resources" (Pfeffer and Salancik, 1978), Håkansson and Snehota (1995) suggest that it is "meaningless and conceptually impossible to disconnect the single company from its context". The boundaries of the firm are considered to include the critical activities and the resources that can be mobilised as a result of the ongoing market relationships. In reflection of this viewpoint, Håkansson and Snehota (1989) use the term capacities to indicate resources or capabilities that reside within one organisation but constitute capabilities for another external organisation.

Accordingly, an actor's competitive advantage emanates from how it relates to market counterparts. The current study view distribution channels as a particular instance of context, hereby called the "near context". Hence, focus is here put upon actors with whom the focal organisation can have meaningful relationships insofar that they can rely on the capabilities of each other.

Distribution Systems and the Markets-as-Networks Approach

The markets-as-networks approach has been applied to distribution issues (Andersson, 1992, Gadde and Håkansson, 1992, Gadde and Mattsson, 1993, Tunisini, 1997). These studies suggest that the markets-as-networks approach facilitates a better understanding of the dynamics of distribution compared to the traditional literature on distribution channels and systems (Gadde, 2000). This work follows this line of research.

Of particular relevance is the application of the markets-as-networks approach to the distribution of computers (Tunisini, 1997). That study provides an account of the changing distribution system of computers, arguing that: “the business performance and the development of differential advantage are strictly connected to the involvement of channel actors in a variety of business relationships. Joint learning and adaptation processes that occur in these relationships generate interdependencies. So each individual relationship, as well as the web of relationships in which the company is involved, will contribute to condition the whole company’s business strategy” (Tunisini, 1997, p 152).

While the position advanced by Tunisini (1997) is accepted regarding the influence of social exchange relationships on firm strategy, the term “condition the whole company’s business strategy” is questioned. Instead it is argued, based on the insights generated by the dynamic capability approach as well as the markets-as-networks approach, that firm strategy is conditioned by the ability of the firm to acquire capabilities both from internal and external sources.

Searching for external and internal capability acquisition in the empirical investigation is one part of making this view accepted. With the ambition to integrate the dynamic capability approach and the markets-as-networks approach, focusing on the evolution of capabilities over time, and the patterns of capability acquisition, a case-study approach allows for fine-grained, in-depth identification and analysis of firm capabilities and capability acquisition. This was the approach used by Penrose (1959) and generated a rich understanding of firm-level growth rates although the book itself mostly contained deductive reasoning and theorising (Kor and Mahoney, 2000).

Following in the tradition of Penrose (1959), similar research efforts in the case-study tradition (Eisenhardt, 1989) are well represented in the resource-based-view literature. Chandler Jr. (1962), while not directly considered a contributor to the resource-based literature, in the same fashion as Penrose (1959) included both adaptive and creative managerial action for understanding successful firm building efforts. In Chandler Jr. (1990), the evolution of resource accumulation and the evolution of organisational capabilities in large enterprises are documented in the USA, UK, and Germany. Typically, entrepreneurs made three sets of interrelated investments – investment in production, distribution, and management.

Leonard-Barton (1992) conducted case studies of Ford, Chaparral Steel and Hewlett Packard, illustrating that the tight coupling of core capabilities might lead to core rigidities. Hall (1993) investigated intangible resources and strategic factor market imperfections at six companies. Ghemawat (1993) assessed the timing of sunken cost resource commitments at Nucor. Ollinger (1994) examined the evolution of the USA oil industry from a resource-based view. Argyers (1996) specified the development of capabilities for cable connectors. Each of these case studies provides settings that facilitate the identification and analysis of capabilities and capability acquisition over time, indicating the possible benefits of such an approach for the issues investigated. In relation to the overall research done in the dynamic capability approach and related approaches, there are few longitudinal case studies, and fewer comparative ones.

One exception is Miller and Shamsie (1996). Taking a resource-based view, they compare Hollywood film studios from 1936 to 1965, during what they label as two distinct periods of time: with two different environmental contexts. By linking firm capabilities with firm context, they in the view of the author, provide an example of how contexts influence capability acquisition. When contrasted with each other, the two contexts reveal insights into how the context affects the film studios, and how they by themselves constitute capabilities.

Loasby (1998) has pointed out the importance of considering both the seller and buyer context, since the value of capabilities is determined by the ways they fit both parties. With regard to customers, a key belief of the author is that there are particular capabilities to be acquired from customers. The particular context and technology of use (Gadde, 2000) is not captured and treated in the markets-as-networks approach or in the dynamic capability approach to the end it deserves. The markets-as-networks approach arguably offers more scope for extension and development.

Integrating the Dynamic Capability Approach with the Markets-as-Networks Approach

While the resource-based view and the dynamic capability approach cover internal capability acquisition processes, distribution systems literature, transaction cost theory, and the markets-as-networks approach could potentially enhance the understanding of firm context and capability acquisition between firms. These research approaches have not been devised to address the capability acquisition phenomena. It is argued that the markets-as-networks approach is the key research approach that can complement the dynamic capability approach. This standpoint is elaborated upon below.

Integrating the dynamic capability approach and the markets-as-networks approach generates a number of themes or intersections, which if explored can provide insight into capability acquisition. Arguably, the two research approaches together offer a better platform for understanding capability acquisition. Below these themes are developed. Some of these themes have been touched upon before above, some are derived as presented below.

Structure and Elements. The markets-as-networks approach raises the notion of investment (Hägg and Johanson, 1982; Johanson and Mattsson, 1985). It can be taken to mean the commitment of resources. Such investments, like the purchase of dedicated machinery, the locating of a staff member on customer premises, and the adaptations between the parties. The notion of investment ties into the duration of the relationship and pre-supposes continuity. The relationship also leads to the emergence of process of institutionalisation, implying that over a period of time certain activities and processes become routines, a process with great similarities to the perception of routines as discussed by Nelson and Winter (1982).

There is a downplayed commonality between the approaches with regard to the notion of activities, actors, and resources. The concept of routines, which is a foundation of the dynamic capability approach, seemingly overlaps with the concept of resources. But there is a fundamental difference: to carry out activities, resources are needed, but activities also imply that resources come to change. Actors control resources and carry out the activities. By relating themselves with each other in terms of relationships, the combination of resources is facilitated. Resources come to change as the actors link resources and activities in different ways. As seen by the markets-as-networks approach, resources evolve and come to change as a result of actors linked to each other performing activities (Håkansson, 1989).

Both research approaches attempt to formulate general conceptualisations of what the atoms or building blocks in the two perspectives are based upon. It can be suggested that everything can either be considered a resource (the dynamic capability approach) or a relationship (the markets-as-networks approach). This process of making the atoms general is taken one step further, proposing that some, but not all, resources and relationships are capabilities. Arguably, there is similarity with regard to the markets-as-networks terminology, which bears partial resemblance to the notion of routines, resources, and capabilities in the dynamic capability approach. But the markets-as-networks approach is different in that it utilises and assigns importance to relationships between firms. Accordingly, the element and structure of capabilities in a markets-as-networks approach includes the firm context.

Firm Property and Context. Both approaches share the belief in heterogeneity and the power of combination, and assume interdependence between actors, activities, resources and relationships. However, they stress heterogeneity in different dimensions.

As discussed in chapter 4, the dynamic capability approach stresses heterogeneity with regard to the unique internal capabilities of the firm. Furthermore, Hamel and Prahalad (1990) have treated the strategic value of combining existing capabilities to achieve or sustain competitive advantage, pointing out the importance of being able to acquire new capabilities for a firm through combination and recombination – to achieve heterogeneity.

The markets-as-networks approach stresses the unique set of relationships with other actors in the network. It should be noted that the markets-as-networks presupposes that there are internal capabilities and that these are unique, otherwise exchange between two parties would be meaningless. Value in exchange is created because capabilities controlled by one firm can be combined with capabilities controlled by other firms (Håkansson, 1993).

This difference in emphasis should not be considered a weakness. Instead, integrating the two approaches should generate further insight about heterogeneity. The position taken is that the competitiveness of a firm is influenced and jointly determined by both firm properties and firm context. While this point appear trivial, past and present literature as far as the author can judge, suggests that researchers and writers on this subject have tended to emphasise one aspect before the other.

Capability acquisition as studied in here presumes combination of various capabilities, and considers it tightly linked with acquisition. Since acquisition cannot only or solely be performed by internal or external means, the integration of both firm property and context could potentially offer new insights into how these two aspects interact.

Both the dynamic capability approach and the markets-as-networks approach suggest various sources of capabilities that can be traced to either firm properties or context. Thus, regarding the structural dimension on capabilities, both firm context and firm properties are acknowledged and proposed as sources of competitiveness and potential sources of new capabilities. Accordingly, the possible sources of competitive advantage are augmented.

In refusing to choose either firm properties or firm context as the single sources of competitive advantage, competitiveness becomes a more complex phenomenon in so far that its sources and causes cannot be identified by only considering the internal or external context of the firm, when both must be considered. This dual attention span pre-supposes that markets have become domesticated and thus have assumed similar properties which traditionally have been associated with the internal workings of the firm (Arndt, 1979).

Since the dynamic capability approach ignores or downplays external capability acquisition including that of customers, the markets-as-networks approach offers a potential remedy in this respect. A recent contribution by Arayuo et al (1999) provides inspiration, illustrating that representatives within the markets-as-networks approach are partially addressing the issue of capability acquisition.

Arayuo et al (1999) argues that competitive advantage resides not simply within the boundaries of what the firms knows or controls, but also in the interfaces that the firms develop with other firms. They maintain a distinction between internal capabilities and resource interfaces. They focus on the modes whereby the focal firm can access external resources. They identify four modes: 1) Standardised interfaces, 2) Specified interfaces, 3) Translation interfaces, and 4) Interactive interfaces.

A key suggestion by Arayuo et al (1999) is that the focal firm needs a variety of interfaces depending on the degree of needed investment in the exchange, the cost benefits of having few or many counterparts, and the learning effects derived.

Arayuo et al (1999) argues that these interfaces are interdependent, writing that “a major task for every customer is to co-ordinate and combine solutions developed by suppliers with the in-house developed solutions” (p.10). Furthermore, it is the context of both the seller and buyer in a dyad that jointly determine the nature of a particular interface. As the capabilities and the competitive situation of the seller and/or buyer change over time, the type of resource interface will change dynamically.

The understanding offered by Arayuo et al (1999) is adopted and taken one step further, with the key proposition that not only resources, but also fully-fledged capabilities, can reside outside of the focal firm. The notion of access to external resources proposed by Arayuo et al (1999) is replaced by the general notion of capability acquisition, which includes capabilities that reside both internally and externally or are combined and constructed both externally or internally, residing in the “air”, i.e. the relationship itself.

Competition and Co-operation. Reflecting its tight link with the resource-based view, the dynamic capability approach emphasises competition. While this approach offers a more elegant view and explanation of competitiveness than the literature that focus on product market competition (see for instance Ries and Trout, 1982 who focus on positioning and Kotler, 1997 who focus on differentiation and positioning in product markets).

The dynamic capability approach does not account fully for co-operation and in the particular the potential benefits that are conferred with regard to capability acquisition. In contrast, the markets-as-networks approach stresses co-operation (Håkansson, 1989), but does not account particularly well for competition. Neither at the product market level nor at the capability markets level. Furthermore, the markets-as-networks approach, with some notable exceptions (Benndorf, 1987; Liljegren, 1988), fail to stress the dual nature of business relationships, i.e. that a relationship contain co-operation and conflict or competition simultaneously (McLoughlin and Horan, 2000).²⁹ It should be pointed out that co-operation, within the markets-as-networks approach, is a means of becoming and remaining competitive, rather than an end in itself (Hägg and Johanson, 1982).

²⁹ A notable exception is Håkansson et al (1993) who note that exchange relationships do not develop spontaneously and without considerable effort. On the contrary, for relationships to develop a systematic and continuous effort is needed, with considerable risk that the relationship falls apart or is stopped. Furthermore, in their view, conflict can be a change agent propelling the parties to find a stronger relationship.

In the same fashion, the loyalty to one focal actor in the network is likely to vary among firms in the network. The loyalty to the focal firm is also likely to weaken if the dependence is low. There are also instances of dual loyalty to several focal firms. Furthermore, each firm can reasonably perceive itself focal in the network, competing and co-operating as firms struggle for capabilities and position themselves to carve out profits, making industrial networks more complicated than the markets-as-networks approach traditionally admits (Bengtsson and Kock, 2000).

While the dynamic capability approach stresses competition, and the markets-as-networks approach stresses co-operation, the difference between these two research approaches should not be overestimated in this regard. Arguably, it is by considering both competition and co-operation both within singular relationships as well as within networks and between networks that understanding of capability acquisition can be informed.

Specialisation and Diversification. Both research approaches suggest that specialisation is needed to become and remain competitive. They suggest that specialisation is important in two different dimensions. In the dynamic capability approach a conjecture is if capabilities are related or unrelated to each other. Drawing inspiration from Rumelt (1974) the focus is put on to what degree the capabilities of the firm are closely related, i.e. are specialised and to what degree they support each other.

The dynamic capability approach posits that firms differ in the possession and deployment of internal capabilities that can be applied across an increasingly broad but related range of products and markets. The direction that the firm can take depends on the nature of a few key capabilities within the capability portfolio. Diversifying firms are suggested to enter areas that draw upon the same capabilities already possessed by the firm i.e. the speciality of the firm. Unrelated diversification is essentially seen as mistaken or deemed to be less successful in the long term (Zander and Zander, 2000).

In the markets-as-networks approach diversification is stimulated by the needs of customers and implies that what appear to be unrelated diversification with regard to capabilities, have a common denominator in the needs of the customers. Expressed differently, diversification may be related in terms of customers served, but unrelated in terms of capabilities required for supplying the offer (Zander and Zander, 2000).

Since the markets-as-networks starts by trying to understand the firm within its network context, it naturally includes and bridges the gap between the product market and the market for capabilities. The distinction between the two areas becomes blurred and it becomes possible to consider how these two arenas are related to each other. In particular it is possible to contemplate that capability acquisition can occur both at the product market level as well as the market for capabilities.

Firm and Network. Underlying the differences in emphasis with regards to firm property and context, competition and co-operation, specialisation and diversification in the dynamic capability approach and markets-as-networks approach are two seemingly conflicting understandings of governance structures. The dynamic capability approach stresses the independence of the singular firm and the scope for managerial action. There is no account of how firms come to act as if they were collectively co-ordinated. Firms compete with competitors belonging to the same industry in the marketplace. Towards this end they acquire capabilities in the market for capabilities. Co-ordination between firms, in the dynamic capability approach stills rests on the view of the market as an empty void, where big firms provide “visible hands” (Chandler, 1977).

In contrast, the markets-as-networks approach posits that there is a governance structure in which the firm is embedded (Granovetter, 1985). There is certainly a governance structure within the firm, but this structure is a governance structure within a more influential governance structure, as assumed and proposed by the markets-as-networks approach. This governance structure is set in the market by virtue of the web of relationships between firms, and assumes that firms are interdependent and that their actions are co-ordinated through relationships (Mattsson, 1997). A key premise in the markets-as-networks approach is that the firm is a component of a network structure and influences the evolution of the network by its own behaviour, i.e. the structure of inter-organisational relationships shapes the action of the organisations (Davies and Powell, 1992).

Accordingly, the position acquired in the network influence the ability of the firm to capture profit and forms the basis of the firm’s future strategic action. Competing is a matter of positioning the firm in a network rather than attacking the environment (Thorelli, 1986). Strategy in the markets-as-networks approach becomes a matter of changing or preserving its position in the network. Towards that end, Mattsson (1987) distinguishes between network-integrative strategies aimed at adapting to the network structure, and network-changing strategies that imply interaction to change the network structure.

Following from Mattsson (1987), capability acquisition can be seen as a reflection of the strategic direction the firm takes with regard to its position in the network. The drive to change or preserve the position of the firm in the network yields different capability acquisition patterns. Accordingly, a study of capability acquisition should be taking inspiration both from the dynamic capability approach and the markets-as-networks approach by acknowledging these two parallel governance structures.

Concluding Remarks

Blending the two research approaches, the integration of the dynamic capability approach and the markets-as-networks approach suggests interdependencies between the various forms of capability acquisition due to these parallel interacting governance structures. In the dynamic capability approach the concept of interdependence relates to the internal capability portfolio. In the markets-as-networks approach, the concept of interdependence between actors, activities, and resources is at the core. While, the dynamic capability approach has addressed interdependence coming from within the firm, the markets-as-networks approach refers to interdependence in terms of connectedness and suggests levels of analysis beyond the individual firm and the dyadic relationship (McLoughlin and Horan, 2000), coming from outside of the individual firm.

The dynamic capability approach only in a few instances relates to co-operation and its potential for capability acquisition, and so formulates a too narrow understanding of capability acquisition (see Lorenzoni and Lipparini, 1999; Mowery et al, 1998 for exceptions). In contrast, the markets-as-networks approach offers no good understanding of the internal capability acquisition processes of the firm.

The impression by the author is that the two research approaches have been moving closer to each other in terms of actual understanding. As indicated above, taking a closer look at the two research approaches shows an intensive mutual borrowing of ideas and propositions. Arguably, the understanding of competition and how competitive advantage is created has converged to some extent. Bringing the research approaches together even further, considering them as equally important sources for understanding capability acquisition, provides a stronger and more comprehensive set of explanations for understanding capability acquisition, than taken on their own.

7. Electronic Commerce

Capability

The initial empirical preview of Compaq Corporation and Dell Corporation suggested that particular capabilities were needed to create electronic commerce capability. By gaining insight into what is demanded for the firm to know about electronic commerce, which is done in this chapter, a foundation for studying how this knowledge can be acquired is produced.

Given the wide variation in views about how to achieve commercial success based on electronic commerce, five of the static capabilities deemed important in the literature are discussed below. Each capability is discussed in terms of how it potentially can confer a competitive advantage on or for the firm that possesses, or can access, that capability. In addition, when possible a brief historical background of the capability is provided.

The presentation of the five static capabilities is followed by a discussion on alternative capabilities for electronic commerce. Subsequently, the notion of static capabilities is operationalised. The chapter is concluded with a discussion on the difficulties involved with identifying capabilities in an empirical setting, in preparation of Chapter 10.

Addressability

Addressability is defined as the ability to properly identify the counterpart in a business exchange. While the advent of term addressability is comparatively recent, the notion of customer records has long been discussed in the literature. By knowing who the customer is and the customer's essential details, like name, address, turnover, purchasing volume, contact person, and payment record, a contextual setting is created in which business can be done. By establishing this setting, the relationship can be established and maintained, facilitating individual transactions between the parties (Bagozzi, 1975).

Traditional strategic thinking among firms was based on exploiting aggregate markets of indistinguishable customers. By examining a representative sample of potential customers, the firm succeeded in obtaining a picture of the needs and preferences from which they could benefit. Once products were developed and manufactured to deliver those benefits, they would be promoted to attract potential customers. This view of interaction between producer and consumer became the classical industrial era view of marketing (Sheth and Parvatiyer, 1995), with its primary example, the marketing-mix approach. By managing the 4 Ps: place, promotion, product and price, the producer would reach aggregated groups of consumers with their offerings. Using the 4 Ps, the producer was able to differentiate the offering in comparison with other producers, and thus attract customers and thereby create sales (Kotler, 1994).

The marketing-mix approach offered a simple, attractive and often used methodology for analysing markets and creating strategies. The inadequacy of the marketing-mix approach became more marked over time as demand, rather than supply, became scarce and as the 1970s and 1980s replaced the 1960s. To handle competition between producers for customer the notion of segments was developed. Firms often thought of products as segments, and implicitly made customer segmentations based on product characteristics.

Eventually most firms came to see the value of segmenting according to the properties of the customers, thereby creating relatively homogenous groups of customers, out of a heterogeneous mass market. The customer properties used as a basis for segmentation were initially age, gender, and other straightforward characteristics of the individual customers, which were aggregated and then analysed (Haley, 1968).³⁰

With the advent of the computer in business, firms started experimenting with collecting data from surveys to gather stated indicators of needs by which the firm could develop its offering. This was followed by analysis of behavioural data when the computers had become good enough at collecting and processing data. Producers were also becoming more knowledgeable about their consumers by maintaining and accessing sophisticated databases that captured information related to interaction with individual consumers, at a low cost. It gave them means by which they could practice individual marketing (Larson, 1992).

In the literature and in practice, database marketing was the precursor to the creation of an alternative approach to mass marketing. Firms that needed to create or recreate addressability in order to analyse customer records developed database marketing. The customer records became a substitute for in-person customer relations. In consumer markets, mail order and telemarketing firms were historically among those few firms who actually knew who their customers were on a one-to-one basis (Peppers and Rogers, 1993; 1997). Database marketing eventually became mainstream and was used for customer retention and loyalty programmes and also for management of risk related to the quality of the customer portfolio (Coviello et al, 1997).

Early on, researchers investigating the implications of the Internet and the expected growth in electronic commerce realised the value of addressability, i.e. the ability of being able to gather, identify, process, and then analyse the customers and the customer stock. Based on the insights generated in database marketing, it was considered a first step towards assessing just how valuable customers are, and to start searching for explanations for differences in buying behaviour. That the data was generated via the Internet, instead of at the physical point of contact, did not change this insight, but the richness and quality of the data was expected to be augmented and improved (Blattberg and Deighton, 1991).

³⁰ Haley (1968), criticising segmentation based on customer properties, he proposed benefit segmentation as a way to capture customer desire.

Addressability also enabled firms to view customers as “individual” segments and treat them with individually directed stimuli (Peppers and Rogers, 1993). One of the basic virtues attributed to electronic commerce was that it facilitates and simplifies the creation of customer stocks of individual buyers. Due to the acquired addressability, a first step towards automated personalisation of services and products is taken. The degree to which the firm is able to address its customers should be positively related to its ability to generate revenue and profit from electronic commerce (Blattberg and Deighton, 1991).

Interactivity

Interactivity is defined as the ability to engage electronically in a dialogue with the counterpart.³¹ Dialogue is enabled by an increasing array of interactive communications tools. Acquiring capabilities by interacting with customers and suppliers demands a dialogue that is simultaneous, fluid, efficient, collaborative, and conducive to innovation for both parties. Electronic interactivity involves the use of lists, electronic bulletin boards, virtual communities, direct electronic inquiries, and transaction-capable and interactive websites (Wigand, 1997). As pointed out by Wikstrom et al (1998), interactivity puts the customer at the centre and makes the customer the single most important resource of the firm.

Among many academics and practitioners alike, the notion of marketing-mix was never accepted as a realistic representation of business-to-business markets (Ford, 1990). In business-to-business markets seller and buyers engaged in relationships over time, and sellers could rarely push out products which buyers were forced to buy (Dwyer et al, 1987). In addition, researchers identified different buying situations, with varying degrees, properties, and qualities in the relationship between buyer and seller (Jackson, 1985). The buying process could not be confined to a single individual as buying centres were actually the proper unit of analysis as organised decision makers (Webster and Wind, 1972).

Researchers involved in business to business markets, mainly residing in Europe, developed their own models and metaphors of seller-buyer interaction during the late 1970 and 1980s. By interacting with the buyer, it was suggested that the seller could learn about complaints, get feedback and ideas for product and technological development (Håkansson, 1987; 1989). Interaction also allows for adaptation between the parties regarding terms, products and services (Hallen et al, 1991), and is a component of formal and informal co-operation between the parties (Håkansson, 1987). The markets-as-networks approach has not extended its scope to markets where businesses and consumers interact. This field remains the domain of the marketing mix approach, and its modern variations.

³¹ Gallouj and Weinstein (1997) note that there are a number of concepts that have been developed to account for customer involvement in service activities. They define interaction as exchanges of information and knowledge. Interface is defined as a point of contact between customer and service provider. Co-production is defined as extensive and balanced interaction, which is essentially operational. These distinctions have inspired the understanding presented here, but are not used explicitly here. They are valuable since they indicate various types of customer involvement, not only in service activities but also in the selling of physical goods like computers.

A hybrid form is the relationship marketing approach that connects the marketing mix with the markets-as-networks approach presented in Chapter 6 (Mattsson, 1997). In relationship marketing, the natural unit of analysis is the relationships between one seller and many buyers. The purpose of relationship marketing is mainly normative: how to increase customer loyalty, customer satisfaction and customer retention. Although customers are to be treated like individuals, seller and not buyer considerations are paramount (Fournier et al, 1998).

In business-to-business situations the promotion of the offering usually focuses on specific, identifiable product features, while in consumer marketing situations it often focuses on the products' image-oriented emotional attributes (Gummesson, 1995). For service firms this option was never viable. Customers had to be treated with interest and respect or they would take business elsewhere. Service firms always had to manage service encounters between representatives of the firm and the customers. These firms early on had to develop more advanced systems for managing interaction with customers. Since services have become integrated parts of most physical goods firms, not only has the distinction between services and products become blurred, but producing firms have also had to learn new skills from service firms (Heskett et al, 1997).

An early thought with respect to how interactivity between sellers and buyers could be changed in favour of the seller, was the idea that customers should systematically be induced to do more of the production of the service themselves (Lovelock and Young, 1979). This viewpoint was developed by Normann (1992), who argues that a firm use a number of interactive techniques to deliver a service: human to humans, machine to human, human to machine, and machine to machine.

Normann and Ramirez (1994) developed the concept of value constellations. They include machines, computers, and networked intelligence like the Internet, and suggest that it alters and changes the need for intermediaries. In addition, they facilitate new configurations of contact between seller and buyers, allowing for the mobilisation of customers as members of the production process. The key result emanating from the potential of interactivity is that it creates a mutual arena in which information can be exchanged between the parties over time, with increased focus on creating value, by solving and satisfying customer needs.

By recording the interaction - the exchange of prices, bids, information, questions, etc., the relationship between seller and buyer becomes richer, more frequent, more transparent and mutual. The relationship in itself becomes a learning one, rewarding both to seller and buyer (Peppers and Rogers, 1997). Put somewhat differently by Watson et al (1998): "There is every sign that a major shift in the communications patterns between organisations and their stakeholders is in progress. In many ways, it will not only shape and direct the dialogue between an organisation and its stakeholders; it will actually redefine organisations".

The opportunity to create a learning relationship and the value that can be derived from such relationships suggests that the degree to which the firm is able to facilitate interaction with its customers should be positively related to its ability to generate revenue and profit from electronic commerce.

Customisation

Customisation is defined as the ability to adjust the product or service to the demands of the customer. The tailoring of the product to the specifications of the buyer is a principal means of differentiation. Sheth and Parvatiyar (1995) have pointed out that customisation was an integral part of commercial life long before the industrial revolution, where production often was order driven and made to the specifications of the buyer. Customisation should not be thought of a novelty emerging as a result of electronic commerce.

Customisation can come in many forms: in the product, in financing, in support before and after the purchase, in configuration, in compatibility, in ancillary consultant services, and in system integration. Customisation activities can also be grouped into two basic categories: pre-sale and post-sale. Thus products that appear homogenous may in fact be subject to infinite customisation. As a consequence, customisation becomes the principal means by which companies create value to low margin standard products. Customisation activities may be delivered independent of the physical product, but some types of customisation activities will always include physical handling and transformation of the physical product as such, as well as the bridging of the time between production and consumption (Pine and Joseph, 1993).

Customisation can be performed on several levels. Altering the product itself for individual customers provides the most clear-cut means of customisation. In addition, the representation of the product - how it is presented or portrayed to the customer - can be effective and meaningful as well as a means of customisation (Gilmore and Pine, 1997).

The real "power" of customisation is not its manufacturing efficiency, reduction in inventories, and not the operational benefits. The advantage of customisation arises when it is integrated into an enterprise's ongoing relationships with its customers (Pepper and Rogers, 1993). This can be a demanding and unforgiving relationship. McCutcheon et al (1994) argues that many firms are being squeezed by customer demands for both greater product variety and reduced delivery lead times. This is difficult for firms to achieve because quick delivery is usually based on standardisation, whereas product variety requires the organisation to be flexible and innovative.

Accordingly, by virtue of its capacity to confer value to customers, customisation should be a valuable and worthwhile capability for firms considering electronic commerce. The degree to which the firm is able to facilitate customisation with its customers should be positively related to its ability to generate revenue and profit from electronic commerce.

Personalisation

Personalisation is defined as the ability to adjust the customer experience to the demands of the customer. As such, personalisation is a special set of services not directly related to the offering, designed to make the customers feel treated on an individual basis. In contrast to customisation, which can be defined as the tailoring of the product and service offered, personalisation focuses on the customer experience, the contact interface, and the degree to which the individual customer can personalise his or her experience (Pralhad and Ramaswamy, 2000).

Personalisation is a sub category of customisation. The two capabilities are overlapping and provide product differentiation, which transforms a standard customer experience into a specialised solution for an individual. It changes the customer experience less from a compromise to a process of deciding what features would benefit a specific individual customer. Personalisation lets consumers locate the best options for themselves from a menu created by the producer or producers. If customers come to trust the creator of the menu from which customers can choose, personalisation can be a powerful tool on which to build loyal customers (Hanson, 2000).

A key feature of personalisation is that customers are encouraged to return to a site, and if an when they do not have to present themselves (Amor, 2000). Personalisation thus involves a capability that information technology provides: customer tracking - computer databases that can help businesses remember and keep track of numerous complex, individual interactions with their customers. A business can now focus on a single customer from among millions in its database, examine his or her entire history of transactions with the firm, and make an adjustment to the record (Blattberg and Glaser, 1994).

Personalisation can be achieved by a number of tools: 1) Rule-based - the current user of a service is connected with a particular set of ads, messages and stories depending on the properties of the customer. Preferences are guessed from behaviour. 2) Endorsement – upon having indicated needs the customer is referred to services and products that similar customers have enjoyed and valued highly. 3) Collaborative filtering - by answering questions customer needs are gradually narrowed down to a correct offering (Hanson, 2000).

Pine and Gilmore (1999) have taken the argument about personalisation one step further. They argue that the modern western economies have entered an experience economy. Selling commodities, goods or services is not sufficient to extract any profit. Instead firms must focus on customising and differentiating their offerings up to the level where customers consume experiences that are highly customised according to the needs of customers. The degree to which the firm is able to personalise the customer experience should be positively related to its ability to generate revenue and profit from electronic commerce.

Postponement

Postponement is defined as the ability to postpone the commencement of production as long as possible and preferably only upon a firm order. Bucklin's (1965) theory of channel structure is based on the concepts of postponement and speculation as two principal ways of managing and in particular minimising distribution costs. Accordingly, costs can be reduced by postponing 1) changes in the form and identity of a product to the latest possible point in the marketing process, and 2) inventory location to the latest possible point in time, since risk and uncertainty costs increase as the product becomes more customised.

Bucklin (1965) argues that new technology facilitate a shift from speculation to postponement. Implied is a situation where the conditions of production do not determine the construction of the production and distribution system, but the conditions of usage and demand determine the production and distribution system. According to Gadde (2000), the result is that focus can be shifted from the technology of production to the technology of use.

Postponement results in savings because it moves differentiation nearer to the time of purchase, when demand is more easily forecasted. This reduces risk and uncertainty costs. Sorting products in large lots, in relatively standardised states, reduces logistics costs in particular. Companies can use postponement to shift the risk of owning goods from one channel member to another. That is, a manufacturer can refuse to produce until it receives firm orders, a middleman may postpone owning inventories by purchasing only when a sale has been made, and end-users may postpone ownership by buying from retail outlets where the products are held in stock.

Speculation is the converse of postponement: the principle of speculation holds that changes in form, and the movement of goods to inventories, should be made at the earliest possible time in the marketing process, to reduce costs of the marketing system. That is, a channel institution assumes risk rather than shifting it. Speculation can reduce marketing costs through 1) Economies of scale in product processing and transportation, 2) The placement of large orders, which reduces the costs of order processing and transportation, 3) The reduction of stock-outs and their associated costs, and 4) The reduction of uncertainty (Lambert and Stock, 1993).

In classical marketing thinking, dealing with customers is expensive and cumbersome. Ideally, the producer should concentrate on obtaining efficiency in production, and then find one intermediary, or a chain of intermediaries that could handle the interaction between seller and buyer. It was also argued that the reduction in exchange relationships was not only practical but also economical (Alderson 1957). Speculation was the preferred approach.

Firms striving to minimise costs for a given service output level should thus use combinations of speculation and postponement whenever any one of them is found to be the most appropriate (Bucklin, 1965; 1966). The trade-off between speculation and postponement has been increasingly declared obsolete, as time has become a critical variable in competition between firms. Time here alludes to both times to market of new products and to response time to buyer demands (Christopher and Braithwaite, 1989).

Buyers have come to expect more advanced offerings, constructed out of combinations of both services and products, delivered at or close to the time of consumption. Increasingly speculative practices can be regarded as a lack of competitive ability. Instead of forecast-based production systems, firms are increasingly organising their operations around customer demand to which they strive to react instantaneously.

Regarding the flows in a distribution system, Feitzinger and Lee (1997) have suggested that it is beneficial for firms to start production as late as possible, to postpone production until just before consumption, or even while consumption takes place. Linking postponement with customisation, they argue that a key capability for successful firms is to fulfil orders quickly, while still customising the product. The key to customising effectively is postponing the task of differentiating or assembling a product for a specific customer until the latest possible point in the value adding process managed by the firm (Feitzinger and Lee, 1997).

Postponement of changes in the form and identity of a product to the latest possible point in the marketing process has become the norm. This is in contrast to the more common traditional industrial era speculation approach where the focal firm's internal manufacturing process was optimised and goods were pushed out in the distributions channels (Greis and Kasarda, 1997). Accordingly, the degree to which the firm is able to facilitate postponement should be positively related to its ability to generate revenue and profit from electronic commerce.

Alternative Electronic Commerce Capabilities

A number of key firm capabilities have been identified. They have been discussed above and developed with support from literature in business administration that in various ways address the nature of these capabilities. The capabilities are 1) addressability, 2) interactivity, 3) customisation, and 4) personalisation 5) postponement. All the identified capabilities are static. Whether they can also constitute means will be discussed later.

The capabilities identified above constitute a sample of capabilities with a possible bearing on electronic commerce. As such, they are related and partly degree overlapping. Addressability, customisation and personalisation relate to the interface between the focal firm and the customers and so form one group of capabilities. Interactivity and postponement relate to the interface with customers and the entire underlying industrial and distribution system.

Furthermore, there are overlaps between the capabilities since they depend on each other. For instance, customisation and personalisation are particularly overlapping as discussed in the section on personalisation. The work of both Gilmore and Pine (1997) and McCutcheon et al (1994) suggest that customisation and personalisation should be studied in one setting.

Arguably, the consulted literature suggests that these five capabilities are generally relevant for firms engaging in electronic commerce. An interesting issue is what capabilities that may have been omitted. Kalakota and Robinson (1999) propose that a firm should evaluate which capabilities it already has before investing in electronic commerce. They propose the following areas of assessment.

Customer Interactions	Production and Fulfilment	People	Technology	Core Infrastructure
Sales	Manufacturing	Culture	ERP System	Financial Systems
Electronic commerce	Distribution	Skill sets	Legacy Applications	Research and Development
Marketing	Supply Chain Management	Training	Networks	Human Resources
Call Centres	Production Scheduling	Knowledge Management	Web site and Intranets	-
Distributions Channels	Inventory Management	Executive Commitment	Security	-

Table 7.1 Alternative way to assess electronic commerce capability.³²

Kalakota and Robinson (1999) by the breadth and depth of their assessment table indicate the effort involved for a firm to become electronic commerce enabled, and how a large portion of the firm must be included in the analysis. As indicated, the five capabilities found in the literature and focused upon are a small subset of the total capability portfolios of the firms. This holds both in general and among those with a possible relevance for electronic commerce. In fact their table is so inclusive that it becomes more difficult to find those capabilities which are not connected to electronic commerce, than those related. A basic idea adopted by the author is that electronic commerce capability is highly integrated with the overall capability portfolio. The implication is that the five static capabilities provide a necessary foundation on which to build electronic commerce sales. This foundation becomes satisfactory only when integrated with other capabilities of the firm.

³² Quoted from Ravi Kalakota and Marcia Robinson (1999) *E-Business – Roadmap for Success*, Addison-Wesley Longman, p. 320.

As a result of this standpoint, it should not be implied that all firms venturing into electronic commerce by necessity must use all of the five static capabilities suggested. Human ingenuity can always produce surprises. In addition, there are other capabilities that may also be important that have not been identified, as mentioned by Kalakota and Robinson (1999). Yet, the position of the author is that some capabilities are more important than other ones, and that the five capabilities found and chosen from the literature are the most important ones. It is assumed that most firms will use these capabilities in some combination or another.

Operationalisation of Static Capabilities

Feldman (2000) has defined routines as “repeated patterns of behaviour that are bound by rules and customs and that do not change much from one iteration to another”. According to Feldman (2000), routines are temporal structures that are used as a way of accomplishing organisational work. Routines are important because a lot of the work performed in the organisation is performed through routines (Cyert and March, 1963; March and Simon, 1958).

The concept of routines can be linked to Cyert and March (1963, 1992), who coined the term “standard operating procedures”, seeing them as sticky and difficult to change. These procedures include numerous processes in purchasing, production, logistics, sales, and support, as depicted by Garvin (1993). Capabilities are equated with routines. However, all routines are not capabilities: capabilities are considered as high performance routines since they confer the firm with a competitive advantage (Nelson and Winter, 1982).

The question regarding what a capability actually is and what the relationships between capabilities are is not satisfactorily answered by consulting definitions on routines. Routines must be operationalised and delimited more precisely to facilitate identification and analysis. Below both the notion of capabilities as elements and the relation between them (structure) will be further elaborated upon. The focus is upon static capabilities. Dynamic capabilities and means in particular will be operationalised separately in chapter 8 and 9.

Regarding the element of a capability, an extension is the suggestion that capabilities also encompass routines between firms, suggesting that collaboration and in particular business relationships in various forms constitute capabilities (Freiling, 1997). While singular transactions between a buyer and a seller are not considered capabilities, relationships are.

The reason for not viewing transactions as capabilities is provided by Grant (1991) who has developed a framework that identifies the characteristics of various static capabilities. He argues that sustainability of the competitive advantage is dependent upon the qualities of the acquired capabilities: durability, transparency, transferability, and replicability.³³

Accordingly, transactions on their own are not consistent with the characteristics suggested by Grant (1991). Nor is the notion of transactions as capabilities consistent with the notion of routines that are expected to function repetitively, giving stability to the firms operations and sustainability of the competitive advantage (Nelson and Winter, 1982).

Resources are not considered capabilities by themselves, despite the fact that they can be defined as “specific resources” such as technologies, products, processes, patents, brands, etc. (Penrose, 1959; Wernerfeldt, 1984; Barney, 1986; Itami, 1987). Resources can however constitute a part of a capability. The reason for not considering resources to be capabilities in themselves, even though they can be of strategic value, is the assumption that an accurate updated understanding of a capability must involve a certain degree of knowledge content (Spender, 1996). In addition, a process focus is advocated with the inclusion of combination (Kogut and Zander, 1992) and integration (Iansiti and Clark, 1993) both considered as critical aspects of this process. Accordingly, capabilities are understood to be combinations of resources and routines, or just routines, within and between organisations that confer a sustainable competitive advantage to a firm.³⁴

Of primary interest is electronic commerce capability, which should be regarded as a collective term including capabilities like addressability, interactivity, customisation, personalisation, and postponement, which are assumed to be important to electronic commerce. While these concepts are referred to as capabilities, they are broad and abstract concepts indicating purpose, role and implication, but they cannot be measured and clearly identified. Instead, these broad capabilities (addressability, interactivity, etc) are constructs that represent sets of capabilities that can be identified within an empirical context.

Addressability for instance, is based on a number of integrated sets of interdependent internal and external routines. (The term organisational is avoided to indicate the inclusion of both internal and external routines). Addressability contain customer records, ability to collect customer records, ability to manipulate and extract information from the customer records, ability to identify customers when they call to the firm, etc.

³³ With durability is implied the time it takes for the acquired capabilities before they become obsolete. With transparency is implied the ease with which a competitor can copy the capabilities. With transferability is implied the ease with which a competitor can acquire the same capabilities. With replicability is implied the ease with which the firm can distribute the capability within the organisation.

³⁴ This view is fairly consistent with the view provided by Dierckx and Cool (1989), who argue that competitive advantage is based on a collection of skills and complementary assets that are difficult to imitate.

These routines together jointly contribute to and constitute the addressability capability. They are considered capabilities if they contribute to addressability, which in turn is assumed to provide a competitive advantage to the firm. Integrated sets of capabilities are considered equal to integrated sets of routines, save for their different implication for competitiveness. The integrated sets of routines are in turn built up of singular routines and resources, like the collection of customer records in the case of addressability. While the singular organisational routine could be further divided into sub-routines with an internal capacity for change as proposed by Feldman (2000), it is considered sufficient just to note that this is a possibility that is not considered further.

This proposed understanding of static capabilities suggest that there is a particular knowledge structure that ties the elements to each other as implied by Nonaka and Takeuchi (1995). The proposed structure of capabilities implies that capabilities are hierarchies of routines, which is partly in line with the understanding of architectural innovation proposed by Henderson and Clark (1990).

Electronic commerce capability is composed of a number of static capabilities that together confer the firm with a competitive advantage or at least an ability to compete. These static capabilities, for instance addressability, consist of several integrated sets of interdependent internal and external routines. These capability-sets are a subset of all routine sets pertaining to the firm and its context, and are a combination of singular routines and resources. A singular routine or resource contribute and belong to several different integrated sets of capabilities simultaneously or sequentially.

Christensen and Rosenbloom (1995) who discuss products in terms of nested hierarchies inspire this view of capabilities. Capabilities are systems themselves, as well as components, in an endless hierarchy, both as capabilities are aggregated as well as decomposed. By operationalising electronic commerce capability in terms of a hierarchy and arguing that several sets constitute a capability, the notion of capability is not confined to one level in the conceptual hierarchy.

The concept of hierarchy or orderly level can be replaced with a more flexible way to think of capabilities. The notion of hierarchy can be taken to imply that capabilities can be ordered neatly in some type of organisational space or field. While writers like Henderson and Clark (1990) and Christensen and Rosenbloom (1995) have pictured and ordered capabilities in their studies, the position taken here is that this should not be confused with a belief that capabilities in practice are linked with each other in an orderly clear fashion. Capabilities certainly build upon each other, and they are certainly interdependent on each other in complex nested ways. And yes, it is imperative that these interdependencies are mapped out. But capabilities are more complex than suggested by the concept of “ hierarchy”, since they are related to other capabilities in many dimensions.

Adopting this view of static capabilities introduces a certain variation between various capabilities. The proposed understanding of static capabilities is a reflection of the taxonomy proposed by Winter (1987), where four dimensions of a firm's knowledge are identified: "tacit/articulable", observable/non observable in use", "complex/simple", "dependent/independent of a system". Considering these dimensions of knowledge implies that capabilities cannot be easily ordered or pictured as hierarchies, without loss of understanding. Yet, to make it at all possible to think and work with the concept of capabilities, the concept "nested hierarchy" is utilised and proposed. The concept is used as a reasonable reflection of the fact that capabilities are both nested with each other in many complex ways, and also that they can be thought of as belonging to a hierarchy.

Arguably the dimensions proposed by Winter (1987) apply also to the analysis of capabilities, making it necessary to allow variation. For instance, it is self-evident that various static capabilities are not equally important, nor that the importance of a capability is stable over time. In addition, the duration of a capability cannot be delimited in a precise manner. Furthermore, capabilities simultaneously or sequentially constitute capabilities that confer a competitive advantage on their own as well as constitute components that together with other capabilities confer a competitive advantage.

Problems with Identifying Static Capabilities

Often routines have been understood to be stable and unchanging (Gersick and Hackman, 1990; Ashforth and Fried, 1988; Weiss and Ilgen, 1985) and thus the notion of change in static capabilities appear paradoxical. Yet, Feldman (2000) has argued that change can also happen within organisational routines, i.e. not even the "atoms" are stable entities, but gradually changing over time as well.

Nelson and Winter (1982) acknowledge the possibility of change in routines, something which they refer to as mutation. Though Cyert and March (1963) specifically acknowledge change in standard operating procedures, they also state that "because many of the rules change slowly, it is possible to construct models of organisational behaviour that postulate only modest changes". Recent experimental research has suggested that the stability of routines can be attributed to storage in a procedural memory, which is not ready and capable of immediate change (Cohen and Bacdayan, 1994).

A study by Patel and Pavitt (1997) support this understanding. Based on an empirical study of 400 large multinational firms, Patel and Pavitt (1997) found that product variety is compatible with technological homogeneity. They claim that capabilities are rigid and similar across firms. Describing their key finding as: "if you want to design and make an automobile, you must know, among other things, about mechanics, if you want to design and make aeroplanes, you must know, among other things, about aeronautics".

Expressed in the context of this study, if you want to offer your customers products and services by electronic commerce, you must know, amongst other things, about addressability. Expressed differently: what you know can be somewhat different from what your competitor knows, but you cannot avoid knowing something about addressability altogether. Assuming that static capabilities are indeed static, similar but not necessarily completely the same, and slightly changing over time, makes it difficult to identify and delimit a static capability.

The capabilities are found by searching for large sets of integrated and interdependent sets of internal and external routines. They are all considered to be capabilities by virtue of having been found in the empirical material, and they are treated as proxies for static capabilities at various levels in the “nested hierarchy”. As a result, it sometimes becomes difficult to separate what is augmentation of an existing capability, and what constitutes new capability acquisition.³⁵

Related to the problem of identification of static capabilities, which arise because of the difficulty in finding a robust platform for defining the element and structure of static capabilities, is the issue of the outcome and in particular satisfactory versus unsatisfactory outcomes. Although capability acquisition carries a positive connotation, organisational learning research indicates that learning (as with capability acquisition in this case) does not always lead to intelligent or improved capabilities. Just as with individuals, learning does not always lead to intelligent or improved behaviour (Levitt and March, 1988).

Although learning is a major component of any effort to improve organisational performance and strengthen competitive advantage, the increased knowledge associated with a capability acquisition process may reduce performance rather than increase it (March, 1991). Organisations can incorrectly learn and they can correctly learn that which is incorrect (Huber, 1991). However, it is acknowledged that failed or only moderately successful capability acquisition is not being captured.

For instance, the correct capability may be acquired, but at the wrong time. Alternatively, the correct capability may be acquired, but is not shared across the organisation, and can therefore not support competitiveness. Accordingly, capability acquisition is a necessary, but not sufficient condition for competitive advantage to be strengthened. These problems make it necessary to judge each potential capability on its own merits, taking the empirical evidence into consideration as well as the known problems of evaluation, and take a decision on whether the routine is a capability or not.

³⁵ In the section of the resource pattern hypothesis in Chapter 9, this problem is discussed in more detail

The evaluation process has been avoided. All capabilities are assumed relevant to, and supportive of, the competitive advantage. For simplification, the identified integrated sets of interdependent internal and external routines are considered capabilities by default, since they are distinct enough to be found in the empirical material presented. Going for a more detailed approach would create the insurmountable task of correctly calculating or distinguishing the number of routines and the nature of those routines, when they are closely intertwined. Accordingly, the span of what is considered a static capability is large, from small detailed sets of routines to larger sets of static routines.

8. Means of Capability Acquisition

The key question of this chapter is how the firm can acquire the five static capabilities presented in Chapter 7. In this chapter the perspective is dynamic and time bound, whereas in the chapter on electronic commerce capability, the perspective was predominantly static. By surveying the literature on the available means for capability acquisition, and merging it with ideas of the author, a conceptual framework for understanding capability acquisition is formed. The chapter starts with a presentation of what literature and models that has inspired the formation of the framework. After that, the four chosen means of capability acquisition: in-house innovation, cloning, collaboration and firm purchasing are discussed one at a time. For each category of means the potential as well as the limitations for capability acquisition are presented. The presentation of the framework is followed by a discussion on various alternative ways to identify and delineate the means. The chapter is concluded with a discussion on the nature of the framework that has been created. In particular, with regard to how it can be used and what benefits that can be derived from using it.

Introduction to the Framework

Sources of Inspirations for the Conceptual Framework

A key step in building a conceptual framework related to the acquisition of firm capabilities is to identify the means by which static capabilities for competitive advantage can be acquired. Being preoccupied with electronic commerce, the focus here is on how the static capabilities of addressability, interactivity, customisation, personalisation and postponement can be acquired. This question is closely related to the literature on industrial innovation.

Since the 1950s, many models of the process of industrial innovation have been developed (Senker, 1995). These models are mostly linear and include various “stages” suggesting that innovation proceed in an orderly, sequential manner, which discoveries in R&D, leading to engineering and manufacturing, resulting in marketable new products and processes. These simplistic sequential models overlook the concurrent and interactive activities that characterise innovation and ignore inputs from the external context.

More sophisticated models have subsequently been developed, trying to remedy these shortcomings (Forrest, 1991). Kline (1990) proposes the “chain-linked model of innovation” which suggests that development, design and production engineering usually make the largest contribution to innovation.

The chain-linked model of innovation incorporates information links and feedback loops between market findings, design, production, distribution and research. It argues that the accumulated existing knowledge base of the firm constitute its first recourse for the solution of a problem. If this proves inadequate, alternative sources of knowledge will be considered. These sources are progressively more expensive and/or take more time.

The chain-linked model is a source of inspiration. However, the chain-linked model of innovation does not distinguish between types of knowledge (or capabilities), flowing through the various links and loops in the system of innovation (Senker, 1995). Furthermore, customers in the chain-linked model are undifferentiated and have a weak or unclear role.

Rothwell (1992) present an “integrated model of innovation”. The integrated model of innovation reflect developments over time in the innovation activities practised by leading firms and suggest that there are increasingly formal procedures for organisational learning (and capability acquisition) which are adopted as the firm grows. The integrated model serve as a possible description of how innovation processes have evolved since the Second World War. The stages are fixed and follow each other in a deterministic fashion. For instance, in Rothwell (1992) the fifth generation innovation process, the systems and networking model suggest an idealised conceptualisation of how the integrated model will adapt to the impact of information technology.³⁶

Kline (1990) and Rothwell (1992) provide support for the path taken. A contribution of the chain-linked model to this thesis is that it sets of focus on the feedback loops and the multiple sources of innovation. Furthermore, the notion of a search process is an attractive understanding, suggesting that firms try to find the appropriate knowledge as quick and at as a low cost as possible. Rothwell (1992) provide a historical perspective and insight into how the innovation process of a firm becomes more structured and formalised as the firm grows. Furthermore, both models of innovation, but Rothwell in particular, put some emphasis on coupling with leading edge customers.

³⁶ In Rothwell (1992) five generations of innovations processes are presented. First generation – technology push, simple linear sequential process with emphasis on R&D and where the market is a receptacle for the fruits of R&D. Second generation – need pull, simple linear process with emphasis on marketing and the market is the source of ideas for directing R&D, with R&D having a reactive role. Third generation – coupling model, sequential but with feedback loops, push or pull or push/pull combinations, with R&D and marketing more in balance and more emphasis on integration of the R&D marketing interface. Fourth generation – parallel development with teams and strong upstream supplier links and close coupling with leading customers, and emphasis on integration between R&D and manufacturing, and horizontal collaboration. Fifth generation – systems integration and networking model, fully integrated parallel development, customer focus at the forefront, strategic integration with suppliers and co-development of new products and services, collaborative research groupings, collaborative marketing arrangements.

Both innovation models allow for limited variation in the innovation processes, and suggest that they will follow certain logic: in Kline (1990) the search process is predictable, in Rothwell (1992) the stages are predictable. Both models are shallow and unspecific about how these processes occur and what they entail. They identify sources of new capabilities, and they identify actors that can provide the firm with new capabilities, or give access to new capabilities. But the apparent weakness, in the view of the author, is that there is no insight provided with regard to the tools or means that managers can use. Inspired by Kline (1990) and Rothwell (1992) a new framework is produced that try to remedy this shortcoming.

Dynamic Capabilities and Means of Capability Acquisition

Volberda and Baden-Fuller (1998) suggest that firms use a number of means to acquire new capabilities. They propose four means for “strategic renewal and competence building”: 1) selection, 2) hierarchy, 3) time and 4) networking. They make a distinction between passive and active means of acquisition. Selection is a passive mechanism; hierarchy, time and networking are active means. Selection implies the passive work of market forces that weed out relatively less effective and efficient firms. Hierarchy, time and networking are considered active choices open to management for capability acquisition. By indicating that dynamic capabilities can be active or passive, Volberda and Baden-Fuller (1998) agree with the notion that capability acquisition can be both voluntary and involuntary, planned, circumstantial, or forced.

Following the distinction between active and passive means presented by Volberda and Baden-Fuller (1998), a similar distinction is proposed here. Means are synonymous with those dynamic capabilities that can be acquired by active managerial action. Those dynamic capabilities that cannot be acquired by managerial action are not considered means. Accordingly, means are a subset of the variety in dynamic capabilities that firm draws on to build and sustain a competitive advantage via capability acquisition.

This focus is motivated by a desire to gain a better understanding of the work of managers within their context. Furthermore, this choice is motivated by the view that passive dynamic capabilities are a contradiction in terms. Capabilities are dynamic because they provide the managers of the firm with a repertoire for managerial action. Being weeded out (i.e. selection in the words of Volberda and Baden-Fuller (1998)) is in this respect not a result of managerial action, but of inability to act.

Accordingly, selection is not considered a means, since being selected is not something a management team will think in terms of: the management team will consider the tools available and chose one or several of them, thereby affecting the pattern of capability acquisition. Not including selection does not imply that the scope for managerial action is considered unlimited. As will become evident, the extent of constraints for managerial action is given further attention at a later stage in this chapter.

Building on Volberda and Baden-Fuller (1998), a new similar categorisation of means is presented focusing on the institutional forms used for capability acquisition. With institutional forms is meant four means open to a firm when augmenting its portfolio of capabilities: 1) In-house innovation - to create the needed capabilities in-house by innovation (similar to hierarchy). 2) Cloning - to clone, copy and borrow capabilities of other firms or divisions or units of the focal firm (a combination of hierarchy and networking). 3) Collaboration – formation of relationships and alliances, and using outsourcing or partnerships with other firms in order to gain access to desired capabilities (networking). 4) Firm purchasing - to acquire other firms with the deemed relevant capabilities.³⁷

As will be shown, these four firm activities or means have been treated extensively in the literature, but separately, or in subset of the possibilities above and in other contexts. For instance, Christensen (1997) in a discussion on how capabilities can be created to cope with change, identified three categories: 1) firm purchasing, 2) internal capability creation, and 3) creation of capabilities through a spinout organisation. Except for the spinout organisation, firm purchasing and internal capability creation is for practical purposes the same as those proposed here as means for capability acquisition.

The spinout organisation as discussed in Christensen (1997) is combination of in-house innovation, cloning and sometimes collaboration, since it implies that the firm should create a separate organisation. This organisation or unit, owned by the parent organisation, will hopefully be more able to innovate in-house and clone external capabilities to form a new more competitive capability portfolio. This new unit will eventually inspire the parent organisation. If the new unit is only partly owned by the parent organisation, then collaboration comes into play to support the capability acquisition process. The spinout option will not be considered further, beyond noting that it is a combination of other means. Below the four means for capability acquisition are explored separately. In a following section, their possible interdependence will be discussed.

³⁷ In this thesis firm purchasing is the term used. Often the term firm acquisition is used to indicate when one firm buys another one. The term firm purchasing is used to avoid confusion with term acquisition that is extensively used in the thesis to indicate capability acquisition as related in Chapter 1.

Capability Acquisition by In-house Innovation

In this section, the notion of in-house innovation for capability acquisition is considered. With in-house innovation is meant a process of formulating and creating an idea, concept, product or process and transforming it into a capability with strategic relevance, while relying on internal resources and capabilities. Individual employees within the organisation are equated with in-house innovation. Employing a person and thereby internalising the ability of that person is considered to be a way of acquiring an internal capability.

Looking upon capability acquisition as an internal process with emphasis on innovation is the classical approach to capability acquisition (Penrose, 1959; Rosenberg, 1982; Nelson and Winter, 1982; Wernerfelt, 1984; Prahalad and Hamel, 1990, Prahalad and Hamel, 1995; Teece et al, 1992a, Leonard-Barton, 1992, Dosi and Marengo, 1993).

Most of this literature has focused on innovation as an in-house phenomenon. These contributions have made links or reference between in-house innovation and the firm context, thereby acknowledging that even in-house innovation cannot be confined to just the internal workings of the firm. The sections of incremental and radical innovation, and product and process innovation, illustrate this point.

Incremental and Radical Innovation

As related above, capability acquisition by innovation relates to a large body of work concentrating on the product life cycle concept and dominant design. These models rely on cyclical or punctuated equilibrium models of technological evolution (Abernathy and Utterback, 1978; Dosi, 1982; Abernathy and Clark, 1985; Tushman and Anderson, 1986; Anderson and Tushman, 1990; Utterback and Suarez, 1990; Suarez and Utterback, 1991). This literature builds on a basic dichotomy between incremental and radical innovation and change, the former enhancing and the latter destroying the capability portfolio of a firm.

In particular, attention has been devoted to discussing whether processes of organisational innovation are incremental (Lindblom, 1959; March, 1981) or radical (Tushman and Romanelli, 1985) and how incremental and radical change and innovation is linked (Grainer, 1972 and 1998). Tushman and Romanelli (1985) argue that organisations undergo occasional radical reorientation. They occur in response to (1) lack of consistency, either among internal structures or between external forces and the internal structure and processes of the organisation, or (2) major changes in the competitive, technological, social, and legal conditions of the environment.

This focus on change via radical innovation is at odds with the rich body of work on organisational decision-making associated with James March, who argues that organisational change tend to be incremental. March claim that most change in organisations results neither from extraordinary organisational processes nor forces, nor from uncommon imagination, persistence or skill, but from relatively stable, routine processes that relate organisations to their environments (March, 1981).

The discrepancy between the vision of radical change and innovation developed by Tushman and Romanelli (1985) and the more incremental, or adaptive perspective suggested by March (1981) is more understandable when one considers what attributes are given attention in the two streams of research.

Tushman and Romanelli (1985) are concerned with the political structure of the organisation and with which individuals have influence in the organisation, and what systems of control they impose on the organisation. The focus is on the role of executives and executive change emanating from formal power. Political power results from the control of critical resources (Pfeffer and Salancik, 1978), the authority of position, and the force of individual leadership (Weber, 1947). Such attributes are unlikely to change in an incremental manner.

The notion of radical and incremental innovation and change has received criticism. Observing the calculator industry, Majumdar (1982) found that the notion of which capabilities that were considered to be important changed over time. Previously firms in the calculator industry differed in their change and innovation based on their expertise in electro-mechanics and the scope and quality of their dealer network. With the shift to electronics, design skills and low-cost manufacturing capabilities in electronics became critical attributes, replacing capabilities that previously had been of great importance. Change and innovation can at times be incremental and at times be radical, and not depend only on the organisational capabilities necessary for commercial exploitation (Nelson and Winter, 1982; Winter, 1990). Instead, the type of technological change, in particular if the change and innovation is continuous or discontinuous (Teece, 1986; Pavitt, 1984; Pavitt et al, 1987; Dosi, 1988) may explain patterns of innovation.

In their study of the mainframe computer industry, Iansiti and Khanna (1995) found that the pattern of innovation in that industry was not well characterised by the notion of radical and incremental innovation. An incremental evolution of performance at the system level was associated with discontinuous, radical changes at the component level. The innovations were radical in some components and incremental in others, the pattern shifting from generation to generation. New concepts introduced at the system level led to the frequent obsolescence of existing capabilities, despite the incremental nature of system evolution and the persistence of a dominant design (Afuah and Utterback, 1991). In addition, Pavitt (1984) and Napolitano (1991) have argued that the principal sources of innovation differ across industries, suggesting that the notion of incremental and radical innovation and change is simplistic, as the nature of innovation is contextually determined.

Christensen (1997), who argues that there are two basic types of technological innovation, presents an alternative view of technological innovation. He has classified technologies as either sustaining or disruptive. Sustaining technologies give customers more or better of the same thing those customers already value. Sustaining technologies maintain a rate of improvement over time. Disruptive technologies introduce a different package of attributes from the one mainstream customers have historically valued.

While the notion of sustaining and disruptive technologies is similar to the notion of incremental and radical innovation, there is one difference, which pertains to the role of customers. In Christensen's (1997) reasoning a key aspect is customer behaviour, as affecting the nature of the technology at hand. Furthermore, Christensen argues that customers cannot be listened to when disruptive technologies emerge, since customers have invested in the mainstream technology. In particular, they cannot assist the firm in finding or sensing new disruptive technologies.

Product or Process Innovation

Abernathy and Utterback (1978) developed the product life cycle of innovation concept that posits that in the earliest phases of an industry's life cycle, basic product concepts are still being formed. Consequently the rate of product innovation will initially exceed the rate of process innovation. Once producers and consumers have gained enough experience with alternative versions of the product, a "dominant design" will emerge and opportunities for radical product innovations begin to recede. At this point, competitors will shift to producing similar designs at lower cost, and firms will focus on process innovation.

Other studies of innovation (Clark, 1985; Henderson and Clark, 1990; Christensen, 1992) have emphasised the subtlety of technological evolution and innovation at the firm level, indicating the weaknesses involved in the product life cycle of innovation concept. These authors have suggested the existence of an intermediate category, architectural innovation. In this category a subset of product and process innovation jointly interact to produce innovation. Incorrectly managed, architectural innovation led to the frequent failure of established firms. It is not always clear whether the cause of such failure is a shift in customer preferences (Christensen, 1992), the obsolescence of firm capabilities, or a combination of the two effects or any other effect (Henderson and Clark, 1990).

The role of product and process innovation has received further criticism from Keen (1997) and Pisano (1997), who have focused on the distinction between product and process innovation, and emphasised the primary role and importance of process innovation to build competitive advantage. As a reflection of the rise of IT and electronic commerce, Keen (1997) stresses the limited value of focusing on product innovation, since products as such represent increasingly less of the total value created for the customers. In addition, Keen argues that knowledge about product and production technology is well dispersed limiting the competitive advantage that can be derived from product innovation. Furthermore, products tend to become commodities, shifting the focus on process innovation to create competitive advantage.

Limits to Capability Acquisition by In-house Innovation

The two perspectives presented by March (1981) and Tushman and Romanelli (1985) are not mutually exclusive, and there remains the possibility of reconciling the two sets of views. If changes occur infrequently as the radical Tushman and Romanelli (1985) view assume, organisations are unlikely to be able to develop organisational routines which are deeply embedded in the organisation as proposed by March (1981).

If firms only develop capabilities in-house in modest steady steps, then organisations are likely to fail prior to adapting to radical shifts in their environments. In particular as they response to discontinuous technological change. Accordingly, an organisation will not be able to acquire capabilities in-house at all times. Instead, it is likely to possess some capabilities and lack others regularly, exhibiting degrees of inertia.

Inertia is not a statement that change does not occur, but a subtle claim about the context of the change (Hannan and Freeman, 1983; Hannan and Freeman, 1989). There is a range of explanations of the limits to internal capability building that make firms suffer from inertia. Managers may be incompetent or there may be variables like demand levels, factor endowments, and relative prices that justify some organisations' failure to change (Robertson and Langlois, 1994).

Inertia exerts two principal influences on the ability of firms to cope with innovation. Inertia is often a result of successful adaptation to earlier innovations. In many instances, adaptation can prove so effective that the firm can retain a total cost advantage for a prolonged period despite using an outdated technology, because it still can capitalise on its mastery of compatible support and ancillary operations. This may particularly be the case while firms that are adopting a new and technically more efficient technology still wrestle with the expensive process of acquiring the endogenous and exogenous institutional backup necessary to gain full value from innovation (Hannan and Freeman, 1989).

When inertia retards the learning process necessary to deal with a subsequent innovation, firms that are otherwise in a position to make the eventual transition to a new technology may be slow in coming to grips with change that dominance shifts to new entrants. These new entrants may be unencumbered by prior developments, learn new adaptive procedures more quickly and are able, to dominate the market by the time the established firms have learned to cope with innovation. The obstacle in this case can be termed lockout as leaders using the old technology find that they cannot make the transition successfully when there is a significant innovation underway (Cohen and Levinthal, 1990).

To summarise, in-house innovation is a versatile means for capability acquisition, but due to inertia and the properties of technology, no firm is able to acquire the needed capabilities by in-house innovation. Furthermore, and as will be further argued below, in-house innovation is in many cases not a feasible or workable way to acquire capabilities. In particular when these capabilities reside in the context of the firm.

Capability Acquisition by Cloning

There are studies that indicate that large organisations can change and innovate dramatically, calling arguments about inertia into question. Majumdar (2000) undertook a study of the USA telecommunications industry from 1975 to 1990. He found out that when firms have large and varied capability portfolios, they are able to undergo striking transformations. A firm is not doomed because it is large; instead the ability to survive is determined by the qualities of the capability portfolio and the ability of the firm to replenish it.

For the firm that encounters inertia, and inability to develop the needed capabilities internally, there is always the option of acquiring a needed capability from the outside. One option is cloning the capabilities of other firms and/or business units. As such, cloning is a middle way, as a capability acquisition means, between in-house innovation and purer forms of externally acquired capabilities. The groups of means hereby categorised as cloned, focus on the mechanisms for bringing externally innovated capabilities in-house.

Three variations of cloning can be identified: 1) Replication - transfer of capabilities from one economic or functional setting to another within one firm. 2) Imitation - transfer of capabilities from one economic or functional setting to that of a competitor, 3) Emulation - occurs when a firm discovers alternative ways of achieving the same functionality. The three options will be discussed below.

Capability Acquisition by Replication

The act of replicating entire systems or parts of practice has been well recognised in the literature (Jaikumar, 1986; 1989; Hayes and Jaikumar, 1988). Winter and Szulanski (1999) discuss replication as a viable firm strategy. Their focus is on the process through which a replicating firm reproduces its routines. The focus is on the replication of firm capabilities, which are based upon routines. Replication involves transferring or re-deploying capabilities from one economic setting to another, i.e. a process of transferring capabilities between various organisational units within the firm.

Teece (1976) argues that knowledge is embodied and cannot be accomplished by simply transmitting information. Only in those instances where relevant knowledge is fully codified and understood can replication be reduced into a problem of information transfer. Too often, according to Teece, the contextual dependence of original performance is poorly appreciated, so unless firms have replicated their systems of productive knowledge on many prior occasions, the act of replication is likely to be difficult or impossible.

Routines and capabilities seem to be attributable to local or regional circumstances or forces, which shape them at early stages in their "lives". Porter (1990), for example, shows that differences in local products markets, local factors markets, and institutions play a role in shaping competitive capabilities of nations or regions. Differences also exist within populations of firms from the same country.

Various studies of the automobile industry, show that not all Japanese automobile companies are top performers in terms of quality, productivity, or product developments (see Clark and Fujimoto, 1991). Replication in a different context is thus difficult. In addition, even understanding what the relevant routines are which support a particular capability may not be transparent.

Lippman and Rumelt (1982) have argued that some sources of competitive advantage are so complex that the firm itself let alone its competitors does not understand them. As Nelson and Winter (1982) and Teece (1982) have explained, many organisational routines are tacit in nature. Replication can also be hindered by the fact that few routines are stand-alone; coherence require that changes in one set of routines in a part of the firm, i.e. production, be complemented by changes in another part (i.e. R&D for instance).

At least two types of strategic value flow from replication. One is the ability to support geographic and product line expansion. To the extent that the capabilities in question are relevant to a customer need elsewhere, replication can confer the firms with valuable capabilities. Another benefit is that the ability to replicate also indicates that the firm has the capabilities in place for learning in general, in particular regarding process innovation (Hayes and Jaikumar, 1988).

Capability Acquisition by Imitation

Imitation is replication performed by a competitor. If replication is difficult, imitation is likely even harder. In competitive markets, it is the ease of imitation that determines the sustainability of competitive advantage. Easy imitation implies rapid dissipation of the profits that a firm can derive from its capabilities (McKendrick, 1994).

Imitators acquire capabilities through vehicles such as R&D, buying, training, hiring, reverse engineering (Nelson and Winter, 1982; Fransman, 1985). But imitators find that a considerable amount of economically useful know-how remains tacit and difficult to absorb (Nelson and Winter, 1977; Dosi, 1982; Henderson and Clark, 1990), and face uncertainty in making technological choices (Lippman and Rumelt, 1982). Also imitators, like innovators, struggle to mesh know-how acquired externally with their own history, capabilities and operational procedures, thereby engaging in processes of search and discovery unique to their experience.

There are two fundamental differences between innovators and imitators. Imitators potentially benefit from the externalities already generated by the innovation, drawing on already developed infrastructures and information about the innovation in the public domain. The problems or opportunities that imitators face are not, by definition, novel ones. Solutions to analogous problems or opportunities have already been discovered elsewhere and the successful “routines” of innovators can be observed, albeit imperfectly (Nelson and Winter, 1982).

Imitators also face a variety of obstacles imposed by innovators to slow or prevent imitation. Innovators use several mechanisms: secrecy, patent law, and the tacit nature of critical knowledge. In some cases, the sources of imitation in R&D-intensive industries are inversely related to the potential for acquisition of a capability (Levin et al, 1987).

In manufacturing, acquisition has often been defined in terms of the returns to R&D (Klevorick et al, 1993). For service firms this definition is not valid. Engaged in the production of intangibles, service firms do relatively little formal R&D. If extended to service firms, the focus on R&D suggests that service firms have few incentives to innovate or imitate. The most important traditional sources of imitative learning that have been identified - independent R&D, reverse engineering, licensing technology, patent disclosures, and hiring R&D employees from other firms - are not be directly applicable to industries which do little or no R&D (McKendrick, 1994).

In practice, service industries continuously innovate and imitate, suggesting that the set of opportunities facing them is sufficient to stimulate innovation and imitation (Klevorick et al, 1993). Barras (1986) suggest that the technological opportunities can be enriched by innovations from other industries where information technologies have opened up new possibilities.

Capability Acquisition by Emulation

Emulation occurs when a firm discovers alternative ways of achieving the same functionality, result, or output, by using a different set of capabilities compared to a competitor (Womack et al, 1990). There is ample evidence that different combination of routines and resources can support a given type of capability. For example, Clark and Fujimoto (1991) indicate that there is no one formula for achieving either high quality or high product development performance.

The work of Clark and Fujimoto (1991) on project development in the automobile industry also illustrates the roles played by routines. Their study reveals a significant degree of variation in how different firm's co-ordinate the various activities required to bring a new model from concept to market. These differences in co-ordination of routines and resources seem to have as significant impact on such performance variables as development cost, development lead times, and quality.

Furthermore, Clark and Fujimoto (1991) found significant firm level differences in co-ordination routines and these differences seem to have persisted for a long time. This implies that capabilities related to co-ordination are firm specific in nature, yet can perform similar firm activities. Also the notion that capabilities are embedded in distinct ways of co-ordinating and combining resources and routines helps to explain how and why change can have strong impacts on incumbent firms' abilities to compete in a market.

Henderson and Clark (1990) have shown that incumbents in the photolithography equipment industry were devastated by innovations that had major impacts on the configuration of systems. They attributed these difficulties to the fact that systems-level or architectural innovations often require new routines to integrate and co-ordinate engineering tasks. The same understanding is suggested with respect to the lean production model and the transformation of the Taylor or Ford model of manufacturing organisation in the automobile industry (Womack et al, 1990).

These findings suggest that industrial systems display high interdependency, and that it often is impossible to change one part of them without changing others. Process capabilities often display high levels of coherence and interdependence. Emulation is difficult because it requires systemic changes throughout the organisation and also among inter-organisational linkages that might be hard to effectuate. Accordingly, partial emulation of a successful capability or a set of capabilities yield may marginal benefits (Womack et al, 1990).

Chesborough and Teece (1996) have highlighted that when innovations are “systemic” they cannot succeed without a series of related innovations taking place. These innovations may be of an internal or external nature. Technologically superior innovations, such as Apple computers with their impressive operating system and Beta videos, illustrate this point. These innovations were both apparently superior in terms of technological performance, but they failed to succeed because they were dependent on a series of other, uncontrollable innovations, which ultimately did not take place. The value of emulation may be limited or useless, because of external circumstances.

Limits to Capability Acquisition by Cloning

The concept that best captures the consequences of cloning i.e. process of hominization is isomorphism. In Hawley’s (1968) description, isomorphism is a constraining process that forces one unit in a population to resemble other units that face the same set of environmental conditions. One of the most important environmental conditions being the actions and behaviour of other competitors. Regardless of whether isomorphism is coercive (stems from political influence), mimetic (stems from standard responses to uncertainty) or normative (is associated with professionalism) in kind there are limitations to what degree cloning can contribute capabilities to the firm (DiMaggio and Powell, 1983).

Cloning, in its various forms, offers a seemingly attractive way to acquire capabilities. Yet as the discussion of replication, imitation, and emulation indicates a firm can use cloning temporarily, but is highly unlikely to be able to obtain all relevant capabilities at the right time. Capabilities can be difficult to integrate, taking them from one context to another. Firms take a number of measures to conceal and dilute the possibilities for cloning by competitors. Paradoxically, if cloning were universally possible, then there would not be heterogeneity and no rarity of a resource or routine, and no scope for producing competitive advantage.

In addition, there are legal and moral issues, which come into play if the firm uses cloning as the dominating source of new capabilities. Furthermore, a firm that relies too much on copying other firms is eventually unlikely to be able to transform and utilise the copied knowledge sufficiently well to achieve a competitive advantage. What is interesting with cloning is that it introduces semi-external sources of capability acquisition indicating that in-house innovation is not the only source of new capabilities.

A number of contributions with different perspectives address the importance of cloning as a means of capability acquisition and also indicate how widespread the “importing of capabilities” is. The contributions include “learning by doing” (Arrow, 1962) and “learning by using” (Rosenberg, 1969), which focus on cloning by experiencing. Another strand of contribution focus on the university and scientific community as sources of new capabilities that can be imported (Rosenberg, 1982; Reams, 1986; Mitchell, 1991).

An important source of capabilities is technology users and their interaction with producers (von Hippel, 1978; 1988; Lundvall, 1984) and the know-how embodied in capital equipment (Rosenberg, 1982). In addition, it has been argued that the corporate R&D laboratory has become the primary organisation for innovative search for new products using both external and internal capabilities to generate new products (Mowery, 1983; Cohen and Levinthal, 1990). It is suggested that search for new capabilities are bound by certain technical properties, and the nature of their specific knowledge, rather than firm boundaries (Levin et al, 1987; von Hippel, 1988).

Considering these instances of cloning, a point is that cloning goes to and from the firm. No firm can protect it self entirely from cloning by others. The degree, to which the firm can reduce cloning by other firms, relates directly to the ability of the firm to derive value from its capabilities. Creating or finding “isolating mechanisms” that make cloning difficult, can also enable the firm to establish sustainability, i.e. longevity in its competitive advantage (Michalisin et al, 1997). Yet since no role, participation or dependence on the firm or unit being cloned is assumed, cloning is considered a process largely directed internally. In the case of replication it is directed and also conducted internally.

Capability Acquisition by Collaboration

Collaboration has increasingly become a fact of life in business (Kanter, 1994; Drucker, 1995). Collaborative efforts are either vertical (downstream or upstream), horizontal (competitors or collaborators), or combinations thereof (Stern et al, 1996; Bradley, 1991). In the case of vertical alliances a firm seeks to incorporate and involve either suppliers or buyers into capability acquisition. In the case of horizontal alliances a firm seeks to incorporate competitors or partners for capability acquisition.

Focusing on business alliances, Gomes-Casseres (1996) observes that there has been an explosion in the number and type of collaborative efforts between firms during the 1980s and early 1990s, challenging the notion of a firm as a free standing entity. In reflection of the proliferation of collaborative efforts there are numerous concepts that define and describe the same or similar organisational phenomena.³⁸ Collaboration is here defined as two firms working together for a common purpose, at least initially.³⁹

Traditionally economists and business strategists have regarded collaborative efforts between firms as anomalies (see Coase, 1937). For instance, Oliver Williamson in *Markets and Hierarchies* (1975), made a sharp distinction between markets and hierarchies, and only later did he start to discuss governance forms in-between these two extreme forms (Williamson, 1979). This was followed by Macniel (1980), who suggested the concept of relationship structure, that is, a continuum of relationships ranging from discrete market transactions to relational contracts with continuous transactions.

During the 1980s research on collaboration between firms took off with a number of contributions. Mariti and Smiley (1983) report on cross industry patterns of alliance formation, followed by a similar approach by Ghemawat et al (1986). Morris and Hergert (1987) describe trends in international collaborative agreements. Terpstra and Simonin (1993) focus on collaborative efforts spanning geographical continents, and Hagendoorn (1993) investigates inter-organisational modes of co-operation in technology partnerships. Together the contributions presented above indicate the large interest that intermediate governance forms, i.e. collaboration, between market and hierarchy, have received by researchers.

³⁸ Among them are the Network organisation (Baker, 1993), Adhocracy (Quinn et al, 1988), Alliance capitalism (Gerlach, 1992), Agile enterprise (Nagel and Dove, 1992), Cluster organisation (Applegate et al, 1988; Mills, 1991), Organic organisation (Lawrence and Lorsch, 1967), Virtual corporation (Davidow and Malone, 1992), Collective competition (Gomes-Casseres, 1996), and Co-opetition (Brandenburger and Nalebuff, 1996).

³⁹ Sorgard (1988) who view collaboration as a non-hierarchical form of organisation where the parties have mutual goals inspires this definition. Greenbaum (1988) suggest that collaboration is characterised as social interaction which is flat, flexible, fast and decentralised, in contrast to hierarchical, static, centralised and slow traditional organisations which rely on control and conflict.

Several researchers have pointed out that collaboration, can be a tool for new organisational learning. In their view, learning processes are intrinsically social and collective, and occur not only by cloning or in-house innovation, but also because of joint contributions to the understanding and solution of complex problems. Learning requires common codes of communication and co-ordinated search procedures, but the organisational knowledge generated by such activity comes to reside in new patterns of activity, in routines, or a new logic of organisation, beyond a single organisation (Grant, 1996, Hamel, 1991, Khanna et al, 1998, Kogut, 1988).

In a case study, Gomes-Casseres (1996) describes the emergence of PDAs (personal digital assistants). Developing, making, and selling PDAs required use of capabilities from at least four different fields – computer hardware, computer software, telecommunications, and consumer electronics. These capabilities were so dissimilar that no single firm possessed all relevant capabilities. The PDAs introduced in the mid-1990s were therefore the creation of numerous collaborations between firms wanting to enter this market. Gomes-Casseres illustrates the notion of capabilities residing in several organisations. Only by collaboration could the firms access the capabilities they needed, indicating that collaboration is an important means for capability acquisition.

Dyer and Singh (1998) argue that competitive advantage can be generated from inter-organisational collaboration and have elaborated on this point. Given that capabilities can reside and span several organisations, it should be mentioned that the national and regional environment could also be considered as a partner in a collaborative effort to acquire capabilities (Porter, 1990; Krugman, 1991; Harrison, 1992; Piori and Sabel, 1994), but is largely excluded. Here, collaborative governance forms are meant to include strategic alliances, partnerships, outsourcing, licensing agreements, joint ventures, distribution channels, business relationships, and industrial networks (see Bradley, 1991 for a partly similar list focused on international market entry).

Accordingly, collaboration is here used to indicate a broad set of phenomena present in business. Collaboration entails a number of different actors working together in many different types of constellations. There are two particular forms of collaboration that are of particular interest, given the purpose. Drawing on a broad range of literature mostly connected with the markets-as-network approach presented in Chapter 6, collaboration between businesses and between business and customer settings are considered. The first section focus on capability acquisition by collaboration in business-to-business settings or contexts, while the following section focuses on capability acquisition in business-to-customer settings.

Capability Acquisition in Business-to-Business Settings

Focusing on business relationships, management primarily becomes a problem of coping with the set of relationships and/or portfolio of relationships enjoyed by the firm. This also implies a different way of organising marketing that cannot be localised in a single functional department (McKenna, 1991; Webster, 1992). It becomes a function that is diffused throughout the company, as the company's units are involved in the relationship processes and thus are responsible for their effectiveness (Håkansson and Ostberg, 1975).⁴⁰

Furthermore, relationships with customers, suppliers, and partners can be considered as a vehicle, by means of which actors can get access to and make use of a counterpart's capabilities. Hamel (1991) has pointed out that there are two basic processes in a business alliance: creating value or capturing value from the counterpart. Capturing value implies the internalisation of the skills or capabilities of the partner. Hamel (1991) uses the term collaborative membrane, through which skills and capabilities flow between partners. The flow of capabilities involves a change in the knowledge base of both partners; that implies processes of mutual capability acquisition. These processes involve technical, communicative, and social learning and enhance the capabilities of the producer-supplier and of the user-customer (Lundvall, 1993).

According to this view, businesses that invest in intense social relationships (Johanson, 1989) are connected to the development of interpersonal informal relations (Von Hippel, 1986). The relationships are based on parties' mutual trust and the ability to have confidence in the reciprocal interest in investing in the relationship (Håkansson and Johanson, 1987, Ring and Van de Ven, 1994). Trust and social exchange between firms do not occur automatically. Partners in a relationship build up mutual trust for each other by repeated exchange episodes where they act in supporting the positive deepening of the relationship (Blau, 1964).

The constant process of interaction and the investment in the maintenance of the relationship initiate a different type of interdependence between the partners, which reinforces the relationship and its durability. Interdependencies can involve different aspects: technology, knowledge, social relations, administrative routines and systems, and legal ties. In general, the processes of exchange and mutual learning are accompanied by processes of mutual adaptation that concern a number of different dimensions - products, production processes, administrative routines, and financial and logistic decisions (Johanson et al, 1991).

⁴⁰ This section draws on Anna-Lisa Tunisini's doctoral dissertation: *The Dissolution of Channels and Hierarchies - An Inquiry into the Changing Customer Relationships and Organisation of the Computer Corporations*. Department of Business Studies, Uppsala University, 1997.

The process of mutual adaptation can strengthen the interdependencies between the parties further. They can involve considerable investment that often cannot be transferred to other business relationships. As a consequence, the ties between the parties are reinforced. Hence, mutual orientation processes take place through the exchange relationship. They manifest themselves in the existence of a common language for technical matters and contraction of rules and standardisation of processes, products and routines, as well as shared views on business ethics, technical philosophy, and the handling of organisational problems (Johanson and Mattsson, 1987).

The considerable investment, demanded by the parties to establish and maintain a relationship supports relational stability (Axelsson and Easton, 1992). Relationship stability is considered to be the result of the relationship process as well as a condition for its development, i.e. gradual augmentation and deepening (Demzets, 1992). As Håkansson (1992) has observed, time and repetition create possibilities for learning: "in order to learn what a counterpart is doing and knowing, a company has to have contact with that counterpart over a certain time period". Stable relationships do not mean that the relationships are static: continuous change characterises them as a result of both co-operation and tension between the parties, resulting from their actions and because of the influence of the other relationships in which they are involved.

Because of the linking of parties' activities and the combination of their heterogeneous and complementary resources, "team effects" take place through the relationship (Alchian and Demsetz, 1972), further supporting stability. Thus, exchange relationships do not solely concern the exchange of pre-existing capabilities with a distinct value, but also imply processes that increase and differentiate the value of the capabilities involved in the exchange (Ford, 1980).

Gadde and Håkansson (1994) go one step further, arguing that "at an increasing rate, innovations will be developed in the interaction between users and suppliers". Innovation concerning the products, the production processes, and the technological development is considered to be the result of relationship processes in which parties combine their heterogeneous and complementary knowledge and resources (Håkansson, 1987; Håkansson, 1991; Lundgren, 1991). Håkansson (1987) has identified four common types of dependencies that arise as a result of collaboration: technology, knowledge, social, and logistics and administration.

Exchange between two organisations is not being conducted through a set of discrete market exchange transactions that imply the transfer of resources between two parties. Instead, the exchange is considered a reflection of a process where "the object of the exchange" is generated and not merely transmitted from one actor to another. Business relationships have productive features that originate from the coupling of the parties' activities, resources, and individual actors (Mattsson, 1985 and 1986).

Viewed in this way business relationships in its various forms and examples often constitute capabilities, as strategic and critical as any internally acquired capability. The notion suggested by Freiling (1997) that business relationships are resources, should accordingly be extended also to the realm of capabilities. Håkansson and Snehota (1989) have used the term capacities to indicate firm capabilities that are based on the business relationship between the parties. Following from the argument that business relationships are capabilities, a network of relationships contains many capabilities.

Capability Acquisition in Business-to-Customers Settings

The case of capability acquisition from customers is touched upon in the literature on business administration. The focus has been put on users and lead users in particular (von Hippel, 1986) or buyer-seller relationships (Gadde and Håkansson, 1994). These contributions have tended to focus on business-to-business settings. Since firms off-load activities on other actors, its customers, partners, or suppliers for that matter, this section discuss customers as a potential source of capabilities, beyond the role as users. The key argument made here is that customers, who can be identified as those individuals that engage mainly in consumption rather than production, present a special case in terms of what capabilities they constitute.

Discussing the role of customers, Normann (1992) points out that frequently the seller becomes a facilitator, while the buyer takes on new tasks that hitherto were performed by the seller. This transformation of customers into co-producers allows the firm to reduce costs or/and increase the value delivered to customers. As a result, the boundaries between the firm and its environment are becoming indeterminable. By mobilisation of external actors and resources, firms and their activities can be moved around between the various actors in the value creating system (Normann and Ramirez, 1994).

Furthermore, customers can be integrated as key partners not only in production, but also in development (Håkansson, 1987; McKenna 1995; Jansiti and MacCormack, 1997). The involvement of customers in the production process transforms customers from consumers of value to co-creators and extractors of value. As such they are a part of the network and assume the roles of collaborators, co-developers, and competitors (Prahalad and Ramaswamy, 2000). Within the business sphere the integration and inter-relatedness between seller and buyer is widely accepted, but what about private individuals as customers?

Ward and Reingen (1996) have argued that individual customer behaviour, which they describe as a micro-process, via various mechanisms translates into macro-processes that can be considered equal with other nodes at the macro level (i.e. industrial network level). These mechanisms include psychological, social, and cultural aspects that have been investigated within the realm of consumer research. At the individual level, reasoning, mental models, schemas, and memory processes are linked processes that affect consumer behaviour (Galotti, 1989; Gentner and Stevens, 1983; Lunt and Livingstone, 1991).

Martin and Clark (1996) have pointed out that customer-to-customer interaction and relationships are part and parcel of the customer's total experience of the selling firm. Purchase decisions and shopping of other customers routinely affect service experiences. For example, recommendations by other consumers are often seen as the most credible and influential source of pre-purchase information (Haywood, 1989; Quelch and Ash, 1981). Furthermore, the social quality pertaining to shopping and what is bought can significantly alter the impression of the customer, both in a negative or positive direction. What customers do and say in one another's presence can enhance or inhibit customer satisfaction (Veblen, 1994).

Each customer relationship is embedded in a network of other relationships. The volume of encounters can greatly outnumber those between customers and employees of the selling firm. Since customer roles are often poorly defined and the roles played by customers vary substantially over time, customer-to-customer interaction and relationships are often difficult to monitor and control. At the same time, customer-to-customer relationships are often characterised by high credibility and informational content, since customers tend to trust each other, often more than they trust the seller. The exchange of customer experiences poses a challenge to the firm because customers are different and not compatible with each other or with the selling firm (Martin and Clark, 1996). This makes successful capability acquisition in settings customer-to-customer dimension of critical value, while simultaneously being complex to manage.

Both Christensen (1997) and Henderson (1993) have argued that sometimes there is a potential danger of being misled by customers. Being too close to customers may make the firm innovate to support existing customer relationships and improve the existing offer, rather than bring truly new offerings to the market, which customers are unable to imagine at all. Because customers have invested in the current technology and offer, they are as reluctant as the seller to look beyond the current offering bought by them. The discussion on this dilemma, which is related to the discussion on incremental and radical innovation, can be traced to Lewitt (1960), who rejected product and production focus. He argued that firms needed to focus on solving the underlying needs of customers, not on a particular offering or technological solution.

Limits to Capability Acquisition by Collaboration

The two sections above suggest that the notion of collaboration in its various forms can be extended. The main extension made here is to suggest that not only resources, but also capabilities can and are shared between firms. Furthermore, customers are considered as capabilities. In addition, customers can in turn be aggregated and considered members or nodes of industrial networks. Nevertheless, there are limitations to the role which capability acquisition by collaboration can play for the firm.

Writing on strategic alliances Hamel (1991) has pointed out that despite emphasis on the establishment, maintenance, and enhancement of collaborative relationships, few firms have managed to make it a sustainable competitive advantage. One reason is that an alliance may be seen, by one or both partners, not as an optimal compromise between market and hierarchy, but as a half-way house on the road from market to hierarchy, making collaboration a transitional stage (Hamel, 1991).

This point advanced by Hamel (1991) is at odds with writing on buyer-seller relationships, suggesting that there are considerable differences in duration and quality embedded in the various forms of collaboration. The purpose of a strategic alliance is to acquire capabilities from a competitor, while a buyer-seller relationship is a different matter, aimed at revenue creation.

Successful collaboration requires a high level of purposeful co-operation aimed at maintaining a business relationship over time (Frazier et al, 1988; Spekman, 1988). Firms that have developed a distinctive capability for creating and managing collaborative relationships have devised strategies for this particular purpose, forming close relationships (Anderson and Narus, 1991). Because of the effort and resources required to support tightly linked relationships, it is not possible to do this with more than a few critical business partners or customers (Shapiro, 1988).

In addition, as a consequence of the proposition that capabilities can arise and reside in relationships, capabilities and competitive advantage can thus be wholly or partly shared by a number of firms, even competitors (Brandenburger and Nalebuff, 1996). Dussauge and Garrette (2000) have pointed out that alliances can either contribute similar or complementary capabilities, contributing differently to learning taking place in the alliance. They found out that a complementary alliance leads to a greater level of learning between the parties compared to an alliance where the partners have similar capabilities.

Foss and Eriksen (1995) have discussed the link between competitive advantage and what they label as industry capabilities, allowing for external shared capabilities, within an industry. Foss (1999) has linked capabilities and competitive advantage to industrial networks. They acknowledge that there are capabilities that do not reside in any organisation and cannot be attributed to any singular firm that arise as a result of collaboration. Instead, they argue, it is the combination and integration of two or several shared capabilities that translates into a competitive advantage.

Morgan and Hunt (1999) suggest that there are a number of resources that can be gained in business relationships. They name financial, legal, physical, human and organisational resources. Building on this suggestion, it is quite easy to think of resources or routines that are shared among competitors. For instance airports, stock exchanges, airline ticket reservation systems, telecommunications infrastructure, research institutions, industry associations, etc (Scherer and Ross, 1990; Gimeno, 1999).

Yet, the effects of relationships or interactions among competitors have received little attention (Chen, 1996). Common customers are an example of this type of shared resources. Baum and Korn (1999) and Gimeno and Woo (1996) have pointed out that competitors affect each other as they confront each other at various products and factor markets, and so become interdependent on each other, often indirectly and sometimes unaware of this condition.

This possibility is enhanced by the use of information technology which reduces the costs of co-ordination and can lead to an overall shift to proportionately more use of markets, rather than hierarchies to co-ordinate economic activity (Malone et al, 1987). New actors and arenas for exchange induce firms to engage in collaborative relationships, despite being competitors.

According to Gomes-Cassares (1996) alliances between competitors have proliferated. In those alliances Harbinson and Pekar (1998) studied, over 50 per cent involved competitors. At some point, business relationships change character from focusing on collaboration, i.e. sharing to focusing on capturing capabilities. The concept of collaboration as defined and used here, does not handle this gradual shift and does not account for “collaboration” between competitors.

Capability Acquisition by Firm Purchasing

Chaudhuri and Tabrizi (1999) present the argument that firms can acquire competitive advantage by acquisition of firms who can fill in capability needs of the focal firm. Having identified the limits of in-house innovation, cloning and collaboration, firm purchasing may be an alternative way to acquire the required capabilities. Often this firm is a competitor or business partner. This section focuses on the various motives for buying another firm, and what type of capabilities that firms possess which make them attractive to acquire.

First-Mover Advantages or Disadvantages

One of the most useful articles on the subject of timing in relation to competitors is "First-Mover Advantages" by Marvin Lieberman and David Montgomery (1987) who survey the theoretical and empirical literature on mechanisms that confer advantages and disadvantages on first-mover firms. According to Lieberman and Montgomery (1987) first-mover advantages arise from three primary sources: 1) Technological leadership 2) Pre-emption of scarce assets 3) Buyer switching costs.

What should be considered a disadvantage can be expected to be a mirror of the advantages. Therefore it is a question of semantics to divide the various benefits into two groups. Complicating matters further, what is considered a disadvantage can for a certain circumstance be an advantage in a coming era of competition. Furthermore, the capabilities of a firm may be attractive, because of how they fit the buyer, rather than what they themselves, taken by themselves have to offer.

According to Lieberman and Montgomery (1987), the following first-mover disadvantages can be found on the firm level: 1) Free rider effects - late-movers use investments already made by first-movers including R&D, buyer education, infrastructure development. Imitation costs are lower than innovation costs. 2) Resolution of market uncertainty - usually dominant design emerges. If you are late - the choices are easier and less risky. Firm size influences the ability to impact the resolution. 3) Technological discontinuities - being late in the first round imply being early in the next round - as new opportunities for entry emerge. 4) Incumbent inertia - the old firms can be locked in with specific assets, risk cannibalisation of existing products, and inflexible organisation may stop change. Top management itself can be a source of inertia (Hambrick and Mason, 1984). These factors can reduce or even negate the net advantage of the incumbent derived from the mechanisms considered previously.

As suggested by Lieberman and Montgomery (1987), firms may acquire one or several firm capabilities that are desirable for an acquirer. The desired capability may not only pertain to the first-mover, but can also accrue to a second mover or late entrant (Mathews and Cho, 1999). Rather than spending the time and effort to do it on its own, the firm can decide that it is better to acquire another firm outright. Firm purchasing implies the admittance that another firm possesses one or several capabilities of high strategic value, which cannot easily be cloned or found in-house, or acquired by collaboration.

Path-dependencies

Where a firm can go is a function not only of its current position and the trajectory that brought the firm to its position, but also of the paths ahead. Previous investments and its repertoire of routines constrain the future behaviour of the firm (Nelson and Winter, 1982).

Leonard-Barton (1992) notes that organisations' core capabilities can create core rigidities. This follows because capability acquisition tends to be local. That is, opportunities for learning will be close to activities and thus will be transaction and production specific (Teece, 1988). This is because capability acquisition is often a process of trial, feedback, and evaluation.

The concept of path dependencies can be given further meaning through the considerations of an industry's technological opportunities. The depth and width of technological opportunities in the neighbourhood of a firm's prior research activities are thus likely to impact a firm's options with respect to both the amount and level of R&D activity that it can justify. In addition, the firm's past experience condition the alternative management is able to perceive. Thus, not only do firms in the same industry face menus with different costs associated with particular technological choices; they are also looking at menus containing different choices (Nelson and Winter, 1982).

Technological innovation requires the use of certain related capabilities to proceed and deliver new products and services. Prior commercialisation activities require and enable firms to build such complementarities (Teece, 1986). Such capabilities, while necessary for established activities, have other uses as well. New products and processes can either enhance or destroy the value of such capabilities (Tushman and Andersson, 1986), and explain why firm purchasing can contribute both positively or negatively to the position of the focal firm.

Network Position

For firms operating in networks the significance of path-dependency is that they invest in relationships over long periods of time (Håkansson and Ford, 2000). Because these relationships become so strong, the firm establishes a network position. It becomes impossible to acquire these relationships without acquiring the firm itself. Since the firm obtains a position in the network, which cannot be challenged successfully, only firm purchasing remains for a firm that consider entering the network. Network position can be described and analysed in terms of the network density, centrality, the structural autonomy, or the structural equivalence, enjoyed by the firm.

Network density refers to the extent of interconnection among the actors: the greater the interconnectedness, the higher the density (Coleman, 1990). A dense network is often a good learning environment. Purchasing a firm within a high-density network implies that that this firm possesses an interconnection with its environment, which is deemed valuable, and which cannot easily be replicated.

The concept of centrality refers to the position of an individual actor in the network and denotes the extent to which the focal actor occupies a strategic position in the network by virtue of being involved in many significant ties (Wasserman and Faust, 1994). These ties can be so strong as to effectively look out any other firm. Reaching or finding a central position is related to the notion of structural autonomy.

The concept of structural autonomy is drawn from Burt (1992) and his work on structural holes. Structural autonomy refers to the configuration of relationships in the network. With structural autonomy, an actor has relatively much scope for managerial action, and so is able to find and develop new valuable relationships. This ability is valuable because competitors or the firm contemplating a purchase, reside in more structured networks and so cannot take advantage of the opportunity which is offered (Burt, 1998).

Structurally equivalent actors refers to actors that have a similar set of relations with other actors in the network, although they need not have direct relationship with each other (Rice and Aydin, 1991). Structural equivalence, is a pair level measure of the similarity of the networks of two firms: the greater similarity, the greater the structural equivalence (Valente, 1995), and indicate that two firms have a similar position and would consider themselves to be competitors. Purchasing a structural equivalent firm is accordingly to acquire a similar set of relationships to what the firm already possess to reduce the competitive pressure.

Limits to Acquisition by Firm Purchasing

The dynamic capabilities approach views augmenting the static capability portfolio as being difficult and costly: it is hard to integrate or transform organisational routines and processes. Firms are to some degree stuck with what they have and may have to live with what they lack (Ollinger, 1994). Moreover, capability acquisition can often occur only incrementally because organisations lack the capacity to develop new capabilities quickly (Dierickx and Cool, 1989), making firm purchasing alternative means.

Because capabilities to a large degree cannot easily be bought and must be built, opportunities for growth from diversification are thus likely to be limited, being close to the firm's existing line of products (Rumelt, 1974; Teece et al, 1994). When firm purchasing is considered, the scope for diversification is larger and indicates that firms can drastically alter their capability portfolios. The ability to acquire new capabilities is not limited only because of firm properties. Christensen and Rosenbloom (1995) proposed that the context in which the firm competes and solves customer problems is a factor affecting whether incumbent or entrant firms will innovate and capture a market with the most success.

As pointed out by Teece et al (1997) even when firms (or assets as they call them) can be purchased the firm. It may stand to gain little by doing so. Many firms are for sale at the right time at the right price. Second best alternatives, firms that are not perfect matches and second best technologies may be what are available for the firm that wants to buy another firm. Buying a firm with a proven track record may appear attractive, but the firm may already be past its prime. Buying an unproven firm in anticipation of future promise is also a risky strategy. Firms with promising futures may also carry extremely high price tags.

The notion that capabilities can reside externally and be acquired externally is explored by Duysters (2000), when studying the computer industry. He found that while it was possible to acquire capabilities by mergers and acquisitions (as well as strategic alliances), it did not appear to remedy internal shortcomings in the capability portfolio in the short run. Duysters (2000) suggests that because of imperfect factor markets, or more precisely the non-tradability of soft assets like values, culture, and organisational experience, capabilities often cannot be bought, they must be built. This can take years, possibly decades. In some cases, as when the capability is protected by patents, imitation by competitors is illegal as a means to access the technology. The dynamic capability approach accordingly sets definite limits on strategic options, at least in the short run. Competitive success occurs in part because of processes and structures already established and experience obtained in earlier periods.

If a firm purchases a firm to obtain its capabilities anyway, it cannot assume that the capability portfolio will stay as vigorous with new owners. For instance, capabilities may not be easily tradable, like customer trust (Dierickx and Cool, 1989). In addition, the blend between the buyer and the bought may not be good, leading to problems with integration. Staff can leave the firm, or it may in other ways lose these relationships because of conflict of interest between customers or changed offerings that may not fit existing customers. Christensen (1997) argues that it is easier to acquire resources than processes, because firm purchasing and subsequent integration easily vaporise those processes. Resources can more easily be plugged in and integrated, as a way of leveraging existing capabilities.

The Nature of the Four Means of Capability Acquisition

Four principal categories of means have been identified: in-house innovation, cloning, collaboration, and firm purchasing. Arguably, the number of means is infinitely large, as managers even within a limited set of choices could still be said to have ample choice. In line with the argument put forward by Weick (1979), there is a trade-off between simplicity, accuracy, and generality in creating frameworks. To create analytical leverage the number of means have been confined to four only. As will become evident in the presentation of the classification, this is a strong simplification devised to leverage the framework analytically, while reducing accuracy in the process.

The four identified means contain numerous indications of the myriad choices that managers are confronted with as they acquire new capabilities. The ambition has been to provide a broad division of these choices into the four principal categories of means. The aim has been to create a classification that is more exhaustive than the one by Volberda and Baden-Fuller (1998). This is achieved by suggesting four categories of means of capability acquisition that are mutually exclusive, while they are still being broad enough to include all possible variations.

Furthermore, a principal assumption made is that these four basic ways to acquire capabilities are related and interdependent and occur jointly or independently, yet can be identified separately as they occur. This view of means is consistent with Eisenhardt and Martin (2001), who claim that dynamic capabilities are homogenous and substitutable. Dynamic capabilities are not firm specific, but exhibit significant commonalities across empirical settings.

Another assumption governing the discussion on means is that means possess limitations as proposed by Levinthal and March (1993), making it practically impossible for a firm to rely on just one type of capability acquisition. If a capability is identified as needed and then acquired by collaboration and not by firm purchasing then the firm has made a choice. This choice is likely to be affected by a number of factors and influences, some at the control of and as a result of managerial action and intent, and some beyond the control of management. This is consistent with the adopted understanding in Chapter 5, of strategy creation and implementation as adaptive, i.e. that firm strategy is a mixture of emergent and deliberate strategies (Mintzberg and Waters, 1985).

There may be interdependence between the various types of means, causing regularity and repetition in occurrence, which is manifested itself in one or several patterns of capability acquisition. Accordingly, means are tools available for management when taking decisions about capability acquisition, creating the capability acquisition process. The patterns are understood to be the outcome of their actions, with implication for new action and new patterns. As means are applied continuously, outcomes are created continuously, in an endless set of actions and outcomes, forming the capability acquisition process.

9. Patterns of Capability Acquisition

In Chapter 7 on electronic commerce capability, five static capabilities were identified: 1) Addressability, 2) Interactivity, 3) Customisation, 4) Personalisation, and 5) Postponement. In the previous chapter four categories of means of acquisition have been identified and discussed: 1) In-house innovation, 2) Cloning, 3) Collaboration, and 4) Firm purchasing. In light of the different static capabilities and means of acquisition presented above, a natural next question is whether there is a pattern in how firms acquire new capabilities?

With pattern is meant in what fashion the means of capability acquisition is utilised over time to acquire static capabilities. The notion of patterns can include any type of regularity, frequency or combinatory condition between and among the means and the static capabilities. A basic belief is that these patterns suggest insights into the nature of the capability acquisition process of firms.

Four alternative or complementary hypotheses are proposed for understanding and explanation of capability acquisition:

- The supply pattern hypothesis
- The resource portfolio pattern hypothesis
- The trajectory pattern hypothesis
- The performance pattern hypothesis

The hypotheses are generated by the author, and are based on ideas and other writings on the subject or related subjects. Within every section, the hypothesis is presented in terms of sources of inspiration, underlying reasoning or motivation, and chosen operationalisation. It should be pointed out that the four hypotheses are not linked directly to any singular theoretical approach, although they often draw and integrate upon several ones.

While theory provide inspiration for the proposed lines of understanding, the hypotheses do not constitute attempts to test various underlying theories that have contributed to the formulation of the hypotheses. The proposed patterns are hypothesised to be relevant explanations, which singly or collectively can forward theoretical understanding and explain capability acquisition processes. The hypotheses are formulated as to facilitate the search and analysis of the cases in Chapter 10. In some cases several variations on the hypotheses are presented. Below the hypothesised patterns to capability acquisition are presented and discussed in turn.

The Supply Pattern Hypothesis

Building on Grant (1991), who discusses the importance of the nature of static capability, it can be hypothesised that the nature and quality of the needed capability governs the capability acquisitions process. If a capability is not possible to acquire via collaboration or firm purchasing because of the intrinsic nature of that capability, the firm can simply develop the capability in-house or clone outside capabilities, resulting in an internal capability acquisition process. In parallel, if a capability cannot be developed in-house or cloned, the firm may not have any other choice but to acquire the capability via collaboration or firm purchasing, resulting in an external capability acquisition process.

The supply pattern hypothesis suggests that there are two basic sources of capability acquisition for a firm. Supply can come from either internal sources (in-house innovation and cloning-replication) or external sources (collaboration, firm purchasing and cloning-imitation, with cloning-emulation taking a middle form). Operationalising the supply pattern hypothesis as either internal or external capability acquisition presumes that Hayek (1945) was correct in contenting that knowledge is asymmetrically distributed and resides both internally and externally of the organisation.

The supply pattern hypothesis derives some of its theoretical origin from transaction cost theory and the notion of market and hierarchy developed by Williamson (1975; 1985). Thus the conditions for the supply of capabilities, as determined by the nature and quality of a particular capability, and the transaction costs associated with that capability, might contribute an explanation to the capability acquisition process.

By way of the supply pattern hypothesis, the question of acquiring capabilities becomes one of making or buying, with similarities to the classical make-or-buy decision, and the terms on which the firm can take make-or-buy decisions. As argued by Webster (1991), price and cost considerations are paramount. The true cost of an internal capability acquisition process is often underestimated. In addition, the number of sources can influence the vulnerability and viability of capability acquisition. The quality and availability of a source of a capability may induce the firm to decide to engage in internal capability acquisition. A capability can also be conveniently acquired as a subset of a larger set of capabilities. For instance, a capability embodied in a product or service may be acquired with the purchase of a product or service (Demsetz, 1988).

The notion of internal and external capability acquisition links with the literature on outsourcing. Quinn and Hilmer (1994) argue that firm activities should be evaluated in terms of two dimensions: 1) Potential for competitive advantage, and 2) Degree of strategic vulnerability. Activities that score high in both respects should be produced internally, whereas activities that score low on both should be obtained from the outside.

Accordingly, it should be possible to discern a pattern where the firm acquires capabilities both from internal and external sources, depending on the availability of capabilities and on the terms on which those capabilities can be acquired (Andersson, 1994). The supply pattern hypothesis includes firm context as a potential source of capabilities and is therefore linked to the markets-as-networks approach. But the focus is on the workings and mechanics of the focal firm. The internal process of the firm in terms of how it balances and decides between internal or external capability acquisition is paramount, borrowing inspiration from the chain-linked model of innovation (Kline, 1990) presented in the beginning of chapter 8. The supply pattern hypothesis is operationalised as internal or external capability acquisition.

The Resource Portfolio Pattern Hypothesis

David (1985) and Arthur (1989) have argued that a firm's development cannot be understood as independent of its current capabilities. As Penrose (1959) has noted, some organisations have a better initial endowment of capabilities for learning (and capability acquisition) than others do. Each organisation is unique and its ability to acquire the knowledge necessary to adopt a significant innovation successfully differs from that of existing or potential competitors.

Current capabilities have a negative or positive effect on the ability of the firm to learn new capabilities. Penrose (1959) argues that mastery of an older technology preclude the rapid acquisition of knowledge that will permit the transition to a newer technology. This issue is discussed in Cohen and Levinthal (1989 and 1990), who argue that the ability of firms to evaluate and utilise resources is a function of their level of prior related knowledge. This prior related knowledge confers an ability to recognise the value of new information, assimilate it, and apply it to commercial ends, which they suggest collectively constitute a firm's absorptive capacity. In particular, they argue that a firm's own R&D activity enhances this learning capability.

This simple notion, that prior knowledge underlies a firm's absorptive capacity, has implications for the development of capabilities over time, and in turn, the innovative performance of organisations. First, these learning capabilities are subject to increasing returns in that accumulating absorptive capacity in one period will permit its more efficient accumulation in subsequent periods. Second, the possession of related capabilities permits the firm to better understand and therefore to evaluate the importance of new technologies (Cohen and Levinthal, 1989; 1990).

The notion of the competence trap suggests that organisations reduce their search activity prematurely or, in the case of a changing environment, not react to the results of the search activity despite the fact that new opportunities are present (Levinthal and March, 1981; Levitt and March, 1988). Increasing current capabilities based on current technology make experimentation with alternative capabilities progressively less attractive. In this sense, organisational learning contributes to organisational inertia that, in turn, provides a basis for selection processes as a source of change (Levinthal, 1992).

Furthermore, these same forces will tend to confine firms to operating in a particular technological domain and in turn, lead to the neglect of new technological developments. This confinement in terms of direction of learning is captured by the concept of irreversibility. Already acquired capabilities (and other instances of learning) thus restrict future capability acquisition to building upon what has already been learnt (David, 1975; Stein, 1993). The self-reinforcing features of learning provide difficulties for firms when the technological bases of an industry change. Furthermore, a firm with a prior technological base in a particular field may not be able to readily dispose of its current capabilities if its absorptive capacity is cumulative (Cohen and Levinthal, 1989; 1990).

Levinthal and March (1993) suggest that learning has to cope with balancing competing goals. In their view, organisations use two major mechanisms to facilitate learning from experience: simplification and specialisation. As a result, learning processes focus attention and narrow capabilities, facilitating exploitation over exploration. The focus on exploitation diminishes the capacity of the firm to acquire capabilities for the long term where it already lacks capabilities, imposing self-limiting properties of learning.

Technical capability often does not explain why some firms within the same industry benefit more from an innovation than others (Abernathy and Clark, 1985; Tushman and Andersson, 1986). Focusing on single-product firms, Henderson and Clark (1990) have argued that industry incumbents are disadvantaged when innovation involves changes in the linkages between products component and little change in technology. These innovations are difficult for established firms to introduce because prevailing routines limit their ability to identify the potential of and thus the building of new linkages. They conclude that different types of change require different types of firm capabilities.

There is a strong argument for accumulating capabilities within a particular area, thereby creating a competitive advantage. Discussing information systems management, William (1995) argues that when managers think in terms of architecture of strategic capabilities, they can acquire new capabilities with more focus and greater organisational impact. By assessing the needed capability and strategically build interrelated sets of capabilities; the firm can derive a more sustainable competitive advantage in comparison to acquiring capabilities one at a time. The resource portfolio pattern hypothesis focus on the effect of a capability acquisition effort in relation to the existing capability portfolio.⁴¹ The existing capabilities are a reflection of past capability acquisition. For every set of capabilities there is a hierarchy, architecture, or setting, where a capability is dependent on one or usually several other capabilities to exist. Large sets of capabilities should be viewed as portfolios of capabilities.

⁴¹ This portfolio can be thought of a having scope or broadness, i.e. containing many capabilities which are largely complementary. Hence, a broad capability portfolio implies that that the firm is fairly skilled in many respects. In addition, the capability portfolio may have depth or reach, i.e. containing many capabilities which are additive, and hence confer the firm with a narrow specialised capability - something which the firm is truly good at.

Drucker (1994), in a similar vein to the Ansoff Matrix (Ansoff, 1965), has identified different kinds of opportunities open to management, where management can either build on the existing business, or branch out into some new direction. Similarly, the resource portfolio pattern hypothesis focuses on how acquired capabilities are related to the existing capability portfolio in terms of how they augment the present capability portfolio.

Reflecting a wish to capture this aspect of capability acquisition, the resource portfolio pattern hypothesis is operationalised as complementarily or additively. Complementary capability acquisition implies that the capabilities are predominantly new in relation to the existing capability portfolio. Additive capability acquisition implies that the capabilities are predominantly adding to the existing capabilities.

The resource portfolio pattern hypothesis implies that capabilities are acquired differently depending on their contextual implication for the existing capability portfolio. The pattern of capability acquisition is different depending on the nature of the existing capability portfolio of the firm. Accordingly, the same static capability can contribute additively in one setting and complementarily in another setting, depending on the point of departure.

The Trajectory Pattern Hypothesis

Vernon (1966) focused on the international dispersion of corporate technological activity, formulating two key hypotheses. The first hypothesis states that innovations are almost always located in the home country of the parent firm and usually close to the site of the corporate technological headquarters. The second hypothesis states that leaders in technology lead international investment. By internationalisation these firms are able to exploit their leadership and use it as a means by which they can increase their market share relative to other firms. With a similar type of reasoning, Downs (1967) introduced the idea of organisational trajectories or life cycles and the notion of a maturing and changing bureaucracy as the firm evolved over time.

A common trait of models of business and organisational change is that they use time as an essential concept (Andersson, 1994). Building on Penrose (1959), Vernon (1966) and Downs (1967), a number of contributions have been focusing on the relationship between technological competence, firm specific and path dependent characteristics of technological change (Nelson, 1992; Dosi et al, 1990; Teece et al, 1992a).

In Kash and Rycraft (2000) patterns of innovation are discussed in terms of a trajectory. They propose three phases: the normal pattern, the transition pattern, and the transformation pattern. The normal pattern is distinguished by a stable network and repeated improvements of the same technology. Both the transition and transformation patterns are defined by new technological designs.

A recent contribution is Davies and Brady (2000), who present a learning cycle model. The idea is that firms learn in phases over time by accumulating organisational routines that enable the firms to handle a growing number of firm activities. Based on this, the idea generated is that the firm over time changes its capability acquisition pattern. This change mirror or correspond to the evolution of some other variable: the organisation, the industrial network, the technologies used, the firm history, the products of the firm, the customers or the competitors of the firm, the business model, or some other variable or combination of variables.

Chandler (1962) uses the notion of phases to understand firm development focusing on the evolution of managerial methods and novel forms of organisation to facilitate firm growth. Christensen and Scott (1964) discuss the development of organisational complexity in a business as it evolves in its product-market relationships, formulating three stages that a company moves through as it grows. In parallel McGuire (1963), building on Rostow (1960) formulated a model that saw companies moving through five stages of economic development. Steinmetz (1969), who theorised that in order to survive businesses must move through four stages of growth, expanded upon this model. Steinmetz envisioned each stage ending with a critical phase that must be dealt with before the company could enter the next stage.

Taking up this idea, Greiner (1972 and 1998) used the term evolution and revolution to describe firm transformation. Greiner argues that firms pass five stages, where every phase contains a stable and a turbulent period. Each phase is characterised by a particular managerial style and each evolutionary period is dominated by one managerial problem faced by the firm. In the same tradition, Churchill and Lewis (1983) developed a framework to categorise growth patterns of small firms. Lundgren (1991) and Hertz (1993) also identify distinct phases in their studies of the creation of a new industrial network and in the internationalisation process of freight transport companies respectively.

Kotler (1984) combines the product life cycle model with a model of phases through which markets evolve. He suggests that as the product moves along the life cycle, the market will move through five stages of evolution: crystallisation, expansion, fragmentation, reconsolidating, and eventually termination. Focusing on the early stages of emerging industries, using a social system perspective, Garud and Van de Ven (1989) found that events could be grouped into four phases: gestation, initiation, start-up, and take-off. Gestation represents a period of undirected search for general knowledge, which in initiation is given a specific direction. The industry start-up period is marked by the development of proprietary products by competing firms and by the institutional legitimisation of the technology. Industry take-off is governed more by demand pulling factors.

The notion that a technology follows an evolutionary path or trajectory over time, which can be described in phases, is something that Christensen (1992) utilises in his discussion on S-curves. Each S-curve denotes a technology which becomes dominating for a while in an industry, and which may or may not coincide with the evolution of the firm, depending on whether the firm is able to adjust and adapt to each new technology. Moore (1996) builds on the notion of S-curves, but focus on industrial systems. He describes four stages: 1) pioneering, 2) expansion, 3) authority and 4) renewal or death, which he thinks that business ecosystems undergo.

These approaches point to the suitability of utilising stages or phases to depict and analyse historical processes. But the proposed understanding of capability acquisition carry with it the same weaknesses as offered by the classical product-life cycle model (PLC). In the PLC, the sales of a product mirror the consumer adoption process, or the demand side of that product, and follow four distinct stages: introduction, growth, maturity and demand (Buzzel, 1966; Cox, 1967; Kotler, 1997). The PLC way of thinking has been influential in both practical marketing and theory. The PLC concept has received heavy criticism and many different authors have pointed out several weaknesses.

For instance, how should the stages be identified and delimited? Wasson (1978) has distinguished additional stages, suggesting that there is a stage of competitive turbulence between growth and maturity. How can it be known if a product is just a derivation of other products or a new product? And what about products that seem to follow a completely different pattern and never die? What about management and their action: can they change or alter the cycle? Given the questions above, can the PLC be used at all for prediction? In their criticism of the product trajectory, Dhalla and Yuspeh (1976) write: "...clearly, the PLC is a dependent variable, which is determined by market actions, it is not an independent variable to which companies should adapt their marketing programs. Marketing management itself can alter the shape and duration of a brand life cycle."

Thus the life cycle is at most useful as a description that can be used afterwards with hindsight, but not as a predictor (Dhalla and Yuspeh, 1976). It is difficult to find any clear suggestions on which phases the firm passes, given the criticism that the product-life cycle has received. Furthermore, reality does not easily lend itself to simple sequential classification (Lundgren, 1995). The capability acquisition process may be simultaneous or follow a more complicated pattern.

The possibility generated by the notion of a trajectory is that over time the firm changes its capability acquisition pattern according to stages or phases is not considered likely. The likelihood that capability acquisition is influenced by the theory of business remains. Furthermore, it is here assumed that the maturity of the trajectory in relation to the trajectories of other competing firms also can be important. Hence, both the nature and the maturity of the trajectory should be considered.

The notion of firms as entities determined by a trajectory of some sort can be traced back to Penrose (1959) and the concept of the growth trajectory of the firm. The trajectory pattern hypothesis suggests that firms acquire capabilities differently depending on the nature and relative maturity of their theories of business. Furthermore, it is expected that the capability acquisition pattern reflect the theory of business, across singular business models.

The trajectory pattern hypothesis is similar to the resource portfolio pattern hypothesis in that it postulates that “history matters”. There is a principal difference between the two proposed patterns. In the resource portfolio pattern hypothesis the current capability portfolio and business model determine the capability acquisition pattern. The focus on the current capability portfolio emphasises the nature of the static capabilities. In contrast, the trajectory pattern hypothesis goes beyond the current capability portfolio and focus on the entire history of the firm, including the dynamic capabilities, the capacity for change and the irreversibility that it confer on the firm.

This trajectory is set in a timebound context, and is linked to the evolution of demand for the service and product. Furthermore, there is a material difference with regard to the degree of managerial agency for future capability acquisition, which is perceived as limited with regard to the trajectory pattern hypothesis. A feature of absorptive capacity suggest the importance of cumulateness for the trajectory pattern hypothesis – which imply that capability building and development is path dependent and a function of the history of the firm (Cohen and Levinthal, 1989; 1990).

The trajectory pattern hypothesis is operationalised as indirect and direct capability acquisition. Indirect capability acquisition is likely to be followed by more indirect capability acquisition, and vice versa. The notion of indirect and direct is inspired by the empirical preview. This operationalisation steams from the impression that the two studied firms have related themselves to their customers either directly or indirectly, with the support of various intermediaries and supporting firms, and that this is an important aspect of the capability acquisition processes of the two firms.

The Performance Pattern Hypothesis

The performance pattern hypothesis is derived from the literature on economic performance in distribution and marketing systems and on the allocation of resources in an economy or a firm (Caves, 1987). One of the key issues in the study of distribution systems has been economic performance. Traditionally, three criteria for evaluating the performance of distribution systems have been suggested: efficiency, effectiveness, and equity.

Efficiency is related to the cost of the distribution system for bridging production with consumption. The lower the cost of distribution, the more efficient is the distribution system. Effectiveness is related to the value creating capability of the distribution system. The higher the price charged from the customer, the higher is the value placed by the customer on the distribution system.

Equity is related to the distribution of the value created between producers and consumers. While equity is a concept involving value judgements, efficiency and effectiveness are considerably more neutral concepts aimed at evaluating the performance of a distribution system (Scherer and Ross, 1990; Stern et al, 1996).

Arguably, the concepts of efficiency and effectiveness can be used to analyse theories of business and business models in the same manner as distribution systems. Efficiency and effectiveness have hitherto been used in the literature as outcome oriented variables. In their classical context, efficiency and effectiveness were a result of the structure of the industry, which caused the conduct by the actors, which in turn yielded performance (Scherer and Ross, 1990; Needham, 1978; Waterson, 1984).

Efficiency is equated with the cost and price that a business model can deliver to its customers. Effectiveness is equated with the value and satisfaction that a business model can deliver to its customers. This is an unorthodox usage of these terms, since it focuses on how a certain set of actors (the customers) within the system perceives the performance of two distribution systems. Furthermore, other writers have partially touched upon the proposed usage of these terms. Rather than replacing efficiency and effectiveness, with for instance cost and value, a re-interpretation of these terms is proposed.⁴² The proposed understanding of efficiency and effectiveness adds a dynamic quality to the concepts of efficiency and effectiveness. The pursuit of efficiency can provide the resources to fuel investments for achieving effectiveness or investing even further in efficiency. Similarly, the pursuit of effectiveness can augment the revenue generated from customers as well as provide the resources to achieve efficiency (Goshal and Moran, 1996).

Day (1999) argues that there is a trade-off between different organisational structures in terms of efficiency and effectiveness and that many firms in response organise themselves around horizontal business processes, backed up with deep functional strengths.

In a similar approach, Morash and Clinton (1998) study supply chain relationships in terms of how efficiency and effectiveness is improved over time, and identify two basic strategies: cost reduction, i.e. efficiency, and differentiation, i.e. effectiveness. They find firms either aim for operational excellence to cut costs so as to remain attractive for their customers, or for collaborative closeness with their customers to create value for them.

⁴² The term economic performance has often been equated with efficiency related measures. For instance Caves (1980) define economic performance of the firm as efficiency measured by the divergence of its input-output relation from the best attainable, or profitability relative to comparable competitors, or some other operational test of efficiency. There is no direct reference to effectiveness as a part of performance. Caves (1980) propose that an inquiry into performance should be concerned with an aggregation of the performance characteristics of a firm. Hence, effectiveness can be considered a part of firm performance, and this aspect is integrated into an overall assessment of performance.

Following from the identification of this dynamic quality and trade-off, it is suggested that efficiency and effectiveness are not just concepts that can be used to evaluate performance, but that these concepts can be considered as causal forces shaping the capability acquisition process. Using the terms of effectiveness and efficiency in this novel manner implies an alternative understanding of capability acquisition and thus the evolution of theories of business and business models. In this alternative understanding, efficiency and effectiveness by themselves and together shape and reshape the theories of business and business models continuously in an evolutionary process over time.

The proposed performance pattern hypothesis derives inspiration from Siggelkow (1999) who has applied the concept of performance landscapes to describe technical evolution. According to Siggelkow (1999), the performance landscape is multi-dimensional space in which each dimension represents the values of particular choices that a firm can take. These choices can be taken to imply certain combinations of performance, with firms striving to maximise their performance in terms of the multi-dimensional space. Efficiency and effectiveness (in the proposed re-interpretation) are chosen as dimensions, with various combinations representing different choices, yielding a performance landscape where firms can be placed, and move around over time, in a landscape that moves around as well, because other firms alter their positions.

The performance pattern hypothesis is operationalised as efficiency and effectiveness. It is hypothesised that the capability acquisition process can be explained by the previous performance of the theory of business and the business model. This understanding include both an internal absolute as well as an external relative aspect where efficiency and effectiveness is related to each other within as well as between firms.

Bucklin (1966) provides a source of inspiration for the performance pattern hypothesis. While the literature on distribution channels has focused on the problems of the manufacturer as seller and on innovation among the firms in the distribution systems, few have considered the importance of customers. Bucklin (1966) provided one early example of integration of customer preferences and utility. He bases his theory on microeconomics and on the relationships among institutions and agencies active in the distribution channel. His core proposition is that the purpose of the channel is to provide consumers with the desired combination of the desired service level outputs (lot size, delivery time, product variety, service backup and market decentralisation) at minimal cost. Customers determine channel structure by purchasing combinations of service level outputs (Bucklin, 1966).

A key concept and aspect of Bucklin's (1966) is that of a normative channel which will arise, and obtain a dominant position in the economy. Bucklin concluded that functions would be shifted from one channel member to another in order to achieve the most efficient and effective channel structure. Given a desired level of output by the end-user and competitive conditions, channel institutions will arrange and rearrange their functional tasks in such a way as to minimise total channel cost. This shifting of specific functions lead to a reduction in channel members, but not in functional task performed (Bucklin, 1965).

The point following from Bucklin (1965 and 1966) is that customer action effects the organisation of the distribution system. Customer preferences govern how the system evolves and which forms of distribution that is successful. The notion of a performance landscape for firms (Siggelkow, 1999) can be complemented with the notion of a performance landscape for distribution channels and systems or networks. Adding the concept of service output levels (Bucklin, 1966) provide a comprehensive suggestion as to how customers affect and influence how firms position themselves in the performance landscape, as singular entities as well as channels or systems.

Alternative Capability Acquisition Patterns

Four hypotheses on possible capability acquisition patterns have been presented. They are tentatively proposed as four possible ways to understand and explain capability acquisition processes. While, the search for patterns in the analysis and subsequent discussion will focus on these hypotheses, it is worthwhile to consider alternative or complementary possibilities.

With regard to the empirical investigation in chapter 10, these patterns may be found to, coexist, or they may be found to exist in some contexts and not in others. They may exist in sequences, or they may exist for the duration of a business model or a theory of business. There may also be a link between the type of means utilised by the firm and the static capabilities occurring. While each of the hypotheses imply a sought after pattern, the actual pattern found may be different, or so weak to be unintelligible. Hence, the provided operationalisations are starting points for the search for patterns, rather than precise hypotheses that are tested against empirical data.

One possibility is that there is a pattern that has not been considered so far. For instance, Volberda and Baden-Fuller (1998) suggest that time should be considered a means, as actions are plotted in time and gain a particular implication when put in a time perspective. Time is considered as an aspect of all patterns since the focus is on change over time. The trajectory pattern hypothesis in particular should be considered an example of a time-based perspective.

Another possibility is the absence of any pattern. This does not mean that there is no pattern. Only that no pattern has been found. The capability acquisition process may also contain or result in no particular pattern. This possibility finds its inspiration from Mintzberg and McHugh (1985) and their idea of ad-hocracy - the lack of order, the seeming chaos, and the fuzziness that surround the process of strategy formation. Nonaka (1988) has also thought of organisational renewal as chaos and without any seeming order. The notion of no pattern assumes that the firm selects the least costly, most convenient or fastest method without any constraints in every situation, making it impossible to discern any pattern.

The absence of any acquisition pattern is certainly possible, but not convincing or likely. It does not seem persuasive that capability acquisition is unaffected by the nature and quality of a capability, or that the existing capability portfolio of the firm is irrelevant for future capability acquisition. In addition, it seems likely that small or new firms behave in the same way as large firms with mature businesses, or that the performance of the firm is irrelevant for future capability acquisition.

A third possibility is the hypothesis presented by Lehrer (2000), who discusses the organisational trade-offs a firm can face, in choosing between alternative capability acquisition regimes. Based on a suggested trade-off between flexibility and commitment in social systems, Lehrer argues that firms must choose between evolutionary and revolutionary capability acquisition regimes, and that they cannot entertain both simultaneously. Using empirical evidence from the race of European airlines to develop critical revenue management capabilities, studying British Airways, Lufthansa, and Air France, Lehrer indicates and illustrates the existence of evolutionary and revolutionary capability regimes.

Lehrer (2000) further argues, in line with the emerging understanding, that there are not only managerial choices involved, but also that these choices eventually reflect themselves in patterns. For Lehrer, national, social and cultural dimensions are explanatory factors towards understanding capability acquisition patterns. The social and cultural contexts are kept constant in the cases, since both firms originate from Texas, USA, making this hypothesis less relevant. The Lehrer hypothesis suggests that organisations assume either evolutionary or revolutionary capability acquisition regimes that will remain with them over the trajectory of the firm. The key aspect emerging from Lehrer is that capability acquisition is related to the theory of business, rather than singular business models. Lehrer's notion of revolutionary and evolutionary regime focuses on the long-term evolution and so is similar to the trajectory pattern hypothesis and offers an alternative operationalisation to the notion of direct and indirect capability acquisition. The reason for choosing the operationalisation of direct and indirect is that the focus here is on distribution systems and customer contact.

Nor should the notion of phases be disregarded. For instance, Lundgren (1995) has produced a framework for the understanding of the emergence of industrial networks. Lundgren links the emergence of technological systems with the emergence of a network of actors. His view is that networks mature in three phases: genesis, coalescence, and dissemination. It could perfectly well be hypothesised that capability acquisition is different in these three phases. The drawbacks of considering learning in phases is discussed in the formulation of trajectory pattern hypothesis, and it has therefore not been regarded necessary to treat Lundgren (1995) separately from the trajectory pattern hypothesis.

As illustrated above, the markets-as-networks approach as well as the dynamic capability approach, as well as other research traditions, suggest numerous additional possible capability acquisitions patterns. The hypotheses have been chosen and operationalised to fit the purpose and are chosen because it is believed that they on their own and taken together potentially can offer understanding and explanation of capability acquisition processes. Arguably and hopefully, the four identified patterns are well chosen in the sense that other possible hypotheses can be considered variations on these four hypotheses. Furthermore, the number of hypothesis has been confined to four to make the task ahead manageable.

Summary of the Four Hypotheses

Bringing together the four hypotheses creates four ways in which to analyse capability acquisition. The theoretical inspiration, the hypotheses and the operationalisation of each hypothesised pattern is presented and summarised below. The ambition is now to move forward to the empirical inquiry and present the cases in order to gain the empirical basis on which to further develop understanding and explanation of capability acquisition processes.

Patterns of Capability Acquisition	Theoretical Inspiration	Hypothesis	Operationalisation
Supply Pattern	Transaction-Cost Theory/Purchasing literature/ Markets-as-networks approach/ literature on innovation	The firm acquires new capabilities depending on the supply of desired capabilities.	Internal/ External
Resource Portfolio Pattern	Resource-based view/Dynamic Capability Approach/ Markets-as-networks Approach	The firm acquires capabilities depending on what capabilities the firm currently possesses.	Additive/ Complementary
Trajectory Pattern	Product life-cycle/ Evolutionary economics/ Dynamic Capability Approach	The firm acquires capabilities depending on the nature and relative maturity of the theory of business (i.e. the trajectory)	Direct/ Indirect
Performance Pattern	Distribution theory/Micro-economics/ Performance Landscapes	The firm acquires capabilities depending on how it performs in terms of cost and value as perceived by customers	Efficiency/ Effectiveness

Table 9.1 Four hypothesised patterns of capability acquisition, their theoretical inspiration, hypothesis and operationalisation.

10. The Cases of Compaq and Dell in Sweden

In this chapter, the business model evolution of Compaq Sweden and Dell Sweden is related. First the story of Compaq Sweden is told for the period 1982-2000, followed by the story of Dell Sweden 1983-2000. The story of each firm is set out in five subsections following the phases found in the evolution of the respective business models. Although the cases of Compaq and Dell in Sweden are related they are considered two cases and the presentation of the cases is made separately for the firms to provide clarity and to facilitate comparison and analysis in Chapter 11 and 12. Thus, the case of Compaq and Dell in Sweden comprise first the story of Compaq in Sweden and then the story of Dell in Sweden. As will become evident in the cases and the analysis, the cases are related to each other since the firms competed in the same market during the same time period. These links are highlighted in Chapters 11-13.

Introduction to the Cases

Both firms were started outside of Sweden in 1982 and 1983 respectively and their stories are affected by events taking place before they established themselves in Sweden. Both Compaq Sweden and Dell Sweden based their entry on successful theories of the business that had been developed in the USA and then were transferred to Europe and eventually Sweden. Once in Sweden, the local entities started with USA blueprints, which were then tailored to the Swedish market. Accordingly, the capability acquisition relevant for the Swedish firms took place partly before the Swedish operations came into existence. These events have been included to facilitate the understanding of the evolution of the theories of the business and the business models in Sweden, but they are not included in the direct identification of the phases even though they affect the Swedish stories.

If Compaq Corporation and Dell Corporation were studied on an aggregate corporate level, the number, stated time and duration of the phases would have been somewhat different, but not materially. In particular, a study of the firms from an USA perspective would have implied a division of the first business models into several phases. For lack of time and data the early period of the firms has been considered one business model.

The USA market is the most mature and advanced, while the Swedish market has consistently been one of the earliest foreign markets to follow or become affected by the USA market. Accordingly, there is a time lag between the USA, EMEA, and Swedish organisational and operative levels. This lag was greater during the 1980s and has since been gradually shortened as the Swedish and European organisations gained strength.

As will be indicated, the lag does not necessarily imply that events that occur on the corporate level automatically occur in Sweden after some time. There are local events without connection to the other operative levels. Care has been taken to identify events taking place outside of Sweden with implication for the Swedish subsidiaries.

While the business models to a large degree are overlapping across the three operative levels, the focus is on Sweden, and the business models pertain to the Swedish market. With the exception of the initial phases, which to a large degree provide a background to the establishment of operations in Sweden, the capability acquisition relevant for Sweden is the sought after phenomenon. Sometimes the term “direct sales” or “direct sales model” or “direct sellers” are used etc to indicate firms like Dell Sweden or Gateway2000 that market computers directly to customers. This should not be confused with the individual business models that are marked with capital letters when discussed.

There are three basic operative or organisational levels on which the cases are plotted: Sweden, Europe, and the USA. Accordingly, capability acquisition is assumed to take place at any of these three operative levels, singly or in combination. To simplify and facilitate comparison, the USA market is treated as a separate unit in the cases with regard to the development in the USA. Included events in the USA are in many cases not only related to the USA market, but also to the global market or to the global operations of the two firms. In a similar fashion, the manufacturing operations for Europe of Compaq in Erskine and Dell in Limerick are treated separately in the cases, but are equated with the EMEA operative level. Events taking place in other national European markets are equated with the EMEA operative level, since it has been assumed for simplification that a capability transfer must involve EMEA.

In the cases, the terms “Compaq Sweden” and “Dell Sweden” are used to denominate the Swedish operations. “Compaq EMEA” and “Dell EMEA” are used to denominate the European operations. “Compaq USA” and “Dell USA” are used to denominate the USA operations, and “Compaq Corporation” and “Dell Corporation”, and just “Compaq and Dell”, are used to denominate the overall global operations. Accordingly, the term “corporation” or just the firm name is used when all three or several organisational levels are involved, and/or it has not been possible to distinguish at which level an event occurred.

This terminology is not always consistent with the terminology used by the firms themselves, but is provided to offer clarity and facilitate comparison. To complicate matters further, Dell EMEA eventually introduced a managerial level between itself and Dell Sweden. Since this managerial level was run from Bracknell, UK, where Dell EMEA reside, Dell Northern Europe (DNE hereafter) is regarded as the same organisational level as Dell EMEA. When considering on which operational level the means have been used, the USA and the corporate level is considered the same level. Accordingly, when considering on which operational level the means have been used, the USA or corporate is considered the same level.

The Structure of the Cases

In the case of Compaq Sweden the five steps are presented below. With the exception of two business models, the author has coined the names of the business models: “The Optimised Distribution Model” and “The Customer Choice Model” are terms chosen by Compaq Corporation itself. In both cases the proposed phases or business models have been exposed to employees of the firms and have sometimes been adjusted to reflect their views. The names of the business models have been coined to indicate the critical new feature of every business model, which became important during that time period. In terms of Compaq Sweden, the following five phases were identified.

Business Model	Year
The Reseller Model	1982-89
The Indirect Sales Model	1990-93
The Distributor Model	1994-96
The Optimised Distribution Model	1997-98
The Customer Choice Model	1999-

Table 10.1 Compaq Sweden Business Models

The division of the business models into years is crude and there is often no precise date when one phase replaces another. Instead the dates are presented to indicate approximately when a particular business model was employed. As will be illustrated, the creation of one business model will often take place during the prime of the preceding business model or models. Thus a business model cannot easily be confined and limited in time and the suggested dates given should be taken as indications as to when they became effective. In general, while one business model is in play, several others are being constructed for future employment, while older models coexist or slowly fade away. This complexity and fuzziness is contained in the empirical description, but it weakens identification of the phases. In terms of Dell Sweden, the following five phases were identified.

Business Model	Year
The Direct Sales Model	1983-90
The Relationship Model	1991-94
The Hybrid Model	1995-96
The Customer Segment Model	1997-98
The Customer Contact Mix Model	1998-

Table 10.2 Dell Sweden Business Models

The term business model is used to delineate the singular phases, but not the overall evolution of the firm, which is referred to as the theory of business, as discussed in Chapter 4. By providing a close look at the business models, the ambition is to generate more precise input for discussing capability acquisition. Putting the focus on the aggregate level presume high degree of stability in the respective theories of business during the studied time period; it would limit the richness and insights that can be derived by taking a closer look.

The stories are presented mainly in chronological order with a focus on the events shaping the business models, the static capabilities acquired for electronic commerce and other capabilities, and the means used to acquire these capabilities. Thus, a lot of material about Compaq and Dell at all three operative levels has been excluded. The description of every business model phase follows a general structure: 1) First, the causal factor or factors releasing the new business model are related. 2) Second, the creation of the new business model is related. 3) Three, a description of the effects, changes, and processes that are unleashed by the creation of the new business model. 4) Fourth, as the new business models are implemented they eventually run into difficulties and encounter limitations, which also act as input to the coming new business models. 5) Finally, every business model is then summarised with a focus on static capabilities acquired in general and for electronic commerce in particular, ending with which means of capability acquisition that were used.

For the means cloning and collaboration, a further identification and categorisation has been made, following the discussion in Chapter 8 on sub categories of cloning and collaboration, which is indicated below and is used in appendix 5 and presented in Chapter 12.

Term	Abbreviation
Cloning-replication	CR
Cloning-imitation	CI
Cloning-emulation	CE
Collaboration-business	CB
Collaboration-customers	CC

Table 10.3 Terms and abbreviations used to indicate various forms of cloning and collaboration.

In several instances it has not been possible to adequately identify the exact acquisition process of a particular capability. This is because data has been non-existent or non-accessible in some cases. A certain degree of interpretation and inference has thus been necessary in order to generate the pattern of capability acquisition. By presenting the capability acquisition patterns separately at the end of every business model, the ambition has been to present the reader with the opportunity to evaluate the inference that has been made.

Effort has been invested in systematically counting the frequency of various capability acquisition activities. The firms are presented in terms of how frequently they have used the various means during different business models. The frequencies are calculated based on acquired static capabilities and the utilised means found in the various business models.

Industry Terminology

A number of terms that warrant definition are used in the cases. One class of terms relates to industry jargon regarding production and distribution techniques. They are presented below.

Term	Definition and explanation
BTS	Build to stock, implies that production starts upon aggregated forecasts made by the company as a whole.
BTSms	Build to stock to markets; implies that production starts upon order by marketing and sales companies based on their forecasts.
BTO	Build to order; implies that production of a computer commences only when a firm order has been received from a customer.
BTOch	Build to order; implies that production of a computer commences when a firm order has been received from a channel member.
CTO	Configure to order; implies that production is customised according to the specifications of the customer placing the order.
CTOch	Configure to order; implies that production is customised according to the specifications of the channel member placing the order.

Table 10.4 Industry terminology, definitions and explanations

Another set of definitions is warranted regarding the product groups. The following table also depicts what products the firms have been selling in Sweden over the years.

Product Group	Compaq Sweden	Dell Sweden
Desktops	1987-	1989-
Notebooks	1987-	1991-
Work stations	1996-	1997-
Servers	1994-	1995-
Storage	1999-	1999-
Thin Clients	2000	No
PDA's	1999	No
Network and Communication	1995-	No
Peripherals	1987-	1989-
Software	1987-	1989-
Projectors	1999-	No
Video Conferencing Systems	No	1998-

Table 10.5 Product groups and date of introduction in Sweden

Actor Terminology

Another set of definitions is warranted regarding the actors involved in the distribution of computers. The classification used generally in the thesis is the one used by Compaq Sweden. In the cases and remainder of the thesis the term “channel members” are used to indicate the actors presented in table 10.6. These actors are most common in the case of Compaq Sweden, but also have some role in the case of Dell Sweden. Other actors like third-party carriers, service and installation firms, call-centre firms, and other firms working on behalf of Dell Sweden as an extended part of their organisation, without having a customer relationship of their own with the customers are referred to as “channel partners”. They are presented in the case of Dell Sweden, as they become important or interesting. Hence, the same actor doing almost the same thing, constitute a “channel member” for Compaq Sweden and a “channel partner” for Dell Sweden.

Actor	Definition, description, and examples
Resellers	Sell standard desktops, notebooks, and server computers for small businesses and medium sized businesses. The resellers buy from the distributors, but also directly from the supplier, for example Compaq, if they are large enough. Examples are Björsells, Datarutin, Dustin, and Kontorslandslaget.
Retailers	Sell standard desktops and notebooks for homes and small businesses. Buy from the distributors, but also buy directly from the supplier, for example Compaq, if they are large enough. Examples are City Stormarknad, Onoff, Siba, and Thorn.
Solution Providers	Sell all types of computers, but mainly use high performance desktop and servers products as inputs in specialised offerings for business customers. Examples are Connecta, Sendit, and PTC.
System Specialists	Sell all types of computers, but mainly focused on high-end business critical systems for medium and large businesses. Examples are Alfaskop, Callus, EDS, TeitoEnator, IMS, Nicator, Office, TCM, and WM-Data.
Distributors	Buy huge quantities of computers and peripherals from several suppliers, aggregate the assortment and then sell to small resellers and retailers. Examples are Eurogate, Ingram Micro, Computer2000, PCLan, Manora, and Scribona.

Table 10.6 Actor terminology, definitions, descriptions and examples.

The reason for using channel members and channel partners respectively is that this is a good way to indicate and discuss how the two firms have worked with and used other actors for designing their distribution systems. In addition, the term partner and partnerships are used in a general sense to indicate various other instances of business constellations that occur in the cases.

The PC computer industry consists of several segments that have emerged during the lifetime of the PC. The delimitation of these segments has varied over time and between the actors. The vendors have not used the same segmentation strategy in different markets. This is so partly because different markets have been at different stages of maturity regarding the use of PCs, partly because of local differences in industry structure and firm sizes, and access to suitable products and channels for a particular segment.

In general, big markets in terms of buyers have been more narrowly segmented. For instance, in the USA Dell has had between 8-10 segments during the 1998-2000 period, while in Sweden it has used four. In Sweden firms are considered medium sized if they have more than 200 employees, in Germany they must have more than 500 employees. In any case, a number of basic customer segments can be identified. Below the characteristics of the various segments and when they became important in Sweden are presented. The classification is inspired by the segmentation used by Dell Sweden.

Customer Group	Characteristics
Private/ Home	Individual people buying and using their computers in the home. This segment became important in the early and mid-1990s when computers became accessible for private people with limited resources.
Small Businesses	Businesses consisting of one or just a few people buying and using their computers at the workplace. This segment became important in the early 1990s and is partly overlapping with the private/home user.
Medium Businesses	Businesses with 200-1000 employees. This is the classical segment for resellers and a Compaq stronghold. Customers have limited internal skills and find it attractive to rely on outside support and advice. This segment grew strongly during the late 1980s.
Large Businesses	Multinational and national firms with more than 1000 employees. These firms possess strong internal competence and were the first to implement PC on a large scale in their organisations in the mid-1980s and have continued to be important buyers of PCs.
Public Customers	Health and education institutions and local, regional, and national government. This segment was a traditional stronghold for resellers and Compaq. It became important during the mid-1990s, when the public sector started to invest heavily in PCs to increase productivity.

Table 10.7 Customers groups and their characteristics.

Compaq Sweden

"The industry is constantly changing, your competitors are constantly changing, and you have to anticipate those changes. Companies need to learn how to unlearn."

Eckhard Pfeiffer, former CEO of Compaq.⁴³

The Reseller Model 1982-89

Compatibility and Quality

Rod Canion, Bill Murto, and Jim Harris founded Compaq Corporation in February 1982 in Houston, Texas. The founding trio was three former engineers from Texas Instruments, where they had worked with portable computers. Texas Instruments had traditionally been proficient due to its skills in design and assembly of measuring instruments. When creating their own firm, the ambition of the founding trio was to create a portable computer that would be based around the IBM standard. Their brainchild was built on the PC platform that had been launched by IBM in 1981.

IBM carried respect for its research and technological prowess and was an icon of quality and reliability to many computer departments. The IBM offer was not what all customers wanted. Some customers appreciated portability, which IBM had neglected. The founding trio created an impressive product in terms of technology at that time. The first portable computers were launched in late 1982, but already in 1993, the first full year of business for Compaq Corporation, it sold more than 53,000 units and sales reached over 111 million.⁴⁴ The trio coined the name of the company by combining compatibility and quality. The two words indicated Compaq's mission. The commitment to quality and compatibility was to a large extent a result of the technical orientation of the founders of the firm.

Compaq Corporation relied on industry standards and promoted them. By using established technology Compaq could rely on research and development spending by other firms, and yet offer high quality computers to own customers. Contributing to standards, Compaq in some respects worked better within the IBM world than IBM itself. Compatibility in Compaq products was usually high and Compaq's strategy with regard to using external suppliers for components contributed to the emergence of a number of separate sub-industries in hard-discs, memories, and monitors.

⁴³ Interview with Noel Tichy, Charles Burck, and Brian Dumaine, June, 1996. Quoted from *Every Business is a Growth Business – How Your Company can Prosper Year after Year*, Ram Charan and Noel M. Tichy, Wiley & Sons, 1998.

⁴⁴ www.compaq.com/1999-01-17/

Compaq's product range broadened quickly from portable computers into desktops. In late 1983 the firm launched its first stationary desktop PC. It took the IBM PC as a blueprint and used it to design a slight variation. For the components of the desktop PC, Compaq Corporation relied on many of the same suppliers that it used for the portable PC. In many cases Compaq Corporation and IBM used the same suppliers and benefited from the economies of scale that these suppliers achieved by working with both firms.

Since many resellers could not or were not allowed to sell IBM products Compaq Corporation was an attractive alternative. Through Compaq these firms could compete with IBM for customer attention. To persuade IBM users to switch to Compaq the firm had to match IBM not only on price but also on quality. In addition, since many corporate users already had an installed stock of IBM computers, compatibility was paramount. Compaq USA quickly started to make inroads into new firms where IBM was not that entrenched, especially in Texas and California, which soon became important markets.

Another significant group was firms whose decision-making process about purchasing computers was distributed in the organisations. Buying a Compaq computer was a small rebellion movement within the IBM world, and was stimulated by the example set by Apple, which was at its peak in 1984 when Apple Computers launched the Macintosh.⁴⁵

In 1986 Compaq Corporation was the first computer hardware firm to launch a desktop computer with the 386-chip from Intel. For nine months Compaq Corporation was the sole manufacturer offering computers on this chip, thereby indicating technological prowess and innovative capability in the same way as with the early portable computers. Buying from Compaq implied not only quality and compatibility with IBM, it meant buying a computer that was at the forefront of what IBM could deliver. Compaq Corporation spent much on brand building as well as promotion via its resellers. As a result Compaq was becoming a strong brand for computers, which buyers knew and recognised. The affinity for the brand that Compaq managed to create was one of the factors that carried Compaq during the rest of the 1980s and 1990s.

The Creation of the Reseller Model

In the traditional system, computer hardware manufacturers kept their respective agreements with their resellers confidential, feeding misunderstandings, mistrust, and envy between the resellers. The relationship was often one of arm-length distance. Prices and pricing were not transparent, and there was an ongoing debate between resellers and manufacturers on how prices should be set and what kind of behaviour should be rewarded. Policies were often formulated without consulting resellers, and changed or adjusted often, which created uncertainty among resellers.

⁴⁵ This conclusion is arrived at by reading *Infinite Loop – How Apple, the world's most insanely great Computer Company went insane*, written by Michael S. Malone in 1999.

Many resellers that wanted to market leading brands were locked out. Instead they had to confine themselves to weaker brands that offered slower sales and lower margins. The situation was one of shortage of supply, which put resellers in a situation where they were dependent on their suppliers.

The relationships that Compaq USA developed with its resellers were in stark contrast to traditional distribution systems. Compaq USA offered a rebate in relation to volume that was equal to all. In addition, it offered fair and equal payment terms. Furthermore, it offered buy-back guarantees that reduced the risk of taking its computers in stock. The clarity, fairness, and simplicity of its policies earned Compaq a liking among distributors and resellers.

Compaq USA gained a critical amount of trust with resellers. It made many of them loyal to the firm. Resellers were treated with respect and were made partners who were invited to present their views and recommendations. Compaq USA allowed all resellers to carry its products and only rarely did it lock out a reseller. The resellers that it could obtain were weaker firms or firms that were just starting up. The rise of Compaq USA stimulated many entrepreneurs to start reseller operations.

Compaq's promise not to sell directly to end buyers was a keystone in its strategy to build loyalty with its resellers and distributors. Resellers liked the commitment from Compaq USA for many reasons. First, it persuaded them that the partnership between them and Compaq USA was real and that they would not be cut out. When a customer account became interesting enough or large enough or wanted to buy more than PCs, the resellers were afraid that IBM would take over the customer. Compaq's policy stimulated the resellers to make investments in building customer relationships with Compaq products as an integral component. By selling Compaq products, resellers were able to break the domination of IBM in the marketplace.

On a regular basis, Compaq USA and its resellers exchanged information on customers, product failures and successes, quality problems, and both parties made suggestions on how the product or delivery process could be improved. The resellers were also invited to meet with, and learn from, each other. Via trade councils and quarterly meetings managers of reseller firms learned to know each other and how to co-operate. The flow of information from both parties was always somewhat restricted and filtered, but in general open and respectful. At times when Compaq USA was growing rapidly and could not satisfy demand, resellers knew that those with good and open relations would receive better treatment regarding supplies. The Reseller Model was the idea of Ross Coley who spent more than a decade building up Compaq's relations with the resellers in the distribution channel. During his time at Compaq Corporation, 1984-1996, he was known for his ability to listen carefully to resellers. He learned what they wanted and then made his best effort to incorporate the information into Compaq's programs, policies, and strategies.

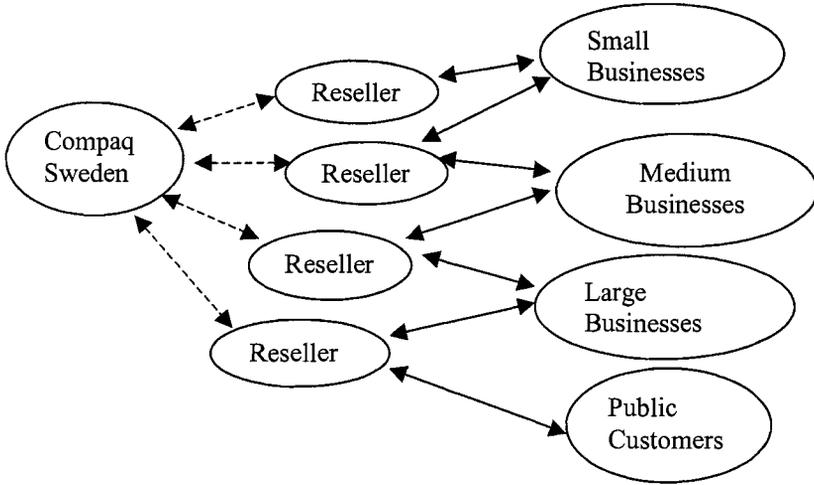


Figure 10.1 The Reseller Model⁴⁶

This approach to the resellers, which Ross Coley established during the second half of the 1980s in various management positions within Compaq USA, became a key competitive tool for Compaq when it ventured beyond the USA. Ross Coley's conduct set the standard and the tone for Compaq policies towards its resellers in the USA and across the world, making Compaq Corporation the preferred partner for resellers.⁴⁷ This way of working was successful, and Compaq Corporation opened up German, French, and UK subsidiaries after only about 1.5 years in operation.⁴⁸

⁴⁶ The Reseller Model implied a clear division of tasks. While Compaq focused on design, assembly and logistics, the resellers focused on customer relationship management. The arrows indicate instances and direction of capability acquisition. The dotted line indicates indirect capability acquisition. Hence, Compaq Sweden did not acquire capabilities directly from customers. This activity was externalised to the resellers. Most resellers worked towards several customer groups simultaneously in various combinations.

⁴⁷ Compaq's channel champion: Ross Coley, Eric Hausman, Computer Reseller News; Manhasset, Nov 15, 1998.

⁴⁸ According to the Compaq Corporation Annual Report 1994 net income as a percentage of average total assets was 11.1 per cent in 1987, 12.3 per cent in 1988, 11.6 per cent in 1989 and 12.6 per cent in 1990. Expressed in terms net income as a percentage of average stockholders equity Compaq's strong financial performance became even clearer: in 1987 it was 46.7 per cent, 42 per cent in 1988, 33.5 per cent in 1989 and 30 percent in 1990.

The European Entry

In 1984, Compaq Corporation had sales of 329 million USD. Just a few years later Compaq Corporation set a new record, being the fastest company in business history to reach 1.2 billion USD in sales in 1987. Compaq Corporation had sold over one million computers by 1987. Although Compaq Corporation broadened its reach, it would be confined to the business-to-business market, and it made most of its business in the USA. In 1987 Compaq realised that to be able to continue growing at this record speed it had to expand not only in its existing markets, but also start to entering new markets.⁴⁹

The European headquarters was established in Munich, Germany in 1984. It was considered a central location in Europe and the USA presence in Germany made it a natural base for the European expansion. The European division, which also covered the Middle East and Africa, got the name EMEA. Compaq EMEA served the Scandinavian market via independent resellers that made business directly with Munich.

The European organisation of Compaq succeeded in building sales quickly in Europe. In markets where it succeeded it established national subsidiaries. In every European market that Compaq entered during the second half of the 1980s it redrew the distributor and reseller industry. The key characteristic of the Compaq way of working the market was a clearly stated commitment to solely work through intermediaries and to avoid direct contact with end users, beyond market communications.

The Swedish subsidiary was one of the first European subsidiaries, opening in 1987 in Kista. Compaq Sweden used the marketing communication language developed in the USA. Larry Hagman, the actor playing JR in Dallas, was the marketing icon. IBM, Apple, and Hewlett-Packard were well entrenched in Sweden at the time. IBM launched the PC, personal computer, in Sweden in 1982 and had five years to establish its position.

Compaq Sweden introduced notebooks and desktops simultaneously in Sweden and focused on high-end, high-performance computers with substantial margins. The campaign with Larry Hagman was successful and the Swedish subsidiary was used as a model for market entry in other EMEA markets.⁵⁰ As Compaq EMEA grew it became more sophisticated. Compaq EMEA had quite detailed manuals for entry, with a ready recipe for new country managers, based on how it had entered the UK and Swedish markets.

⁴⁹ Compaq, which had entered the European market in 1984 with wholly owned subsidiaries in Germany, the United Kingdom and France, operated by the end of the 1980s wholly owned subsidiaries in Austria, Bahrain, Belgium, Czech Republic, Denmark, Finland, Greece, Hungary, Italy, the Netherlands, Norway, Scotland, Spain, South Africa, Sweden, Switzerland, Portugal, and Poland.

⁵⁰ Compaq lyfte Martinsson, Dagens Industri, Mats Paulsen, February, 18, 1994.

The Swedish subsidiary implemented the Reseller Model and set about searching for good resellers that it could attract. Compaq Sweden did not offer special rebates or terms. Instead, it implemented its long-term stable model with clear even terms for all resellers. Many resellers knew that Compaq Corporation was successful in the USA and it was easy for Compaq Sweden to obtain resellers. Once they had experienced doing business with Compaq Sweden, many resellers gave Compaq products more attention, which increased the sales of Compaq Sweden. Compaq Sweden was quick to engage in promotional campaigns together with the resellers, further strengthening its position. Compaq Sweden received quick and deep market coverage. The perceived fairness was something that resellers came to expect and the reputation was a key reason as to why many resellers made Compaq their preferred choice.

The Manufacturing Expansion

The ambition to enter more markets received a boost when the Scotland facility in Erskine became operational. Compaq EMEA established the Erskine factory in 1987 in order to be able to accommodate increased customer demand for products throughout Europe, the Middle East, and Africa. The decision to establish the Erskine facility followed in tandem with the general decision to expand in Europe. Compaq EMEA had by 1987 reached a sales volume in Europe of more than USD 200 million a year, and foresaw strong growth in the European market. It was becoming increasingly uneconomical to source the computers from the USA or from Asian subcontractors. The factory from the outset built a range of Compaq desktop products on BTS principles created by Compaq Corporation. These BTS principles were standard within the PC industry at the time and Compaq Corporation saw no reason to diverge from other leading PC manufacturers.

The manufacturing base in Erskine allowed Compaq Europe to penetrate the European market more aggressively. Compaq EMEA was able to establish independence vis-à-vis Compaq USA. Functions that hitherto had been done in the USA were increasingly performed in Europe, and Compaq EMEA started to develop skills in assembly, inventory management, and logistics for the European markets. The fragmented European market with different national standards for electricity supply, safety and security regulations, environmental standards and different languages, put particular demands on Compaq EMEA operations that Compaq USA had not been confronted with. With the new manufacturing facility, Compaq EMEA developed new processes to adjust the computers more to the demands of the various local markets.

Compaq EMEA obtained lower manufacturing costs via the new plant and was able to lower them further as sales grew. The manufacturing facility also allowed Compaq EMEA to be more responsive to what happened in the European markets and reduced lead times between manufacturing and Compaq resellers. With the new manufacturing facility established, Compaq EMEA had surplus production capacity of computers that needed to find customers, and this set Compaq EMEA free to achieve stronger growth in Europe. The presence of a manufacturing facility indicated internally that Compaq EMEA was becoming a significant part of Compaq Corporation.

As a result of the manufacturing facility in Erskine, Compaq EMEA found itself in a powerful situation. Compaq Sweden enjoyed gross margins of about 50 percent during 1987-1990. Within the European organisations there was a feeling of achievement and success. Stakeholders came to expect high growth and profits rates and Compaq EMEA soon acquired a culture of can-do. The high margins also enabled Compaq Corporation to grow rapidly while not asking the stock market for more capital. And both within and outside of Compaq Corporation the reputation for star performance was minted.⁵¹

The Virtues of EDI

The component costs of a PC for Compaq Corporation were 50 percent of the price charged channel members. Compaq Corporation realised that benefits in terms of competitiveness could be reaped if component prices could be reduced. In 1986, Compaq identified a number of EDI's benefits to customers, suppliers, and Compaq Corporation. EDI could provide reduction of operational costs for suppliers and Compaq Corporation. In addition, EDI could help Compaq Corporation to reduce manufacturing time and costs and support the delivery of products to channel members and customers. Compaq Corporation wanted to move customers, suppliers, and the firm toward a "paperless" context.

Within Compaq Corporation, there was a vision of the ultimate EDI implementation, with totally automated interaction between the business applications of EDI-enabled channel members and suppliers. Compaq Corporation participated in a variety of EDI-interest organisations in the USA that established business models and business guidelines, enabling Compaq Corporation to find inspiration from other industries. The implementation of EDI brought deep changes within Compaq Corporation. It re-engineered its procurement process using EDI to make it faster and more accurate.

Compaq EDI services initially included order placement, shipping notification and invoicing. During the late 1980s Compaq Corporation continually added new EDI transactions based on business initiatives, market needs, and recommendations from business members and suppliers. Compaq Corporation used EDI for the following business applications:

- Administration - product catalogues and price lists
- Sales analysis - sales and inventory information
- Purchasing/order management - orders
- Acknowledgements, order status, and changes
- Shipping and receiving - shipping, notification, proof of delivery, and customs information
- Billing - invoicing and statements
- Payment applications - payment remittance

⁵¹ The Annual Report 1991 for Compaq Corporation illustrates how the management felt and communicated its financial performance in terms of virtually unlimited opportunities and a strong sense that Compaq Corporation was well placed to capitalise on the strong anticipated growth in demand.

At the time only a portion of Compaq suppliers and channel members were involved and integrated into Compaq EDI solutions. In 1987, when the Erskine factory was established in Silicon Glen in Erskine, Compaq EMEA had insisted that component suppliers set up factories close by to achieve integration between assembly and component manufacturers. Most component suppliers complied. This physical proximity facilitated EDI implementations. The Erskine facility was planned to handle volume growth with relatively little investment based on extensive use of EDI.

During the late 1980s Compaq EMEA gradually stimulated suppliers to use EDI solutions. As a result the interdependence between Compaq EMEA and its suppliers increased and it allowed Compaq EMEA to reduce component and storage costs per manufactured unit. By 1989, real-time data flowed 24 hours a day, 7 days a week between Compaq EMEA and its component and materials suppliers. EDI was used to communicate an electric "pull signal" to the suppliers when Compaq EMEA needed more components, and the suppliers notified Compaq EMEA when shipments had been made. These notices and supplier bar coding of components helped expedite Compaq's receiving process.

Channel Consolidation

Compaq Sweden systematically tried to effect the channel configuration and composition in Sweden. The model was taken from Compaq USA where consolidation took place earlier. Using high margins, Compaq Sweden made the volume curve for obtaining rebates quite steep, and thereby stepped up the pace of consolidation among resellers, since they wanted to obtain the best possible price. An effect of the increased consolidation was stronger and larger resellers that Compaq Sweden could more easily influence. The new resellers became more professionally managed and their improved economic stability made them more valuable channel members.

Although resellers did not sell Compaq products exclusively, Compaq Sweden made sure that it was the top brand with every Compaq reseller. In most cases Compaq products represented close to 50 percent of the sales of a reseller. The fact that the resellers sold other brands did not disturb Compaq Sweden. First of all it enabled Compaq Sweden to sustain a strong channel. It did not have products in every micro segment and it knew that the resellers needed to complement Compaq's product line.

Together with other manufacturers, the channel as such became stronger and more viable and able to reduce its unit costs, to the benefit of Compaq Sweden as well as other manufacturers. In addition, resellers were able to cater to customers who did not want to pay the premium price for the chance of buying Compaq products. And thus Compaq Sweden could maintain its high unit margins, while the channel remained efficient. As a consequence resellers could in front of their customers signal objectivity and independence to their customers, while in practice resellers concentrated on selling and knowing about Compaq products. In practice these resellers became exponents of Compaq's strategy.

No other PC company worked as systematically to build personal relations with resellers as Compaq Sweden. The Swedish management team regularly met with its resellers and made sure that they received the support that was needed in terms of product and promotion material. Compaq Sweden took care to create familiarity and accessibility between itself and its resellers. In addition, resellers come to rely on Compaq Sweden. When installations became tricky or resellers had other trouble with the computers, the reseller knew that Compaq Sweden was there, ready to give crucial and fast support so that the orders could be fulfilled. It even became a common practice for resellers to call to Compaq Sweden for help although Compaq did not produce the computers in question.

By actively stimulating resellers to expand and work new markets or new customer segments, Compaq Sweden could continue to grow extremely fast without replenishing its own capital or over extending itself. Obtaining a slot in Compaq's world was a profitable and safe path for resellers, and they were keen to become part of the game. Other PC manufacturers entering the Swedish market also benefited from the educational impact that Compaq's activities had on the general knowledge level of the resellers.

The Reseller Model and Electronic Commerce

By 1989, Compaq Corporation worked out of a number geographical headquarters, with Compaq EMEA becoming one of the most important.⁵² Its rapid internationalisation had been achieved in less than 10 years. Compaq Corporation worked to transfer its corporate culture in the international expansion: high quality and good technology in the products, mobility, and flexibility in the organisation. In those markets where Compaq Corporation operated ambitiously it practised the same Reseller Model whereby it used resellers to reach the customers. The Reseller Model allowed Compaq Corporation to grow rapidly. By focusing on research and development, assembly, and logistics, while outsourcing customer relationship management, Compaq Corporation managed to grow sales without tying up much capital in the business.

Via the resellers, Compaq Sweden reached medium sized businesses and some larger firms. These firms used the computers as inputs in their own service and manufacturing processes and were not that price sensitive. Instead these customers relied on the resellers to install computers that would boost productivity. At this time, few customers had sufficient internal skills to be able to purchase computers without the assistance and support of a reseller.

Most business customers bought computers to enable their staff to write and calculate using standard programs like WordPerfect and Lotus 1-2-3. The business customers sought local presence and stable relationships from the resellers. In addition, they wanted to be assured that their computers would be maintained and repaired at short notice. Accordingly, the resellers provided both pre and post-sale customisation.

⁵² In 1990, Compaq's international sales surpassed North American sales for the first time, [www.compaq.com/corporate/investor relations/2001-02-21](http://www.compaq.com/corporate/investor%20relations/2001-02-21)

During the Reseller Model, Compaq Corporation worked out of regional manufacturing hubs: Houston in Texas for North America, Erskine in Scotland for Europe, Singapore for Asia, and Brazil for Latin America. During the same time frame EDI links with suppliers were implemented. Logistics and inventory management was designed for speculation, with production based on forecasts. The EDI solutions that were implemented were designed to support this business process.

The focus on EDI links with suppliers was a consequence of the operational focus that Compaq Corporation had assumed. Compaq Sweden focusing on developing business relationships with resellers whom focused on managing customer relationships. Compaq Sweden did not know the customers and was not interested. Instead Compaq Sweden relied on the strength of the products and its production system to be competitive. While EDI was important, Compaq Corporation acquired a wide set of static capabilities, most of them unrelated to electronic commerce.

Customers of Compaq Sweden were often newly established firms of medium size that did not have any established customer relationships with IBM or Digital, and did not have any terminals, mainframes, or minicomputers that prevented the purchase of personal computers. But there were many large firms that Compaq Sweden could not enter or create relationships with. It also did not have a strong presence in the public sector or among private individuals. It became evident that the resellers did not have enough capacity and capability to sell as many computers as Compaq Sweden wanted them to sell. In order to sustain the growth in sales that it wanted Compaq Sweden had to find new channel members who could reach new segments. It gradually obtained different types of channel members, many of whom were radically different from the classical resellers.

The Indirect Sales Model 1990-93

The Margin Compression

In 1990, Compaq Corporation started to feel that Asian, mainly Taiwanese, clone manufacturers were becoming more forceful competitors. The mass market was growing, powered by lower-priced computers using the so-called Wintel architecture: Windows operating systems combined with Intel microprocessors. As these components became industry standard, they lowered costs and barriers to entry into the marketplace. In addition, performance was raised and demand was broadened by the standardisation of the look and feel of PCs.⁵³

The clones, which often did not carry a brand name, or carried an unknown brand, were lower priced and started to attract private consumers with limited financial means. Some resellers felt so confident in their own abilities in terms of assembly that they started to buy kits that only had to be configured before shipment to the customer. The clones also became attractive for resellers who could improve their margins by selling the clones, arguing that it was the same thing as a branded computer.

Compaq Corporation's initial response to the PC clone was to emphasise quality and assume increased financial risk on behalf of channel members. The actors in the channel supplied a large segment of the perceived quality that Compaq's products were supposed to offer, but without the support of the channel this quality aspect would not be emphasised enough. Compaq Corporation decided that it had to upgrade, educate, and support its channel members better in order to improve Compaq's overall competitiveness and motivate the price difference.

A tool for Compaq Corporation was a buy-back guarantee and price protection programme whereby it could maintain and stimulate the distributor and reseller networks that it had created. These programmes were developed in the USA and were used across Compaq markets. The price protection programme implied that the channel members could risk taking on stock. The channel members knew that if Compaq Corporation cut prices, as started to happen in response to decreasing component prices and increased competition from the clone manufactures, channel members would be compensated for any difference on any machine in their stock.⁵⁴

Assuming more of the risk in the channel sustained Compaq EMEA's ability to reach the market place, despite intensified competition. The price protection programmes gave Compaq EMEA the incentive to prolong the product trajectory in order to minimise its own costs with respect to the price protection programmes. Compaq EMEA protected the investments in hardware by its channel members by delaying the launch of new models until older models had sold out.

⁵³ Ram Charan and Noel M. Tichy, *Every Business is A Growth Business – How Your Company can Prosper Year after Year*, Wiley & Sons, 1998.

⁵⁴ *Distributörerna har fått nog – Församrat prisskydd drabbar branschen*, Mattias Malmqvist, IT-Branschen, Nr 9, 2000.

By prolonging the product life cycles Compaq EMEA could order large quantities of components and gain economies of scale in production. Compaq EMEA committed itself to buying a certain amount of components, but not at a fixed price. The price would be set continuously in reflection of market conditions. Compaq EMEA was at this time one of the largest buyers of PC components. The suppliers were happy to get long planning horizons and long-term contracts and adjusted themselves to Compaq EMEA operations. By ordering large quantities, Compaq EMEA could reduce the average unit price by calculating the margin that it needed and then set the selling price accordingly. Then Compaq EMEA could enjoy gradually reduced component prices, while maintaining its selling prices, and so could eventually increase its margins over the duration of the product life cycle.

As a result of this prolonging of product life cycles Compaq EMEA got breathing space and it expected that it would regain momentum when its products became more competitively priced. Compaq EMEA had originally built its reputation in people's minds as a company that was early with new product innovation. But in 1991, the price pressure put on Compaq EMEA by the clone manufacturers forced a reassessment of strategy.⁵⁵

The Creation of the Indirect Sales Model

To offset the margin compression, Compaq EMEA ordered its national subsidiaries to change distribution strategy. As a result Compaq Sweden gave up its selective distribution strategy, whereby it worked closely with a limited number of skilled resellers emphasising quality and service. Compaq Sweden had previously been selling computers via other channels on an ad-hoc basis, but this was considered a marginal activity. As a result of the margin compression, these marginal channels would also be utilised to build substantial sales. The increased number of channel members caused irritation among channel members. Channel members perceived that they were stealing business from each instead of from competitors selling other brands.

To reduce the irritation among channel members, Compaq Sweden tried to re-organise the channel by tying different channel members to different customer segments. The channel members of Compaq Sweden were becoming increasingly diverse as Compaq Sweden sold computers to large, medium, and small businesses, the public sector including education and health, and private individuals. Compaq Sweden identified 5 principal categories of channel members and decided that they should be treated differently: 1) Resellers, 2) Retailers, 3) Distributors, 4) Solution Partners, and 5) System Specialists. The solution partners and system specialists had hitherto been called VARs (Value adding resellers).

⁵⁵ According the 1993 Annual Report of Compaq Corporation gross margin fell from 37.2 per cent in 1991 to 29.1 percent in 1992, and 23.6 per cent in 1993.

The distributors, which were of minor importance at this time, in turn sold computers to small resellers and retailers. Retailers sold standard notebook and notebook computers for homes and small businesses. Resellers sold standard desktop, notebook, and server computers for the home and small and medium sized businesses. Solution partners were allowed to sell all types of computers, but mainly used Compaq high performance desktop and server products as inputs in their own more specialised offerings for business customers. System specialists were allowed to sell all types of computers but mainly focused on high-end business critical systems for the medium and large business segment.

By putting seals on its channel members, Compaq Sweden wanted to be able to select and control which channel members sold to which customers. The key methods were authorisation and education. These programmes were developed by Compaq USA and were inspired by similar programmes developed by IBM. By restricting and directing the flow of products, Compaq Sweden targeted its channel members towards various customer segments. Compaq Sweden tried to improve each channel category. In order to avoid competition and cannibalisation among channel members, Compaq Sweden redefined and augmented its educational programmes for more advanced channel members. By allocating products according to the authorisation assigned to every channel member, Compaq Sweden tried to keep its members satisfied.

Compaq Sweden's started to co-ordinate market activities and promotions in tandem with the channel members to increase its ability to separate it from the clones. Compaq Sweden developed its organisation to co-ordinate market communication with channel members and learned to reach the customers via promotion campaigns presented through the channel. The struggle to keep the clones away did not work well. The clone manufacturers captured about 25 percent of the market in 1991, and Compaq Sweden saw part of its market share go to the clone manufacturers. It found that it could not defend a price gap approaching 50 percent relative to the cloning manufacturers. The experience of Compaq Sweden mirrored that of other national subsidiaries within Compaq EMEA.

The New Pricing Regime

In 1992, the board of Compaq Corporation ousted CEO and co-founder Rod Canion and promoted the head of European operations Eckhard Pfeiffer to CEO of Compaq Corporation.⁵⁶ Shortly after Pfeiffer assumed his new position, in June 1992, Compaq Corporation lowered its prices by 30-40 percent across markets and product categories and established a new price-structure. In Sweden and on most European markets, Compaq EMEA reduced prices on all products and also introduced low priced product lines with ProLinea (desktops) and Contura (portables).

⁵⁶ Eckhard Pfeiffer, a German native, started at Compaq EMEA as a manager for Europe in 1983. He had previously worked at Texas Instruments for 20 years.

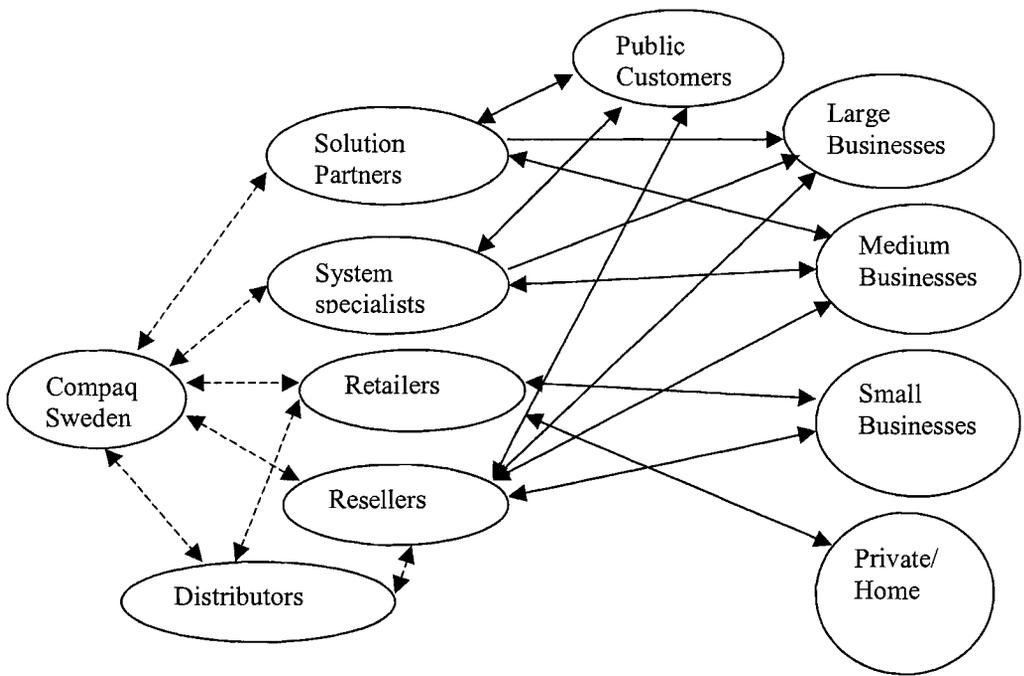


Figure 10.2 The Indirect Sales Model⁵⁷

The price reduction in combination with the changing product-mix resulted in the average unit price falling by 50 percent. The new product lines were aimed at private individuals and small businesses and were developed on old components that could be obtained at low prices. The new products were developed rapidly in the USA and were a response to the growing demand for simpler standardised computers.⁵⁸

Asian clone manufacturers were not the only reason that Compaq Corporation launched a new price and product structure. It was also a response to IBM, which in 1991 had launched ICPI (Individual Computer Products International Ltd), headquartered in London. ICPI had developed the Ambra brand in response to the clone manufactures. The Ambra computers were launched in the UK, France, the Netherlands, and Sweden in late 1992. Compaq EMEA at that time considered selling clones, but decided against using more than one brand. It was becoming possible to buy a PC with a strong brand at a similar price of clones, and Compaq Corporation thought that it would be of limited value to offer clones. Compaq Corporation believed that the PC industry still had considerable growth ahead and that Compaq Corporation was well positioned to grow with the market.

⁵⁷ The Indirect Sales Model implied intensive distribution via a number of channel types, beyond the core reseller group. The arrows indicate instances and direction of capability acquisition. The Indirect Sales Model entailed specialisation among resellers implying that Compaq Sweden was able to acquire different capabilities from different channel members. In addition, the distributors established themselves, making the channel longer, filtering capability acquisition further.

⁵⁸ Compaq lyfte Martinsson, Dagens Industri, Mats Paulsen, February 18, 1994.

The price reduction implemented by Compaq Corporation in 1992 coincided with a strong economic recovery in the USA. In addition, the branded competitors of Compaq Corporation, particularly IBM, challenged Compaq on price. As a result, demand for computers started to grow significantly faster than the world economy at large. Compaq Corporation's sales increased rapidly and eventually brought it back to profit. In the 1992-94 period, Compaq Corporation doubled its sales, restored profitability, and became the largest PC producer in the world.⁵⁹

The squeeze that Compaq Corporation subjected the clone manufacturers to forced them to change strategy. These relatively strong Asian, mainly Taiwanese, firms did not know how to respond when Compaq Corporation competed head on, but they were already skilled in manufacturing of computers and had lower wage levels, which was critical in the note book segment which demanded relatively much manual labour. Instead of competing directly with Compaq Corporation, they opted to become sub-contractors to Compaq Corporation and other USA and European branded computer makers. Using these suppliers, Compaq Corporation could reduce costs further in its own manufacturing facilities. Sub-contracted units came in terms of components, some in terms of ready-to-fit sub-systems like the motherboard. The effect was a continuing reduction of assembly time and value added in the Erskine facility. Quality control, final configuration, and official source code marking were done in Erskine.

The Elaboration of EDI Usage

In 1992 Compaq EMEA was dependent on EDI for managing its supplier relationships and used EDI to reduce the number of suppliers. Many suppliers had installed the hardware and software necessary to handle EDI during the Reseller Model, and by the early 1990s it was a condition from Compaq EMEA for those that wanting to do substantial business with it. In return, Compaq EMEA offered smooth and more predictable order flows to suppliers. With EDI suppliers could see Compaq material forecasts and make commitments to provide those materials.

EDI was also being used at Compaq EMEA to signal suppliers to deliver materials to the factory floor on a just-in-time basis. As a result, Compaq EMEA was reducing quality problems and increasing order accuracy with inbound logistics and inventory. By structuring and streamlining the interaction with suppliers Compaq EMEA was able to reduce component inventories.

EDI evolved into a vital business tool for Compaq EMEA in 1992 when it needed to cut costs quickly. In addition to using EDI for upstream suppliers, Compaq EMEA started to use EDI to integrate itself with downstream channel members. Some of Compaq's larger customers, i.e. distributors or large resellers, had their own EDI-based re-engineering projects. For Compaq customers undertaking extensive EDI efforts, the question was not if they should use EDI with Compaq EMEA, but how fast EDI could be implemented and what new business processes could be automated by the use of EDI.

⁵⁹ Datajättars priskrig slår ut de små, Dagens Industri, Hans Westerberg, August 26, 1994.

Adding new EDI transactions with any customer or vendor took time, often 3-6 months, and every customer had to decide how to best allocate its EDI staff and budget. In most cases, Compaq EMEA bore the developing costs, so that adding EDI transactions with Compaq from a customer and supplier perspective could be done quickly and economically.

With EDI, Compaq EMEA saw an opportunity of linking sales more directly with the purchasing and receiving of materials and components. Compaq EMEA relinquished control of its manufacturing flow. Transactions could begin either at a Compaq channel member or supplier, at Compaq EMEA, or at Compaq Sweden, depending on the type of transaction. If the channel member was a reseller, an electronic purchase order could go directly from the customer's purchasing system into Compaq's order management system. Conversely, Compaq EMEA could send order shipment information electronically to the customer and the information would be deposited in the appropriate business application.

The Debate on the Direct Channel

In 1990, Compaq Corporation started to feel the presence of its Texan cousin, Dell Corporation. Compaq Corporation realised that Dell Corporation eventually could become a significant competitor, albeit with a limited upward potential since it did not utilise channel members. In its internal debates, Compaq Corporation did not expect Dell Corporation to take a significant share of the market. In the early 1990s there was consent within Compaq Corporation that Dell, Gateway2000 and the other direct sellers would constitute a niche market and Compaq Corporation did not expect the direct business models to reach more than five percent of the total market.

Furthermore, sales of servers started to increase, making Compaq Corporation less dependent on the desktop product.⁶⁰ Reviewing and analysing its customer segments indicated to Compaq Corporation that neither the consumers nor the majority of businesses would like to buy a product as complex as a computer without personal contact, service, and support. In particular, Compaq Corporation expected to computer to remain difficult for users to handle and so expected resellers to remain important for sales and service. Compaq Corporation felt that it understood customer preferences well and could not see reasons to change its distribution strategy.

In 1992 Compaq Sweden received the first significant indication that the direct channel could achieve substantial sales. The purchasing behaviour of large firms was changing. The PC was becoming more and more of a working tool for everyone, and was therefore procured for employees en masse. Large firms wanted large numbers of identical machines, to facilitate service and ensure equality among staff, as well as cost savings.

⁶⁰ According to the 10-K form of 1995 presented to the Securities and Exchange Commission by Compaq Corporation, sales of desktops fell from 58 per cent to 45 per cent of total revenues, while servers increased from 17 per cent to 22 percent, with other products like portable computers filling up the rest.

Channel Type	1991	1992	Percentage Change
Indirect	213.000	229.000	8 %
Direct	27.000	55.500	106%
Total	240.000	284.500	19%

*Table 10.8 The Share of Indirect and Direct Sales in Sweden.*⁶¹

The PC was no longer a high-tech strategic resource, it was becoming a commodity, and it was increasingly purchased by the purchasing department, rather than the head of the computer department, an institution that was increasingly becoming obsolete. As a result of the outsourcing trend, the growth of computer consulting firms and internal restructuring, this process gained increasing momentum during the early 1990s. Compaq Sweden communicated its view that direct selling was becoming a threat to sales, and that it was no longer a marginal phenomenon.

In late 1992, Compaq USA decided to open a telephone-based sales unit for USA medium sized customers, after losing orders that it had considered as closed. This was a response to Dell USA. Compaq USA did not put effort into this unit, regarded it as a ploy, and used it mainly to show stakeholders and customers that it sold to directly. It maintained to its channel members that it was committed to an indirect approach, as it had been since the founding of Compaq Corporation.

By opening up a direct selling channel, Compaq USA thought that it would learn the process technology involved, and in addition would be able to disturb and confuse Dell USA's customers. Sales were small via the direct channel and Compaq USA always used a channel member for order fulfilment. The direct channel was not brought to Sweden. Instead, Compaq Sweden encouraged resellers to establish direct telephone channels.

In 1993, Dell Corporation had grown sufficiently large to be taken seriously by Compaq Corporation. In Europe, Dell EMEA was closely watched from a special small secret department in Munich at Compaq EMEA headquarters, going under the name "the war room", where every move of Dell EMEA was registered and analysed. Compaq Sweden regularly reported what Dell Sweden did. As a result, Compaq EMEA tried different schemes that would introduce flexibility and speed in the channel.

One such measure was to make countryfication⁶² later in the channel to keep the final destination of the computer open. By postponing countryfication, Compaq EMEA thought that it could prolong the lifetime of the computers by making them as generic as possible and moving customisation downstream in the channel. This enabled Compaq Sweden to obtain computers quicker as Compaq EMEA could shift the destination of computers in response to changing demand.

⁶¹ Source and classification DIA, PC-panel 4th quarter 1992.

⁶² Countryfication implies the labelling and programming of the keyboard to fit a particular country market. Before this process, the PC can go to any customer in any country.

Compaq EMEA had developed an elaborate forecasting system, which was used to build the order book, from which the manufacturing was then planned. The system was built on forecasts at the daughter companies of Compaq EMEA. The daughter companies estimated demand down to article with regard to the volumes that they intended and expected to sell in the coming six months. Compaq Sweden had to take the full responsibility for finding sellers to the goods and so put pressure on channel members to make binding commitments on what they were going to buy. This included new as well as old established products and implied considerable uncertainty. Based on this, forecasts were made quarterly until 1992, and then monthly. Adjusted for every new forecast made, components were purchased and the order book composed to fill the demand expected in the coming six-month's time.

The Entry into the Consumer Market

Compaq Corporation wanted to be present in, and dominate all segments of, the PC business. During 1993 it launched 35 new computers expanding its product line aggressively.⁶³ It expected the consumer market to represent a significant share of the total market for computers, and to some extent replace the TV in the home.⁶⁴ Compaq Corporation believed that if it let others, clones or branded competitors, establish themselves in the consumer marketplace, they could eventually erode the position in the business market for PCs that it enjoyed.

During 1992, more than 75 retail-shops belonging to Onoff and Konfac started selling Compaq in Sweden. The new channel members required that Compaq Sweden change how the computers were packaged and constructed. This was particularly important for retailers selling the computers to private consumers. It was important that the computers were light enough to be transported home with a regular car. As a result, Compaq EMEA compressed the packaging and took care to instruct the designers to make the computers smaller and lighter.

In 1993 Compaq Corporation launched a range of home computers under the Presario name, which were priced low and were directed specifically to the home PC market. Compaq Corporation decided that, in contrast to the business market, where it offered a basic PC platform that customers could expand upon: computers for private consumers should have as much as possible included from the outset. The Presario was priced low given the value it offered: a sound card, games, speakers, CD-rom player, fax-programme and an answering machine.⁶⁵

⁶³ Compaq Corporation, Annual Report 1993.

⁶⁴ PC slåss mot TV om hemma-marknaden, Dagens Industri, April 19, 1995.

⁶⁵ The Presario was a technological feat and a bold bet on the computerisation of the home. The rich functionality was designed to make it a must have device for electronic education, recreation and commerce. By blending numerous established devices into one machine, Compaq Corporation was trying to gain a critical and dominating market position in the home market in one single stroke. With the Presario there was no longer any need for a phone, home stereo, TV, fax, and modem.

In order to be able to offer a low price, it was not possible to offer much choice beyond the standard computer offered. The computer line was described as being “multimedia”. Everything was pre-installed and components including the monitor were assembled into one case, making the computer compact and easy to carry and handle.⁶⁶

The Swedish PC market was the fastest growing PC market in Europe, with total volume approaching 600 000 units and with a growth rate of 32 percent in 1993. The consumer PC market, which at that time represented about 10 percent of total PC units sold in Sweden, was expected to reach 20 percent within a few years. Compaq Sweden started selling directly to large retailers like Onoff and CityStormarknad to reach the consumer market with its new Presario line that Compaq Sweden thought could not support the margins charged by other channel members. The giant electronic retailers were all too happy to include PCs in their assortment and started to push home computers. This caused irritation among the smaller resellers and retailers who had traditionally served the consumer market.⁶⁷

Those consumers who bought computers at work or for work also bought computers for the home. Many of these customers who were satisfied with Compaq computers at work wanted to buy a Compaq computer for the home. Thus Compaq Sweden treated the business and consumer market for computers as if they were the same in terms of brand building. Compaq Sweden had previously managed the consumer market as a part of the small business market, but now upgraded its attention towards this customer segment. By establishing the Indirect Sales Model, Compaq Sweden laid focus on several customer segments simultaneously and managed to handle a larger variety of customer segments, becoming the market leader in Sweden.⁶⁸

The Indirect Sales Model and Electronic Commerce

The margin compression forced Compaq Corporation to change its strategy. It chose to lower prices and surrender margins to become competitive again. Reducing prices increased volumes and make Compaq Corporation grow rapidly. The margin compression was more than offset by the volume increase. Sales in 1993 jumped dramatically, as did the market share and the number of shipped units.⁶⁹ Compaq Corporation relied on EDI to make the new strategy work. Compaq EMEA reworked and augmented its relationship with suppliers. In the Indirect Sales Model Compaq Sweden could rely on EDI to manage the goods flow from itself to its channel members. In the process Compaq EMEA relinquished some control of its manufacturing flow, becoming an information hub for matching demand and supply.

⁶⁶ Slutsålt: Compaq's återförsäljare upprörda, Dagens Industri, Mats Paulsen, January 19, 1995.

⁶⁷ Generationsskifte ger försäljningsrekord, Dagens Industri, Thomas Dietl, February 28, 1994.

⁶⁸ Compaq toppar svenska PC-ligan, Dagens Industri, Thomas Dietl, May 25, 1994.

⁶⁹ According to the Compaq Corporation Annual Report 1994 sales increased to 7.2 billion USD in 1993, compared to 4.1 billion USD in 1992. Market share increased from 6.1 per cent to 10 per cent. During 1993 Compaq Corporation sold 3.1 million computers, nearly double the 1.6 million sold during 1992 and more than triple the 0.9 million sold in 1991.

EDI was a key to the establishment of intensive distribution and the management of five groups of channel members. Compaq Sweden developed programmes to manage the different channel members and used various schemes in education and authorisation to separate channel members and direct them to different customer segments. As a result, the number and diversity of customers could be increased. By launching EDI, Compaq Sweden was able to interact with its channel members and respond to demand signals. Using EDI, it was able to cement its relationships with distributors who themselves were investing in EDI. Compaq had more difficulty in establishing EDI solutions with minor channel members like retailers, system specialists, solution partners, and minor resellers.

The margin compression reduced average margins from 50 percent to 20 percent. The distributors enjoyed margins between 1-15 percent with an average of 6 percent. The retailers and resellers enjoyed margins of about 10-20 percent on the hardware, but had an average margin of 20-40 percent on total sales, enjoying higher margins on services. The implementation of the Indirect Sales Model was a huge success in Sweden. It made Compaq Sweden the fastest growing subsidiary of Compaq EMEA. Other European subsidiaries were instructed to benchmark their home consumer sales against Compaq Sweden. In 1994, Compaq Sweden sold 95 000 computers and had a 20 percent market share with a turnover of 1.9 billion SEK.⁷⁰

With the Presario the product and customer mix was becoming different. Many customers would buy their first computer and had both limited experience and performance needs. These customers were price sensitive and in need of strong support. Compaq Sweden was bogged down by the growth in the number of minor channel members that it had to serve with support, education, computers, maintenance, spare-parts, and upgrades. In addition, Compaq Sweden became a victim of its own success. By the end of 1994 the waiting time for a Presario home computer was approaching five months.

⁷⁰ Sverige rena drömlandet för Compaq, Dagens Industri, Mats Paulsen, February 9, 1995.

The Distributor Model 1994-96

The Channel Member Squeeze

In 1994 Compaq EMEA established a price structure modelled after Compaq USA practices, where those channel members that bought less than SEK 16 million worth of computers enjoyed base prices in Sweden. Channel members that bought goods worth more than SEK 16 million per year received a rebate of half a percent, which was called a volume rebate. Those channel members that matched Compaq Sweden requirements and worked with EDI received an additional half percent, which was called a logistics rebate. Distributors received a two-percent rebate across the board since they bought larger quantities.

Via these rebates Compaq Sweden stimulated consolidation to reduce the number of channel members and could increase the volume each member bought. In addition, the technical and logistical skills of its channel members were continually upgraded as a result of consolidation. While Compaq Sweden focused on its internal efficiency the channel members were becoming less comfortable with Compaq Sweden. The reason was that many channel members felt betrayed, since Compaq Sweden sold to several channel members in a local market.

The channel members were restricted and controlled by Compaq Sweden, who monitored channel members closely. The bargaining strength of Compaq Sweden, in combination with a competitive market situation, gradually eroded the profitability of many channel members. The channel members had several problems that they needed to solve. First, given the low profitability of the channel members, many needed financing that was hard to come by from banks or other financial institutions given the low solidity among channel members.

Second, Compaq Sweden pushed out computers in the channel, making channel members buy too many computers in order to obtain rebates. This increased inventory and storage costs for the channel members and forced the channel members to offload computers on hand at low prices. Furthermore, channel members wanted to shop around among the computer manufacturers to reduce their dependence on Compaq Sweden. Many channel members perceived that this was the only way to maintain margins and independence.

In 1994 Compaq Sweden launched the new Compaq ProLiant server family in Sweden. By introducing low priced servers Compaq Corporation created a new market by challenging the high-margin server business, which was the domain of Sun Microsystems, HP, and IBM. During the 1991-1993 period Compaq Corporation had developed the ProLiant servers in an attempt to enter the low-end server segment.

The server businesses run by Sun, HP and IBM were profitable and the barriers to entry were high, reducing the margin squeeze present in the desktop and notebook product groups. In order to enter the server segment, Compaq Corporation made extensive studies of Sun. It then used the PC platform including key component suppliers to create the server family. The entry into the server product group proved to be one of the most successful steps taken by Compaq Corporation. By 1996 Compaq Corporation had sold more than one million servers.

The reason for the rise in sales and profit was that the ProLiant servers were launched simultaneously with the adoption of Local Area Networks (LAN). The small servers sold by Compaq Corporation matched this need in terms of price and performance. Compaq resellers were well represented among small and medium sized businesses and the servers generated strong demand for reseller skills in installation and maintenance.

The success with servers enticed Compaq Corporation to try to create a stronghold not only of servers, but also of the network enabling servers to exchange information with clients. In 1995, Compaq Corporation acquired Thomas-Conrad Corporation and Networth Inc, both leading providers of networking products, to become competitive in modems and switches. The products were re-branded as Compaq products and sold via its ordinary distribution channels as a Compaq product line.⁷¹

In 1995 there existed large and small retailers, large and small resellers, large and small solution partners, and large and small system providers. This made classification difficult, and maintaining and directing marketing programmes even more difficult for Compaq Sweden. Furthermore, the pace of mergers, closures, and redirections, was redrawing the channel member map on a monthly basis. Many channel members repositioned themselves and tried to either lower selling costs or upgrade their skills to remain competitive. In addition, to handle increasing costs of keeping stock, formally independent channel members helped each other out with order fulfilment on an ad-hoc basis. Whoever owned the customer relationship decided from whom the customer formally bought the computer. But the computer itself could be purchased within the channel in a number of ways: from other channel members, from the distributors, and from Compaq Sweden directly.

As a result, the distinctiveness of the segmentation strategy established by Compaq Sweden in 1991-93 was reduced. It was not clear which channel member sold computers to which segment. Despite Compaq Sweden employing many different channel members it did not have any effective channel to reach large firms. Compaq Sweden experimented with different organisational in-house selling units to reach out to the large business customers following the Compaq UK example of successfully building up a small sales force. Most of these efforts were small and half-hearted, as Compaq Sweden was reluctant to compete with its channel members.

In 1994 Compaq Sweden started to build its own in-house personal selling force aimed at large businesses, a target group it felt it needed to gain direct contact with. Compaq Sweden adopted the Compaq UK practice and depicted these salesmen as selling consultants that together with the channel members would sell the computers. This was followed by the establishment of Compaq.com in 1994, which was a presentation of Compaq Corporation and its products, built by external consultants. During 1995 Compaq.com was extended to Compaq EMEA and Sweden, with the opening up of Compaq.se with limited local content.

⁷¹ Compaq.com, Investor Information/corporate overview/2001-02-21/

The Creation of the Distributor Model

By 1994, Compaq Corporation's channel member network worldwide consisted of more than 40 000 points of sale, indirectly employing approximately 100 000 people in addition to its own staff of about 20 000 people. The channel member strategy fuelled Compaq Corporation's growth as it could expand rapidly into new markets without tying up internal resources. In terms of world-wide sales Compaq Corporation was the leading PC firm in most markets.⁷²

The distributors facilitated the intensive distribution strategy that Compaq Corporation had come to practice. Compaq Corporation viewed the distributors as complements to other channel members that would further support the PC platform. With sales accounting for 7% of Compaq Computer Corporation's 1995 total, Ingram Micro Inc. became Compaq's first billion-dollar channel customer during 1995. Ingram bought \$1.03 billion worth of Compaq computers during that year, while Ingram itself sold \$8.5 billion worth of products during 1995.⁷³

The major distributors in Sweden were Ingram Micro, Computer2000, and Scribona. Scribona was a Nordic actor, while Ingram Micro and Computer2000 were large multinational firms. In 1995, Compaq Sweden started to use distributors more intensively to achieve cost savings. Compaq Sweden forced a number of small resellers to buy from the distributors. This was achieved by demanding that channel members buy goods for more than SEK 16 million a year, in order to be allowed to buy from Compaq Sweden.

This move created dissatisfaction among the smaller retailers and resellers who had got used to dealing directly with Compaq Sweden and who felt that they were being cut out from direct contact and the best price. In addition, channel members were afraid that they would not get support. Within the channel, different members took different measures. Some left Compaq Sweden for competitors while some accepted buying from the distributors. A number of channel members tried to upgrade themselves and further consolidate themselves to be able to buy Compaq products directly from Compaq Sweden.

By letting the distributors take a greater share of output, Compaq Sweden received help in growing and maintaining channel members, which it did not want or could not handle in an efficient manner by itself. As a result of the intensified co-operation with Ingram Micro, Compaq Sweden could also feel confident that those channel members that went through Ingram Micro would receive satisfactorily service and support and would remain in the Compaq camp.

⁷² According to Dataquest figures cited in the 1994 Annual Report, Compaq Corporation was the market leader in terms of unit sales in Argentina, Australia, Belgium, Chile, Colombia, France, Hong Kong, The Netherlands, New Zealand, Norway, Singapore, Sweden, Switzerland, Thailand, the UK and the US. It was the second largest in Canada, China, Denmark, Finland, Germany and Malaysia.

⁷³ Ingram places as Compaq's top buyer of 1995, Edward F. Moltzen, *Computer Reseller News*, March 25, 1996, pp 37-38.

By moving business from itself to its distributors, Compaq Sweden was able to reduce the number of external contacts and move more of its sales and order handling into EDI. In Sweden the number of channel members was close to 1 000 in 1995 despite efforts to reduce that number. During 1995-96, Compaq Sweden managed to transfer 250 smaller channel members, mainly retailers and resellers, to the distributors. In addition, Compaq Sweden gained about 250 new channel members, which it otherwise would have had to handle directly or would not have reached at all. It was not possible to reduce the number of channel members to the extent Compaq Sweden initially wanted. This was attributed to the fragmented Swedish market.

Another key trend at this time was the proliferation of peripherals stimulated by the rise of the consumer market. Computer customers wanted modems, software, keyboards, speakers, joysticks, printers, network gear, hardware upgrades, and many other articles with their computers. The number of peripheral articles mushroomed into several tens of thousands during 1994-95. These articles were produced by many small to medium sized independent firms in the USA and Asia and supported the usability of the PC platform.

The main beneficiaries of the rise in peripherals were the distributors that established advanced computer systems to procure and distribute these articles. Many peripheral articles offered better margins than the computers themselves making peripherals a source of income. As a result, many channel members came to upgrade their relation with distributors, since they provided an opportunity to improve overall gross margins.

The channel member categorisation that Compaq Sweden had created during 1991-93 was disintegrating as the distributors started to sell to all of Compaq Sweden channel members. By 1995 channel members were restricted on what they could purchase directly from Compaq Sweden. Since the distributors obtained volume and logistic rebates from Compaq Sweden, and provided assortment, financing and more accurate quick delivery from stock, distributors were often an attractive alternative for Compaq channel members.

As a result, channel members were buying Compaq products from two sources, straight from Compaq Sweden and from the distributors. The choice depended on the particular properties of the channel member and the ongoing structural changes among channel members. In many cases the channel members preferred the distributors since it allowed them to get rid of their own stock keeping, which they happily surrendered to the distributors who consolidated many smaller inventories downstream in the channel.

The reorganisation of channel member contact was also a result of Compaq Sweden's foray into the consumer market, which if handled in the same way as business customers would put Compaq's distribution and support capabilities under heavy strain. Instead, the distributors had the systems in place and could offer viable services because they carried larger assortments of products.

The rise of the distributors made the distribution system of Compaq Sweden grow radically in complexity. Compaq Sweden covered most types of customer segments and had a wide arsenal of channel members to distribute its products. But managing this spread of channel members demanded diplomatic actions by Compaq Sweden to keep all members happy and content, while channel member loyalty gradually shifted to the distributors.

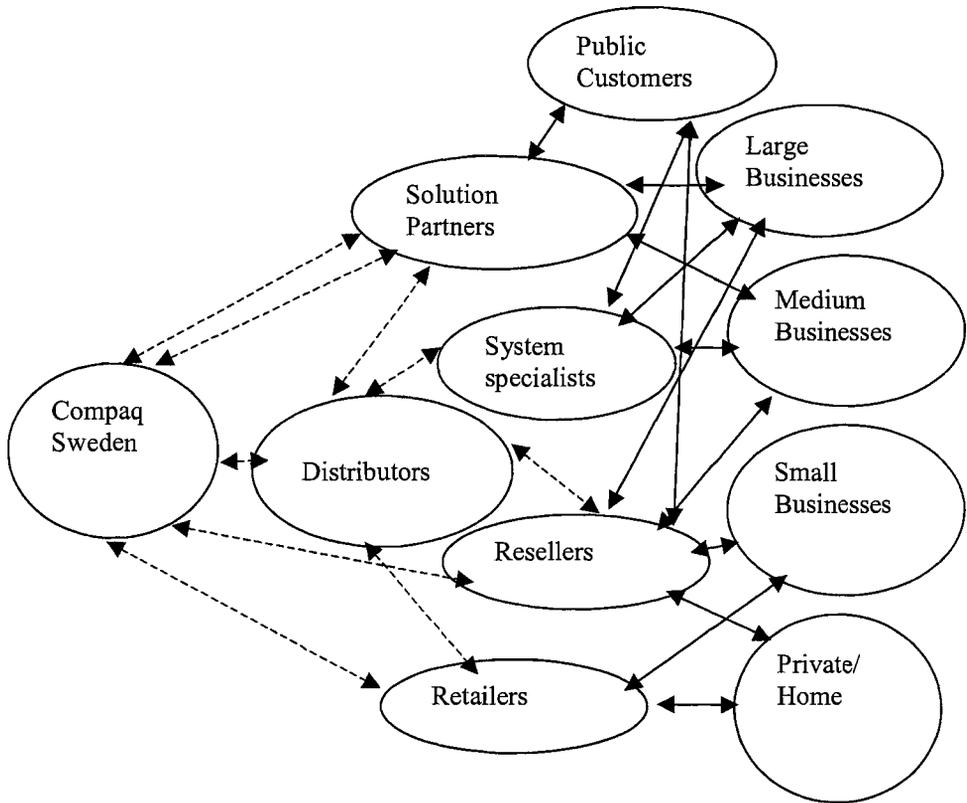


Figure 10.3 The Distributor Model⁷⁴

⁷⁴ The distributor model was a result of the rise of large independent distributors, who assumed an important role in assortment, logistics, and financing, thereby disconnecting Compaq Sweden from its resellers. The arrows indicate instances and direction of capability acquisition. Compaq Sweden has amassed a significant and impressive array of channel members and it still acquired capabilities from customers indirectly. The rise of the distributors filtered and altered the information flows in the channel.

The Reseller Disconnection

Compaq EMEA realised that not only the downstream channel members could benefit from outsourcing their stock keeping to the distributors, but also that Compaq EMEA itself could reduce its own storage costs by moving its stocks forward in the channel to the distributors. Compaq EMEA moved a number of internal storage points from Erskine to the channel members. In 1995 Compaq Sweden closed its national storage facility, centralising stock keeping for Compaq EMEA in Horkum in the Netherlands, 30 kilometres from Rotterdam.

The Horkum facility had been established in 1993 and was a central warehouse designed to replace national warehouses (15 at the time). The facility was planned and designed together with a number of external consultants specialised in logistics and inventory management. In Horkum, production from Erskine, Asia, and the USA was gathered and then dispersed directly to the distributors who had built up facilities in Jönköping, to be able to service the whole Nordic region within 24 hours. In 1995 the distributors were able to pool many upstream and downstream stocks for several large computer manufacturers, contributing to storage cost reductions.

Compaq Sweden was working closely with resellers like Owell, Martinsson, TCM, Computerland, IMS, QD, CMA, and Nicator, which sold to end business customers. The main ten resellers took the bulk of the volume. These key resellers were increasingly getting their computers from the distributors, diluting the relationship between Compaq Sweden and the resellers. Since the distributors solved several problems for the resellers, the relationship with the distributors gained precedence for the resellers. The resellers were an extended contact organisation for Compaq Sweden with its business customers. Compaq Sweden did not anticipate the force of the emerging business relationship between the distributors and the resellers, from which Compaq Sweden was being partly cut off.

Compaq Sweden had created its position by working patiently and systematically with the resellers. Suddenly Compaq Sweden perceived that it was losing its grip on one of its core resources. By 1995 there were about 80 resellers in Sweden with whom Compaq Sweden had close relationships. Compaq Sweden had no ownership ties to its resellers, and had a policy to not acquire ownership ties. Compaq felt that if it started to buy resellers, it would start competing with its own customers. With the attention given to resellers, Compaq Sweden had assured itself of preferential treatment from resellers. Now these relationships were in jeopardy.

Compaq Sweden believed that the main resellers had competence that they alone could provide to customers. This belief was based on many years of successful close co-operation with resellers. The resellers were not a homogenous group of firms. There were distinct differences. Some resellers were price cutters that confined themselves to selling hardware in large volumes. Some firms relied on ancillary services and used the hardware to get customers in order to make a profit on post-sale services.

Some resellers focused on long term relationships, while others competed daily for business. This complicated the incentive programmes that Compaq Sweden developed as the various systems had unforeseen consequences for reseller behaviour and purchasing patterns. The problem was not confined to the resellers. In response to the fear of losing contact with the resellers and in order not to alienate minor channel members, Compaq Sweden instituted promotion and educational programmes towards the small retail and reseller channel members, modelled after similar Compaq EMEA programmes. The result was that Compaq Sweden was supporting the whole distribution chain with a number of different promotion and educational programmes. Since the physical flow was organised via the distributors and the distributors were the only ones in the system with strong logistical and informational systems, Compaq Sweden, like other computer manufacturers, became dependent on the distributors to handle the accounting of price promotions, price protection programmes, and kickbacks.

Within Compaq Sweden there was a debate on the wisdom of distancing itself from the resellers. Compaq Sweden had three main distribution channels in Sweden in 1996. Distributors took about 35 percent of the volume, while resellers took about 45 percent of sales, and retailers 20 percent. The distributors' share was constantly growing and was up from 10 percent of sales in 1994. During the 1994-1996 period Compaq Sweden hesitated as to how it should handle the distributors, and maintained separate direct delivery from Horkum at attractive prices to some resellers.

As a result those resellers close to Compaq Sweden consolidated and became integrated distributors and resellers, focusing further on Compaq products. This parallel channel maintained by Compaq Sweden irritated the distributors and introduced tension and conflict between Compaq Sweden and the distributors. Due to the benefits reaped by both Compaq Sweden and the distributors, the volumes and significance of the co-operation grew despite conflicts. Compaq Sweden needed the distributors to handle small channel members. The distributors needed Compaq products to offer what the smaller channel members wanted. A conflict often worked as a prelude to deeper co-operation, as the parties demanded more from each other to get along, and discovered mutual interests which were too important to actually cause the business relationship to end.

The rise in importance of the distributors changed the dispersion and distribution of channel members across Sweden. Compaq Sweden was strong in the north and central parts of Sweden and on the east coast, but was weaker in the south of Sweden and on the west coast. As a result of the rise of the distributors many firms outside the big cities bought from the distributors. The services that the distributors offered were particularly appreciated from the smaller channel members that could not afford to carry stocks and needed the greater assortment that the distributors offered.

These channel members often served smaller local markets and in these places channel members and customers relied on long-term personal relationships. In Stockholm and other major cities, the competition between various channel members was intense, encouraging the customers to shop around to get the best price and service. Most end business customers bought computers from several channel members, sometimes from a combination of retailers and resellers.

The Forecasting Dilemma

The strong underlying growth in demand lured new entrants to the PC manufacturing industry. The new entrants tried new combinations of price, service, customer segment, and geographical location.⁷⁵ The rise of the distributors reduced the barriers to entry. Over night a new entrant could offer a complete and competitive assortment of computer products that could be delivered to any place in Sweden within 24 hours. But there were volatile demand swings around the long-term growth trend.

The difficulty for the industry to handle variations in demand left plenty of opportunities for smaller actors and assemblers to gain a foothold in the market place when demand was strong. Before the industry could increase production and supply, a number of small firms could reach substantial sales and establish brands, hurting profits and market shares for the industry leaders. This pattern of consolidation and fragmentation repeated itself over and over again in slightly different variations.

For every cycle the five largest PC firms increased their market share somewhat, but it would not increase again before a new demand cycle had passed. Reflecting these cycles Facit, Kyocera, Datapoint, Hyundai, and Philips left the Swedish market in the mid-1990s and there were numerous bankruptcies among smaller local actors.⁷⁶ The actions of other computer manufacturers further complicated the forecasting procedure. It was not uncommon that a particular manufacturer had a strong quarter as a result of a clever campaign or a model well positioned, but then lost sales in the following quarter as another manufacturer found the perfect mix of price and performance.⁷⁷

In addition to the difficulty in forecasting demand for PCs in general and for a particular brand, there were also seasonal and other differences that Compaq EMEA had to learn how to manage.⁷⁸ Compaq EMEA used internally conceived forecasting algorithms to handle variation in seasonal demand. The trick for Compaq EMEA was to separate underlying demand, seasonal demand, and demand which was generated because of other external factors, integrating these factors into one model for forecasting demand. For instance, typically new product launches from Microsoft or Intel would either slow or increase sales. Every time Compaq EMEA thought that it had adjusted its model to handle all contingencies, new factors were disturbing the distribution of demand over time.

⁷⁵ Ingenting kan stoppa datorn; Intelchef spår tillväxt på 30 procent per år, Dagens Industri, August 16, 1995.

⁷⁶ Svensk datapionjär sattes i konkurs, Dagens Industri, Mats Paulsen, June 10, 1995.

⁷⁷ Leverantörer tror på stor uppgång, Dagens Industri, Mats Paulsen, August 17, 1995.

⁷⁸ Dämpad hysteri i datorbranschen, Dagens Industri, Mats Paulsen, November 20, 1995.

Every national market committed itself weekly on how many computers they could sell and would like to have delivered. Every quarter, national markets committed on article level how much they would sell the coming quarter. Based on this Compaq EMEA knew how much to order in terms of components and could plan the needed production capacity. The forecasting system of Compaq EMEA worked fairly well, with a discrepancy of less than 5 percent during a given time period. But taken together with forecasting errors that occurred among channel members, the problems amplified and occasionally became costly with goods that had to be discarded or sold at a loss, or with embarrassing stock-outs. Compaq EMEA tried to sort out the situation by introducing various advanced mathematical forecasting methods developed by external consultants to improve the forecasting methodology. But since there were so many independent or semi-independent channel members in the system there were always shortages or surpluses arising in the channel.

The TOPS Programme

In response to the problems that Compaq EMEA encountered regarding forecasting in 1994, Compaq EMEA started working on a new logistics management programme called Total Order Planning System (TOPS). This system implied a revolution if fully implemented since it integrated the whole ordering-manufacturing-delivering process into one system. The overall objective was to get a clear picture of the business flow within Compaq EMEA. This would in turn enable Compaq EMEA to start managing the firm as one entity to realise savings by reducing inventory costs, lead times, procurement costs, and the number of wasteful activities in the overall production and distribution system. The TOPS programme was an internal Compaq EMEA project and did not involve channel members. Instead, Compaq EMEA used external consultants to advise on the design and implementation.

Before TOPS, Compaq EMEA had employed a classical push model whereby it based its production and deliveries to inventory on monthly forecasts from the subsidiaries in various EMEA countries. It was the task of the subsidiary to off-load the inventory into the national market at the best possible margin. The Erskine production facility worked with batches whereby national orders for a particular product were merged (pooled) into one batch, which was then produced and shipped. In this way Compaq EMEA could realise low unit costs in assembly and thereby price its products competitively. The principal way of operating was the minimisation of production costs. The system was a classical build-to-stock (BTS) system. Inside Compaq there was an emerging insight that manufacturing, logistics, and inventory were closely related to each other in terms of cost. With TOPS implemented, the internal costs of operation could be minimised, not just the manufacturing costs.

The TOPS system was implemented in a number of steps 1995-96. The overall objective was to transform Compaq EMEA into an order-driven organisation where manufacturing and delivery was based on demand signals from the subsidiaries, rather than on sales forecasts from the subsidiaries.

The TOPS programme was also to be implemented early for the EMEA market relative to other Compaq GEOs (Geographical business areas) because of the fragmented marketplaces in Europe. In the USA Compaq had 12 major resellers accounting for the bulk of sales, but in Europe Compaq EMEA had to rely on about 200 large resellers to bring the products to the end-users. Thus Compaq EMEA believed that it could do something substantial about its high European costs.

The first move was to establish the concepts of “desired units” and “net outcome”. By “desired units” was meant that the subsidiary made a forecast on a monthly basis regarding the expected sales, and this formed the basis of the production planning at Erskine. By “net outcome” was meant that actual units sold at the subsidiary level were contrasted with the forecast to improve the forecasting ability. This comparison of forecasted and realised volume had not been systematically carried out. By using the improved information from TOPS, Compaq EMEA was able to spot trends in sales early, and could also rely on the data to consider promotions to off-load inventory and adjust forecasts and orders.

The major result achieved was a reduction in the effects that swings in demand had on production. With TOPS in place, Compaq EMEA moved to a BTSms system, where national subsidiaries placed orders with Compaq EMEA based on national forecasts. Physically the system supplied goods to the Horkum warehouse, from which the national subsidiaries could then direct delivery to channel members. The orders from the national subsidiaries were placed with shorter and shorter intervals to adjust production to forecasted demand as quickly as possible.

The Distributor Model and Electronic Commerce

Among the global USA firms like IBM, Compaq, Dell, and HP there was a common expectation that the industry would consolidate. Trying to handle the clones, the stiff margin compression, and the rapid fall in component prices during the early and mid-1990s, the industry leaders expected that there would only be a limited number of large and powerful competitors left. But the rise of distributors changed the competitive game. The distributors benefited from a situation where downstream channel members as well as the computer manufacturers used the distribution system. The distributors had a powerful advantage compared to minor channel members because of the EDI links they possessed with the computer manufacturers, like Compaq Corporation, which gradually strengthened the position of the distributors in the channel.

The availability of the distributors lured new entrants with low cost operations that would start to infringe on the marketplace and capture sales from the major competitors using the distributors to gain access to the distribution system. These firms were not manufacturers of clones. Instead they operated locally in national markets, performed assembly in facilities of their own, and created their own brands, which they stressed in the marketplace.

Many of these firms did not last for long, but new ones arrived at a stable pace, making consolidation elusive. As a result, the number of firms selling PCs in Sweden and other markets held steady. It was not only local firms with weak technological and financial abilities who were trying to enter. In 1994, Digital Equipment Corporation (DEC) made an effort to penetrate the Swedish PC market and with some success.

The Distributor Model arose because of the large distributors who consolidated inventory, assortment, and provided the channel with financing. By using the distributors Compaq Sweden could monitor and direct the channel members via kickbacks, price promotions, and price protection programmes, supported by EDI. In the process Compaq Sweden became disconnected from channel members who switched their loyalty to the distributors. A direct sales force was established together with compaq.se to marginal effect. Compaq Sweden also tried to use educational and promotional programmes to connect with its smaller retailers and resellers.

The entry of new computer manufacturers and the ongoing restructuring of downstream channel members, in combination with the rise of the distributors and the disconnection between Compaq Sweden and the resellers, led to a situation where Compaq Sweden became detached from the marketplace and customer desires. One symptom of this was the difficulty in forecasting and handling swings in demand. Another problem was that information resided with the distributors, who with the support of EDI, benefited from large flows of information and goods, and did not care much about the products or the customers.

In 1996 Compaq Corporation began to lose its momentum, facing stiff competition and slowing sales. In part this was a result of the success of Compaq Corporation. The price had been driven downwards, while performance had increased dramatically.⁷⁹ In response Compaq Corporation continued to increase spending on research and development to strengthen the product line.⁸⁰ In addition, Compaq Corporation felt a need to reach out forcefully and maintain its position in the market. Again, as in 1992, it resorted to a price reduction scheme implemented during the summer months to weed out weak competitors and sustain its leading position.⁸¹

⁷⁹ This trend is described in the 1994 Annual Report of Compaq Corporation. In 1985 a Compaq Deskpro 286 retailed for about 3000 USD and was built upon an Intel 80286 chip with 0.6 MB RAM memory and a hard disc of 30 MB. In 1995 a Compaq Presario CDS 774, which was aimed at the same basic business segments was built upon an Intel 586 Pentium chip, with 8 MB RAM and a hard disc of 725 MB. This computer was stronger by 12.400 per cent, while the retail price was down 30 per cent to 2.100 USD. Furthermore, with the 1995 computer followed a warranty for 3 year, compared to a warranty for 1 year for the 1985 computer. In addition, the 1995 computer had numerous features including a CD-ROM and over 25 pre-installed applications and programmes, compared to none for the 1985 computer.

⁸⁰ According to the 10-K form of 1995 presented to the Securities and Exchange Commission Compaq Corporation, it spent 270 MUSD in 1995 on research and development, up from 226 MUSD in 1994, 169 MUSD in 1993, and 173 MUSD in 1992 and 197 MUSD in 1991.

⁸¹ Kriget mellan PC-kungarna, Fredrik Arvidsson and Peter Widén, IT-Branschen, Nr 11, 1999.

The Optimised Distribution Model 1997-98

The Need for Product Customisation

Officially Compaq Corporation maintained that they had advantages that Dell Corporation could not match. Compaq Corporation argued that they had a broader line of computer products on offer and that through their channel members they could provide a higher degree of customisation. But behind the scenes Compaq Corporation was worried, especially about the growth rate of Dell Corporation. In 1996 Dell Corporation unit sales alone jumped 71 percent, more than five times the industry's 13.6 percent growth rate that year. The ability of Dell Corporation to preserve gross margins also seemed quite stable, as long as there were channel members demanding a mark-up of 7-9 percent.⁸²

The principal available mechanism for customisation for Compaq Corporation was the channel members, who provided customisation to the end-users on behalf of Compaq Corporation and other manufacturers. Compaq Corporation prepared the channel members in different ways to offer customisation; by providing information about the products, and teaching the channel members how the products could best be used, installed and repaired. The customers could consult the channel members before the purchase for help in choosing products, but most of these activities were devoted to post-sale customisation, and the various types of channel members were the principal mechanism for delivering post-sale customisation. The success of Dell Corporation made Compaq Corporation aware of the opportunity of pre-sale customisation, and it set out to mimic Dell Corporation without alienating or dispensing with the channel members that it depended on.

In 1997, Compaq Corporation started to prepare for the introduction of BTO and CTO capabilities.⁸³ Compaq Corporation wanted to introduce BTO and CTO, since they were regarded as key tools for achieving pre-sale customisation. Compaq Corporation found there were substantial benefits of a business model that could handle BTO and CTO, both internally (to the benefit of Compaq) and external benefits (for channel members and customers). Internal benefits were 1) that BTO could generate significant savings on inventories that could provide an opportunity to reduce prices. 2) BTO could increase the speed to market of new products/technologies and reduce the time needed to pass on price drops emanating from component suppliers. The relatively high levels of inventory carried by the channel slowed this process. 3) Moving to a BTO and CTO model could enable Compaq Corporation to gain a larger share of the private/home and small business market. 4) CTO could generate increased volumes, and in particular help win competitive tenders. 5) BTO and CTO could improve the level of customer satisfaction.

⁸² Now everyone in PCs wants to be like Mike, David Kirkpatrick, *Fortune*, September 8, 1997.

⁸³ For a definition of these terms take a look at the section on industry terminology presented just before the case of Compaq Sweden.

The envisioned external benefits were as strong: 1) BTO could increase product availability and provide greater differentiation into the channel. 2) CTO could provide the channel and customers with direct access to manufacturing, enabling Compaq Corporation to deliver specific products for a given market or channel. 3) BTO and CTO provided the potential for a reduction in price. 4) With CTO, Compaq's channel members could offer low priced machines to hook customers. Customers would then only be paying for those features that were required. This would generate significant cost savings through inventory reductions in the channel and provided opportunities to reduce price.

Compaq Corporation set out to implement BTO and CTO while keeping the channel members, implementing BTOch/CTOch instead of BTO/CTO. Compaq Corporation tried to establish the anticipated level of demand from various customer segments for BTOch and CTOch for the various product groups. In the process, Compaq Corporation established the relative priorities of being able to deliver BTOch and CTOch for each of the product divisions. Regarding CTOch, Desktops and Enterprise products were identified as being the highest priority, with portable and consumer products being of lower priority.

While offering CTOch for Enterprise products was the most profitable area of the business it was also the most complicated area in terms of offered configuration alternatives. But high end products would lend themselves most to a CTOch process, enabling greater product differentiation and helping to increase sales to the more lucrative second time buyer market. Each configuration was likely to be customer specific. In the portable computer segment, the priority for offering CTOch was not high. Competitor pressures in this area were not strong, since neither Toshiba nor IBM offered CTOch.

Low-end machines were often used in competitive bids where pricing was sensitive, making customisation a winning proposition. In the customer segment CTOch was also difficult to implement. It was difficult in terms of forecasting, planning, and scheduling and CTOch was not seen as a high priority. While consumers were more inclined to buy the products that were on the shelf, there was an increasing requirement from the mature retail market to provide retailer specific models. CTOch was also needed to defend market share against an increasing number of low cost firms that were increasingly offering configuration at the point of sale.

In Sweden, Lap Power and Colibri Computers were two nimble competitors in this respect. Compaq EMEA surveyed the different European markets and found that there were substantial differences between various nations. While BTO/BTOch had already become standard practice, CTO/CTOch was not well implemented. The UK showed a high level of CTO due to the strong presence of Dell Corporation and Gateway2000. The demand for CTO was not high. The high level of CTO in Germany could be attributed to the strong presence of Vobis AG and a high number of assemblers, making Germany advanced in terms of CTO, but weak in terms of BTO.

The Creation of the Optimised Distribution Model

In July 1997, Compaq Corporation unveiled the Optimised Distribution Model, a new business model that was a development of the TOPS programme.⁸⁴ Eckhard Pfeiffer proclaimed that it would “start a new era for Compaq and would shake up the computer industry. The Optimised Distribution Model would govern how Compaq-products would be designed, ordered, built, configured and delivered, and how service and upgrades would be handled.”⁸⁵

The computers would only be built and configured when Compaq Corporation received an order from its channel members, BTOch and CTOch. In addition, Compaq Corporation decided to withdraw from developing networking gear, and instead licence products from Cabletron Company, Extreme Networks, SMC Networks, and Ordinox to be sold under Compaq’s brand name or jointly marketed under the brand name of the producer.⁸⁶

Regarding the move to BTOch and CTOch, the new business model would significantly increase the dependence on manufacturing reliability and on the availability of key raw materials. Compaq EMEA started to renegotiate its contracts with its suppliers to ensure smooth supply of components, and started to re-organise its manufacturing facilities. In contrast to Dell EMEA, Compaq EMEA opted for a combination of batch and unit production planning, where manufacturing would be tailored to the perceived needs of the different customer segments. Compaq started to divide its plants into subsections with different organisational properties to experiment with different assembly techniques, and tried to design four distinct manufacturing processes to accommodate various segment requirements.

The plan was for Compaq EMEA to ship the computers directly to the channel members. For complicated orders, constituting about 20 percent of shipments, Compaq EMEA would deliver PCs for channel configuration CTOch. For simple orders to large retailers BTS and BTSms would still apply. For orders from large businesses pure BTO and CTO was possible when Compaq sales people sold the computers directly. Local subsidiaries, like Compaq Sweden, assumed the role of gatekeepers trying to link the production system of Compaq EMEA to local channel members.

Managing the complexity of working with so many different products, customer segments, distribution systems, and national markets offered a challenging managerial and intellectual task. To obtain ideas on how to change itself, Compaq Corporation was dissecting Dell Corporation business model in detail.

⁸⁴ Press release July 7, 1997, www.compaq.com, and Press Release July 11, 1997, www.compaq.se, “Compaq’s nya affärsmodell revolutionerar datorköpet”

⁸⁵ Press Release July 11, 1997, www.compaq.se, “Compaq’s nya affärsmodell revolutionerar datorköpet”

⁸⁶ www.compaq.com/products/networking/2001-02-21/

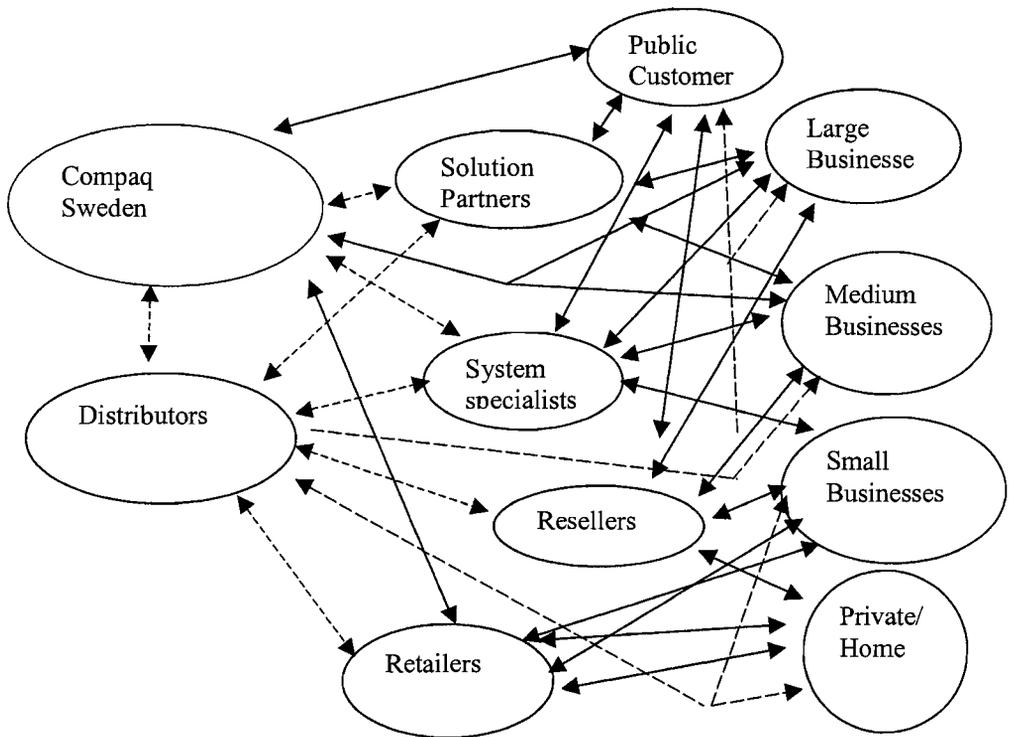


Figure 10.4 The Optimised Distribution Model⁸⁷

Compaq Corporation realised that the provision of a computerised configuration facility was a pre-requisite to any CTO offering (and was also required for the implementation of e-commerce). A configuration facility was needed to internally specify possible allowable configurations, which were linked in component availability, manufacturing limitations, and PC chassis limitations. The configuration facility was made available to channel members and to customers.

⁸⁷ In the optimised distribution model the idea was to integrate the whole distribution channel to wring out efficiencies. By tightly linking the various channel partners together, waste in time, cost, and inventory was to be minimised. The arrows indicate instances and direction of capability acquisition. Dotted lines indicate indirect capability acquisition. Compaq Sweden established some ways to acquire capabilities directly in order to improve the performance of the distribution system.

To implement the configuration facility, Compaq Corporation needed to write proprietary applications to handle the complexity in the manufacturing and distribution system. The system was designed to simultaneously handle BTS/BTSms, BTO/BTOch, and CTO/CTOch. It would take Compaq Corporation more than three years (1996-1998) from when it started to implement SAP until it offered BTOch and CTOch. Compaq Corporation used internal programmers and external consultants both in the USA and in Europe for Compaq EMEA. The need to implement SAP and adjust it delayed the implementation of the Optimised Distribution Model and forced Compaq Corporation to repeatedly postpone the introduction of BTO/CTO and BTOch/CTOch repeatedly.⁸⁸

In Compaq EMEA the Optimised Distribution Model was implemented gradually, starting with adjustments in the Erskine manufacturing facility to handle BTO and BTOch in 1997. This was followed by the introduction of the direct shipment option to customers by the introduction of CTOch and CTO in early 1998. An organisational process where channel members configured the computers to the specifications of customers was implemented by mid-1998. The programme was devised for business customers who bought many computers at one time, and for large retailers who were prepared to buy many computers at one time.

The process with the channel members was called CCP (Channel Configuration Programme) and was tailored for channel members who sold small volumes with a significant need of customisation.⁸⁹ With the use of CCP to speed up channel throughput, Compaq EMEA integrated its channel members in its efforts to catch up with Dell EMEA. Compaq EMEA managed to reduce the average combined inventories (at reseller stocks and its own finished inventory at plants and in Horkum) from eight weeks of production in 1992 to four in 1998. The number of average storage points that a computer passed by on its way to a customer decreased from 3 to 1 during this period.

Compaq EMEA had been able to reduce unit costs by directing shipments to the distributors during 1994-1996. Compaq EMEA had invested in new logistical routines and systems to centralise and minimise its own stocks, moving the cost forward to the distributors. In Compaq EMEA, a computer passed the Horkum central warehouse, the distributor and the channel member and then reached the customer.

⁸⁸ According to www.sap.com/2001-11-13/ five former IBM engineers founded SAP AG in 1972. Modelled to serve large German businesses SAP became the preferred choice for large complex businesses in the world. By 2001 SAP had 36.000 installations serving 10 million users in over 50 countries. With SAP R/3 launched in 1992 it was possible to keep track and manage the internal resources of the firm. In 1996 R/3 was Internet enabled and the firm launched new solutions for customer relationship management and supply chain management. SAP also begun to develop industry specific solutions in 1996 for the car and the computer industry.

⁸⁹ Press Release July 11, 1997, www.compaq.se, "Compaqs nya affärsmodell revolutionerar datorköpet"

Compaq EMEA thought that the new BTO and CTO capabilities would give it an edge against its own distributors who were eroding Compaq EMEA control of its distribution system. Compaq EMEA figured that by offering BTOch and CTOch to channel members, mainly resellers, who bought directly from Compaq EMEA, those channel members that bought from the distributors would be lured back and purchase directly from Compaq EMEA.

Towards this end, Compaq Sweden introduced OrderLink in early 1998; a new Internet based service for electronic order management for resellers. The site was only open for resellers, not the other channel member categories. OrderLink was established in a number of European countries during the late 1997 and was fully implemented in Compaq EMEA by mid 1998. It was a result of the SAP implementation and Compaq USA made the most progress. With OrderLink resellers obtained access to a reliable and efficient electronic link to Compaq Sweden and the possibility to order products simply and fast. OrderLink was the key ingredient in the new Extranet/EDI services that Compaq Sweden was establishing towards its resellers.

Compaq Sweden had previously worked via EDI with its major channel members. With OrderLink, Compaq Sweden's resellers could utilise the advantages of electronic document handling over the Internet. Via OrderLink, ordering forms became available for resellers electronically. The reseller filled in the order with product specifications and delivery terms. The information was converted to EDI-standard and sent in a fully secure mode to Compaq Sweden. The ambition with this scheme was to speed up order handling by reducing the number of steps needed to place an order, leading to shorter product trajectories and reduced inventory costs, while simultaneously reducing the number of faulty deliveries. For Compaq Sweden, it was also a tool to reconnect itself with its resellers.⁹⁰

The Option of Direct Sales

Compaq Corporation considered direct Internet based sales to customers a number of times during the mid-1990s despite the fact that it had opened its first Internet site in 1994, compaq.com. By September 1997, Compaq Corporation did not generate any revenue from its web sites directed to customers. The web sites offered information, resources, and support, but no order or configuration facility. Some country managers wanted to launch revenue-generating sites on their own and not wait for the rest of the Compaq Corporation to catch up. Other country managers did not feel pressure and instead wanted to keep operations indirect, arguing that this would serve Compaq Corporation better.

⁹⁰ Press Release January 13, 1998, www.compaq.se, "Compaq startar internetbaserad orderhantering för återförsäljare".

From time to time these diverging views within Compaq EMEA came out in the open. At a conference in October 1998, Olivier Suinat, one of the highest-ranking managers for Compaq EMEA, illustrated the debate and thinking of the Optimised Distribution Model. He said: “we will strengthen our presence through direct sales on the entire assortment. The primary reason is that our customers demand it and that our competitors successfully sell directly. We cannot be competitive unless we offer the largest customers a comprehensive commitment from our side. But I want to stress that the importance of the channel by no means should be disregarded. The advantages of going direct are more emotional than practical. In many cases we will use the channel for fulfilment, even though Compaq has acquired the customer.”⁹¹

There were a number of projects and studies devoted to creating an Internet based sales web interface. These investigations showed that the technology to build and maintain an Internet commerce presence was simple and easily available, and that most of it could be found inside of Compaq Corporation. These findings somewhat relaxed the tension. The reasoning was that since Compaq Corporation could easily start selling electronically whenever they wanted to, it could wait until there was an actual need among customers. Both in the USA, Asia, and Europe, the wait-and-see attitude towards electronic commerce caused frustration and some internal rebellion.

World	Market share %	Europe	Market share %
Compaq	13.7	Compaq-Digital	18.8
IBM	8.6	Dell	8.5
Dell	8.4	IBM	8.5
HP	6.1	Siemens	6.8
Gateway	3.9	HP	6.5

*Table 10.9 PC sales for the third quarter 1998.*⁹²

Due to local impatience, projects were launched at the country levels, among them in Compaq Sweden. These projects were called exploratory studies, but in practice they enabled country managers to start selling over the Internet to customers quickly if the go ahead would come. Those electronic commerce projects that were accepted and received funding beyond the initial stages were those that were directed to support Compaq’s dealers and wholesalers selling electronically.

Compaq Corporation was worried about the high growth rate of the direct sales channel. To address the threat from Dell Corporation, on several occasions Compaq Corporation considered creating a separate business unit under another brand name. In addition, Compaq Corporation was put off by the failure of IBM in this respect, which had introduced a second brand name, the Ambra line.

⁹¹ Compaq ökar sin direktförsäljning, Peter Widén and Helena Reistad, IT-Branschen, No 10, 1998.

⁹² Figures from Dataquest, quoted from Dagens Nyheter, October 29, 1998.

The line had been directed mainly at the UK market and had been sold by telephone, with little success. The Ambra project was IBM's approach to handle the channel conflict, while simultaneously reaching out to the segment that wanted to buy computers directly over the phone. The UK market, which Dell EMEA had entered early and successfully, became the natural ground for IBM to try out its phone based direct strategy.

Compaq Corporation came close to creating a new direct sales channel in the spring of 1997. By buying Gateway2000, Compaq Corporation could have become the world's second largest direct sales company, trailing Dell Corporation. Compaq thought that it could realise huge economies of scale by integrating Compaq and Gateway2000 in terms of logistics and manufacturing. The deal with Gateway2000 fell through despite frequent approaches by Compaq Corporation. Tom Waits, the founder and dominating owner of Gateway2000 declined despite heavy and repeated courtship.

Compaq Corporation instead opted to buy Tandem Computers, a system integrator and consulting-oriented computer firm that had focused on high performance environments (like stock exchanges). Tandem Computers were focused on the financial services industry and sold mission critical servers, known as the Himalayan family of computers. Tandem Computers addressed the enterprise segment, but was a relatively minor player and could by itself not solve the strategic weaknesses of Compaq Corporation.

Managing Channel Conflict

When introducing the new BTOch/CTOch facility, Compaq Sweden pondered the possibility of channel conflict. The Optimised Distribution Model made a virtue of having several distribution systems: one built on some BTS, some BTSms, some BTOch/CTOch, and some BTO/CTO. Compaq Sweden decided that in communicating to the channel it would limit itself to offering customisation in hardware, to placate the channel. This argument was basically true, and in addition it would not rob the channel of most of the lucrative customisation work that it performed for its customers. By making the distinction between hardware and software customisation, Compaq Sweden was able to keep the resellers on board.

Compaq's BTOch and CTOch facilities challenged the hegemony of the distributors. The distributors were irritated by not having control over the distribution chain as Compaq Sweden was integrating forward. The introduction of the Optimised Distribution Model caused distributors to periodically favour other brands to put stress on Compaq Sweden. As a result of the tension that developed, Compaq Sweden with the support of Compaq EMEA consented to develop a particular application that would make CTOch capabilities available to the distributors, which would then be able to offer CTOch capabilities to the channel members. Compaq Sweden considered creating a new direct sales channel. Compaq Sweden expected that as soon as it started offering direct sales, distributors and other channel members would switch to other brands or at least not offer Compaq as a preferred brand. Yet Compaq Sweden lost customers because it could not establish and maintain contact with them.

Large corporate customers in increasing numbers were trying to buy directly from Compaq Sweden. To handle the demands from large corporate accounts Compaq Sweden started with a local variation of direct sales. While formally using the reseller and paying a fee to the reseller, Compaq Sweden engaged in end-customer contact using its in-house personal sales force including price negotiations. When the deal was closed, Compaq Sweden made the end-customer choose one of its resellers, who then handled the order on behalf of Compaq Sweden.

One problem with this approach was that Compaq Sweden and its larger reseller focused on the same large companies, and that the resellers knew that if they brought in the business themselves, they could be more assured of getting the whole business. To mitigate and control this source of conflict, Compaq Sweden decided not to exclude resellers from their cut. One consequence of this way of working was that reseller margins became more fixed. When competing for an order, Compaq Sweden primarily had to surrender its own margins.

Customers were becoming increasingly confused by the unclear roles in the distribution system. Prices, products, and service varied depending on whom the customer contacted. In addition, the differences in knowledge among channel members led to conflicting information about product and service offerings. As a result of the blurring borders between Compaq and its channel members it was not uncommon for various channel members and Compaq to bid for the same business. In response, channel members started to favour other computers, but most resellers stayed on with Compaq and continued to sell its products. As corporate customers learnt about the inconsistencies in the distribution system, Compaq Sweden found that its brand and product reputation was becoming less attractive.

In 1998, Compaq Sweden opened up a new sales centre in Linköping called Compaq SalesLinq. The goal was to make it simple for new and old customers to get into contact with Compaq Sweden. Compaq Sweden arranged new telephone numbers, a new fax number, and an e-mail connection, which it used in its advertising towards customers. The idea was that the new centre would increase the accessibility for customers.

The staff at Compaq SalesLinq was educated on Compaq Sweden services and products and potential customers could get the right information about where and from whom they could get the service and support they needed. The centre was designed to support the existing sales organisation and become an additional contact node in the daily contact with Compaq Sweden. When the customers lacked an established relationship with Compaq, the centre would direct those customers to a channel member that would be suitable geographically and otherwise.⁹³

⁹³ Press Release December 9, 1998, www.compaq.se, "Compaq öppnar framtidens försäljningscenter i Linköping", Quote from Niklas Johnsson.

The principal tool for customer contact at the centre was the telephone, but a special Extranet called CompaqConnect had been developed to support the staff. This system was designed to transfer business from the centre to the resellers. One component of CompaqConnect was the configuration facility. Staff at the centre could advise customers as to what computer and which configuration was suitable. The information would then be transferred to the channel members who would get into contact with the customer, confirm the order and then place it with Compaq Sweden directly or via the distributors. In addition to the configuration facility, CompaqConnect also offered the stocks of the distributors, in effect making the Compaq SalesLink interface a customer of the distributors. The overarching vision was to "...create a virtual sales organisation together with the channel members. In this way we show the market how our indirect sales model can be developed in order to give better service together with our channel members".⁹⁴

The Optimised Distribution Model and Electronic Commerce

Compaq Corporation thought that by introducing BTOch/CTOch and BTO/CTO it would be able to reduce costs and avoid or reduce inventory costs. For Compaq Corporation, the Optimised Distribution Model indicated that it was now concerned with inventory and distribution costs across the channel and would attempt to reduce overall costs, not just its own costs. This would be achieved by gathering information electronically from actors in the distribution system, including the customers, to minimise on waste in the distribution system. Compaq Corporation was convinced that its channel members provided value to the selling and customer handling process. For Compaq Corporation the value of pre-sale customisation was considered marginal and it did not govern its drive to introduce BTOch and CTOch.

The introduction of the Optimised Distribution Model allowed for different parallel distribution schemes depending on the nature of the goods, the nature of demand, and the nature of customer segment. The introduction of BTOch and CTOch was restrained because of internal and external limitations and rigidities in technology and the organisation. The Optimised Distribution Model constituted a disintegration of Compaq Corporation's business model into several variations with a common ground. It was achieved by the gradual introduction of SAP and the improved facilities for enhancing postponement.

The implementation of SAP was the first step towards offering BTO and CTO. Compaq Sweden continued to focus on managing the relationship with channel members with tools like OrderLink and CCP and hoped that BTOch and CTOch would be sufficient. The Optimised Distribution Model suggested that BTO and CTO could be introduced in an indirect context of BTOch and CTOch. This had not been done by any of Compaq Corporation's competitors and it was a gamble, but it was the best that Compaq Corporation thought that it could do in order not to disturb its relationships with its channel members.

⁹⁴ Press Release December 9, 1998, www.compaq.se, "Compaq öppnar framtidens försäljningscenter i Linköping"

	1995		1996		1997	
Compaq Western Europe	1922		2049		2889	
Large Accounts	466	24%	584	29%	733	27%
Medium Accounts	507	26%	613	30%	848	29%
Small Accounts	444	23%	465	23%	775	27%
Home users	403	21%	284	14%	356	12%
Educational	101	5%	103	5%	138	5%
Dell Western Europe	532		741		1124	
Large Accounts	193	36%	274	37%	444	39%
Medium Accounts	145	27%	217	29%	299	27%
Small Accounts	126	24%	172	23%	269	24%
Home users	48	9%	51	7%	70	6%
Educational	20	4%	27	4%	42	4%
Total Western Europe	11408		16312		18969	
Large Accounts	3356	23%	3636	22%	4253	22%
Medium Accounts	3326	23%	3860	24%	4537	24%
Small Accounts	3560	24%	3972	24%	4628	24%
Home users	3513	24%	3775	23%	4386	23%
Educational	953	6%	1069	7%	1166	6%

Table 10.10 End-user categories of Compaq and Dell in Western Europe.⁹⁵

The establishment of the Optimised Distribution Model gave Compaq Sweden more control not only of product customisation, inventories, and logistics, but was also a first step for Compaq Sweden to get into contact with the customers. This enabled Compaq Sweden to start picking up demand signals, complaints, failures, and shifts in customer needs. In addition, Compaq Sweden started to understand who its customers were and could via SalesLinq direct customers to the channel members that it wanted to benefit, thereby imposing further limitations on channel member reach and ability to compete for business.

⁹⁵ These figures appear in Mika Gabrielsson's dissertation Sales Channel Strategies for International Expansion. The figures have been compiled from Dataquest 1996-97 reports. Note that the geographical area is limited to Western Europe and the end user segments are different from those used otherwise in the thesis. The figures have been taken as they are (the figures do not always add up, and the percentages have been rounded and do not always add up to 100). The figures indicate volume in 1000-units and shares in percent

By depicting the new added sales vehicle, i.e. SalesLinq, as a contact node which would not take orders directly from customers, but would direct customers to the channel members, Compaq Sweden managed to mitigate the channel members to a degree. Compaq Sweden used Dell Sweden as an explicit external threat to which Compaq Sweden and the channel members had to respond. The loyalty between channel members and Compaq Sweden upon which the Reseller Model and Indirect Sales Model had been built was dissolving.

Meanwhile, IBM teamed up with Scribona, one of the local Nordic distributors, getting interest from other actors in the industry. In an assembly plant in Uplands Väsby, quite near Dell Sweden, Scribona made the final assembly and configuration of IBM desktop computers. The plant had a capacity of 100 000 computers per year and this was an experiment for IBM. By using Scribona, IBM could supply ready-made kits, which in response to a customer order could be configured and delivered directly to the customer. In essence, IBM was trying to find a way to offer BTO and CTO, while still working indirectly with distributors and other channel members.⁹⁶

By introducing the Optimised Distribution Model, Compaq Corporation, which had tried to offset some of the perceived advantages that were inherent in the various Dell business models, did not wait to see the business model take full effect. The new business model did not convince customers or channel members that Compaq Corporation would regain its competitiveness. Instead, the introduction of the Optimised Distribution Model caused further distraction and confusion. When Compaq Corporation choose to take its business model in the opposite direction by the purchase of Digital, it was possible to interpret this move as if Compaq Corporation had given up on competing head on with Dell Corporation in the PC business.

⁹⁶ Vilka blir kvar? Johan Cooke, IT-Branschen, No 10, 1999.

The Customer Choice Model 1999-

The Acquisition of Digital

In 1996, Compaq Corporation became interested in buying Digital Equipment Corporation, but Digital declined. Instead the two firms began to co-operate with each other. Compaq Corporation benefited from the ongoing customer relationships and the service and solutions businesses that Digital had established. Digital Equipment benefited from the competitive product line-up, which Digital could not match, particularly regarding PC-based servers. Compaq Corporation utilised the depth in Digital to provide outsourcing, installation, maintenance, upgrading, education, programming, hosting, financing, network management, system planning, and configuration. These Digital services were deployed in the sales efforts of Compaq and supported the in-house sales force of Compaq Corporation.

By co-operating with Digital, Compaq Corporation came to understand to benefits of a strong service organisation. Because of the growth in the service businesses, Digital was fairly successful as a firm, despite the fact that its own hardware businesses were relatively weak. The revenue from service implied higher margins and was more stable than the hardware business. Since the demand from customers for service was increasing, even for PC servers, the service and support business was becoming a prerequisite for a successful hardware business in the large business segment for Compaq Corporation. Digital's strengths were in client/server computing, networking technology and system integration, which were in increasing demand.⁹⁷

In January 1998 Compaq Corporation acquired Digital Equipment Corporation.⁹⁸ The acquisition meant that Compaq Corporation decreased and shifted its dependence on the PC business to a broader dependence on a number of computer technologies and platforms.⁹⁹ Buying Digital was an important change of strategy: the focus on PC technology was replaced by a move into a mix of products based on different technologies and services. The acquisition of Digital allowed Compaq Corporation to offer Alpha microprocessors, OpenVMS, Digital UNIX, and Windows NT enterprise operating systems as well as other open storage and software products. But it was the customer relationships with high-level management that enticed Compaq Corporation.

⁹⁷ Digital Annual Report 1997

⁹⁸ Press Release January 26, 1998, www.compaq.se, "Compaq to Acquire Digital for 9.6 Billion USD Creates the Second Largest Computing Company in the World"

⁹⁹ The transaction was the largest acquisition in the history of the computer industry, valued at \$9.6 billion based on the January 23, 1998 closing price of Compaq common stock. Under the terms of the transaction, shareholders of Digital would receive \$30 in cash and approximately 0.945 shares of Compaq common stock for each share of Digital stock. Compaq would issue approximately 150 million shares of Compaq common stock and \$4.8 billion of cash. Under the terms of the agreement, Digital would become a wholly owned subsidiary of Compaq Computer Corporation.

Eckhard Pfeiffer, president and CEO of Compaq Corporation at the time, stressed that "We put tremendous value on the customer relationships Digital has cultivated over the past 40 years. We are committed to supporting these key customer relationships by investing in Digital's strategic assets, particularly its world-wide service organisation."¹⁰⁰ This also meant that Compaq Corporation would be competing for the same business head-on with its own resellers.¹⁰¹¹⁰² In 1997 about 20 percent of Digital sales to customers directly without passing channel members.¹⁰³

Compaq Corporation repositioned itself as an enterprise computer company. It argued that its customers wanted them to take a more active role as an IT-partner. The combined company created the largest distribution channel network in the world for selling PC computers. The channel members would still deliver over 80 percent of total products and solutions sold to customers. Digital's field resources were to continue to complement the strong indirect channels, focusing on building enduring customer relationships. The resources included dedicated pre-sales and sales account management, professional and consulting services, and global service and support. The new combination focused on solutions for enterprise customers by delivering a wide range of computers and computer-like devices from hand-held computers, notebooks, desktop computers, workstations, basic and medium performance, and high-end servers.¹⁰⁴

In terms of staff, Digital had about 62 000 employees while Compaq Corporation had about 23 000, giving the new firm an initial total of 85 000.¹⁰⁵ Most appointments in the new organisation were Compaq people and the name Compaq was established as the common name for the whole organisation. In Sweden the staff increased from 130 to 760 people.¹⁰⁶

¹⁰⁰ Press Release January 26, 1998, www.compaq.se, "Compaq to Acquire Digital for 9.6 USD Billion Creates the Second Largest Computing Company in the World"

¹⁰¹ Computer Sweden. Dell satsar på större servrar, by Martin Wallström, May 15, 1998.

¹⁰² This model was also in stark contrast with Dell Corporation, which continued to sell hardware and instead had partnership agreements with a number of service suppliers such as Wang, Unisys, Decision One, and also with outsourcing companies like EDS and Andersen Consulting.

¹⁰³ Compaqs köp av Digital berör inte försäljningskanalen, Helene Reistad, IT-Branschen, No 3, 1998.

¹⁰⁴ Press Release January 26, 1998, www.compaq.se, "Compaq to Acquire Digital for 9.6 USD Billion Creates the Second Largest Computing Company in the World"

¹⁰⁵ www.digital.com/1997-12-10: Kenneth Olsen, a graduate in electrical engineering from MIT, founded Digital Equipment Corporation in 1957. Digital's first product was the inexpensive minicomputer, the PDP. Its successor, the VAX, established Digital as a computing powerhouse through much of the 1970s and 1980s. At its peak in 1989 Digital employed close to 130.000 employees and had worldwide revenues of USD 14 billion, over half which came from outside the United States. Between 1991 and 1994, Digital lost over 4 billion, and in 1994, under the management of Bob Palmer tried to bring the firm to profitability by reducing the headcount to less than 85.000 in 1995 and to sell noncore businesses. These drastic moves eventually made Digital profitable again, but it never regained the momentum of the 1980s.

¹⁰⁶ Press Release July 1998, www.compaq.se, "Lars-Erik Nilsson utsedd till VD för nya Compaq/Digital"

The Creation of the Customer Choice Model

The acquisition of Digital did not solve Compaq Corporation's problems in its core PC business where it mainly used resellers to reach the customers. In November 1998, Compaq announced that Compaq Corporation would start selling directly to customers on a large scale. The new service was called Compaq DirectPlus. This announcement came as result of a yearlong effort, which had been carried out in a special task group within Compaq Corporation. Compaq Corporation stated that the launch of DirectPlus was a part of its strategy to extend its leading market share position. Together with the launch of direct sales services, a new product line tailored to the private/home and small business segment and a comprehensive marketing effort in the USA, Compaq Corporation aimed to retake the initiative in the industry.

Compaq Corporation acknowledged that there were customers who preferred to buy directly, and approximated that the direct business models had in excess of 35 percent overall sales in the USA market in 1998. The decision on how to buy a computer would now rest with the individual customer. Compaq Corporation would offer customers the widest possible choice in term of distribution channels: direct, indirect via channel members, or a combination via virtual integration between Compaq Corporation and its channel members. Furthermore, customers could use the telephone, e-mail, fax, the Internet, and the personal sales force of Compaq or any of its channel members in any combination that it wanted. Compaq's information system infrastructure would keep track of the customer regardless of the approach taken by the customer, with one unified customer record database. Fittingly the new business model was called the Customer Choice Model (CCM).¹⁰⁷

In the fourth quarter of 1998, Dell Corporation's sales reached USD 5.17 billion on an annual basis, a climb of 38 percent compared with the same period the year before. Dell Corporation was growing three times faster than Compaq Corporation was. This put tremendous pressure on Compaq Corporation. The financial performance of Compaq Corporation started to deteriorate. This disturbed the board of Compaq Corporation, which always had prided itself on the strong record of Compaq Corporation as a growth company, which was continually outperforming its rivals.¹⁰⁸

¹⁰⁷ Compaq Unveils Customer Choice Model Adding Direct Sales to Channel Distribution, Launches Prosignia Brand and Direct Sales, Offering Unmatched Value for Small and Medium Business, Compaq Press Release, New York, November, 11, 1998.

¹⁰⁸ According to the Annual Report of Compaq Corporation return on invested capital had been 25.8 per cent in 1994, 22.8 per cent in 1995, 27.2 per cent in 1996, 60.1 per cent in 1997 and 13.5 per cent in 1998. Save for some brief periods and for special reasons, Compaq Corporation had never before in its history returned just 13.5 per cent on capital invested in the firm.

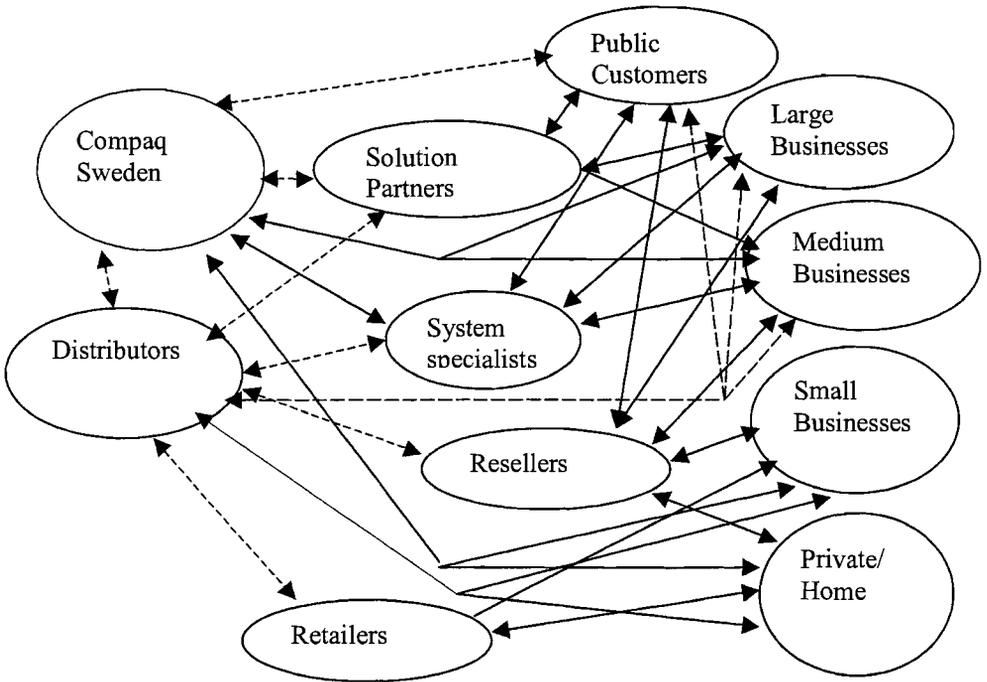


Figure 10.5 The Customer Choice Model¹⁰⁹

Dell Corporation was generating USD 14 million in sales a day online,¹¹⁰ while Compaq Corporation was generating less than USD 1 million online. During a press conference in London in early 1999, Compaq announced a new direction for the company. Compaq would refocus from the PC to the Internet. Eckhard Pfeiffer proclaimed that Compaq would become a leading Internet company: “We are not just a personal computer manufacturer, we deliver services and solutions and have become a complete IT-company”.

¹⁰⁹ In the Customer Choice Model the idea was to let customers decide whom they wanted to interact with. The customer would be directed and treated in a seamless fashion. It was up to Compaq Sweden together with its partners to create a sense of seamless integration. Towards this end prices and information would have to be standardised and distributed across all involved actors. Furthermore, all actors in the channel would have to share capabilities with each other. The arrows indicate instances and direction of capability acquisition. Dotted lines indicate indirect capability acquisition. Compaq Sweden focused hard on capability acquisition from customers, trying gradually to build up its own ability to acquire capabilities directly.

¹¹⁰ Personal Computers – Didn’t Deliver, Economist, February 20, 1999.

Eckhard Pfeiffer also claimed that the integration between Compaq and Digital was completed. Now the new constellation could be used for growth. Internet would be used both for selling products and services over the Internet, and also computers and services would be sold to firms that needed them to utilise the Internet efficiently. Compaq's new strategy presumed that all business would be linked to the Internet. Pfeiffer also outlined how Compaq would compete. First, Compaq would develop and adhere to standards. Compaq would co-operate with Microsoft and SAP, and incorporate their products into Compaq solutions. Second, Compaq would provide extended ancillary services like financing and maintenance and would do business with customers in all ways that they desired: by resellers, by phone, and by the Internet.¹¹¹

In January 1999 Compaq Corporation announced the formation of the Compaq.com business division. It was based on the CompaqDirectPlus service, which was extended and revamped. The aim was to establish Compaq Corporation as one of the leaders in online marketing and sales, i.e. to be fully competitive with Dell Corporation. The new division would become responsible for selling Compaq products, services, and solutions to customers over the Internet. This represented Compaq's second strategic announcement in the Internet arena within 3 months. "The focus of this new organisation was to leverage the Internet to not only sell systems and solutions, but also to build stronger relationships with customers - from personalised web sites for consumers to highly integrated extranets for global corporations," said Eckhard Pfeiffer.¹¹²

In Compaq EMEA the Customer Choice Model was launched in December 1999 and was to be introduced during 2000. With the Customer Choice Model, Compaq EMEA was separating the supply of products from the sale of products to put an end to supply chain inefficiencies. The Customer Choice Model was devised for volume products including commercial PC, servers, and storage products, but not for Compaq's range of consumer products. The aim was to reduce channel inventories, increase predictability of supply, and accelerate the speed to market of product and services. The Customer Choice Model would also minimise the number of times a product was handled enroute from Compaq to the customer. Key features of the Customer Choice Model included the creation of an Internet pricing policy, the introduction of an order referral model, and a new reward system for channel members. Compaq EMEA also introduced a new pricing policy in which the price advertised on Compaq.com was the reference price for customers across Compaq EMEA.

¹¹¹ Compaq vill bli världsbäst – Ny inriktning – Bolaget går från PC till Internet, Dagens Nyheter, Bo Keskikangas, February 18, 1999.

¹¹² Compaq Announces the Formation of Compaq.com Business Division to Drive Internet Sales of Compaq Products and Services – Compaq.com expands e-commerce reach, press release from Compaq, Houston, January 29, 1999

Year	Electronic commerce features
1986-	EDI links established with a gradually increasing number of suppliers.
1989-	EDI links established with a gradually increasing number of channel members.
1994	Intranet implemented for the USA. Expanded to EMEA and Sweden in 1996.
1995-	The launch of the first internet site, compaq.com, followed by a number of revisions and updates.
1996	The launch of a new Swedish site compaq.se, linked, but not integrated with compaq.com
1998	CompaqConnectExtranet implemented in Sweden
1999	Extranet premier pages to a limited number of large business customers including GM
2000	Over 100 Extranet premier pages

Table 10.11 The evolution of electronic commerce at Compaq Corporation.

Channel members also bought at the Internet price and earned a margin by providing value-added services ranging from delivery and support to consulting and integration. In addition, the channel members were paid a sales fee for sales made, and a fee for marketing activities conducted on the behalf of Compaq EMEA. Compaq EMEA also offered a fee to new and existing channel members who provided an order referral to Compaq. Furthermore, Compaq EMEA intended to expand the number and breadth of channel members.¹¹³

In essence the Customer Choice Model was an agent program where channel members, rather than buying a product, carrying it as inventory, and reselling it to the customer, instead received a commission on sales made. The commission from Compaq Corporation was compensation for their role in the sale. The difference was that the channel members did not take ownership of the product. The Customer Choice Model was a revamped agent program where Compaq Corporation offered channel members commissions on any sales leads referred to Compaq DirectPlus at Compaq.com.

With the Customer Choice Model, channel members obtained their compensation despite not handling the sale of goods. Compaq Corporation made the sale, collected the revenue, and paid the commission to the channel member. Compaq USA used the distributors to keep track of kickback and sales commission fees for channel members, mostly resellers. Compaq Corporation felt affection for the resellers and still believed in their critical role as customer relationship managers for Compaq Corporation.

¹¹³ Press Release Munich, December 7, "Compaq Redefines its Business with Fundamental Changes to How it Sells and Supplies Products and Services in Europe"

In the USA, Compaq Corporation carefully orchestrated the persuasion of resellers, inviting them to become agents. Channel members authorised by Compaq USA were invited to participate in the Customer Choice Model. Incorporating costs associated with handling the computers physically and financially, the channel members were given incentives to favour the Customer Choice Model, and to provide leads for direct sales. The calculation was that the resellers had to be financially stimulated to provide leads, instead of buying the computers themselves. The commission, though lower than the average gross margin reaped by channel members, was set to promote channel members to buy directly from Compaq USA instead of from the channel members. In addition, Compaq USA passed on some of the savings that accrued in the system to its channel members to maintain the relationship with them.¹¹⁴

The Prosignia Effort

In tandem with the launch of the Customer Choice Model, Compaq Corporation also announced its new Prosignia family of products. The Compaq Prosignia family consisted of aggressively priced desktops, notebooks, servers, and services, available directly from Compaq Corporation or through its network of channel members. This product line was an integral part of the new drive to achieve direct sales via the Customer Choice Model and was specifically directed to the private/home and small business segments. The Prosignia desktop, notebook, and server products could be custom-ordered in thousands of configurations through hardware choices such as processors, memory, hard drives, removable media, and multimedia tools.

In addition, Compaq USA offered small business customers Compaq CarePAQ, which included a broad range of service and support packages.¹¹⁵ The CarePAQ Services for the Prosignia product family was aimed at providing a "virtual" outsourced IT department for the Prosignia customer. Through CarePAQ support, Compaq offered customers a single point of contact for their basic and business-critical service and support needs. CarePAQ was a portfolio of packaged service and support services designed for easy purchase and administration. The scope and contents of the packages were greatly expanded with help from the Digital acquisition.

Furthermore, Compaq USA was able to segment service packages more carefully; letting customers chose different service packages more freely. Compaq CarePAQ included service and support, without the expense of maintaining an in-house technical staff. Compaq CarePAQ services also included warranty extensions, on-site hardware services, installation/start-up services, software support, and application support for more than 200 business software applications. For additional support, Compaq CarePAQ offered customers quick access to technical expertise 24 hours a day, 365 days a year.

¹¹⁴ Compaq Unveils Customer Choice Model Adding Direct Sales to Channel Distribution, Launches Prosignia Brand and Direct Sales, Offering Unmatched Value for Small and Medium Business, Compaq Press Release, New York, November 11, 1998.

¹¹⁵ Compaq expands Direct Offering with New Product Family Tailored for Growing Businesses, Compaq Press Release, Houston, November 11, 1998.

Small business customers could acquire Compaq Prosignia products, online services and CarePAQ support services through the channel of their choice, including direct via the Internet (or by phone, fax, e-mail) or from various channel members. Prosignia products purchased through Compaq DirectPlus would be shipped as fast as the next business day and on average within five business days. Choosing from a variety of industry-standard components, Compaq's configure-to-order program allowed customers to design and purchase systems from a selection of the latest computer technology that met their specific price and performance needs. Compaq had designed the new Prosignia desktop, notebooks, and servers to facilitate customisation at the manufacturing level.

The naming itself was a departure from earlier thinking. Before, Compaq Corporation had used different names for different product groups, now there was a name for a particular customer group, small businesses. In addition, Compaq factories had been re-tooled and re-planned to be able to support customisation and orders of one unit at a time. Compaq Corporation internal goal was not to let manufacturing costs per unit slip higher, while still being able to offer customisation on a par with Dell Corporation.

Before launching the new initiative, Compaq exposed its channel members to a massive information and persuasion campaign to keep channel members loyal. The small business segment was the segment where Compaq Corporation had been strong via its channel members, but where Dell Corporation had made substantial inroads. This realisation made channel members accept that they would now be confined to an agent model to earn revenue on the computers. Channel members felt that they had no choice. Compaq was a strong brand name with a leading position. Most resellers expected IBM and HP, the two other strong indirect selling firms, to follow Compaq Corporation. In addition, they were afraid to lose the business that they already had.

By picking out the small business segment, where the channel members felt pressure, Compaq Corporation was able to align its own interests with that of its channel member. Once Compaq Corporation had taken the decision to start the Prosignia effort, Compaq USA signed on channel members as "partners" in the process: "This new initiative from Compaq provides customers with choice. The new terms and conditions and reseller agent program announced today were jointly developed by Compaq and its partners, and we believe they will drive new business for Compaq and the channel," said Doug Antone, Executive Vice President of Ingram Micro.¹¹⁶

¹¹⁶ Compaq Unveils Customer Choice Model Adding Direct Sales to Channel Distribution, Launches Prosignia Brand and Direct Sales, Offering Unmatched Value for Small and Medium Business, Compaq Press Release, New York, November 11th, 1998.

The Reconfiguration of Channel members

The introduction of the Customer Choice Model soon ran into trouble. In February 1999, Compaq USA halted sales of personal computers to Internet-only retailers, a sign of the conflict between traditional retailers and online outlets.¹¹⁷ Leslie Adams, Compaq USA's director of consumer marketing, said the company had temporarily revoked authorisation for Internet-only retailers to sell its Presario line of PC products for a 90-day evaluation period beginning February 15. She said the suspension affected "less than ten" online retailers including Value America, Cyberian Outpost, CompuCom Systems' PCSave unit, and Buy.com. Ingram Micro and Tech Data, the two leading wholesale distributors of PCs, who sold Compaq PCs to Internet retailers, were asked by Compaq to quit selling PCs to the companies while Compaq USA evaluated its online sales strategy.

Internet retailers functioned as electronic order-takers for consumers using online catalogues, often counting on distributors like Ingram or Tech Data to ship products directly to consumers. In Europe, Ingram Micro acquired the Tulip factory in the Netherlands after it went bankrupt, to launch its white-box programme in Europe. The programme was called frameworks and made it possible for resellers and retailers to put their own brand on computers that were assembled by Ingram Micro. Sweden was made an important test market to fine-tune the concept and the target was set to capture the 25 percent of the market that was supplied by small firms selling both branded and non-branded computers.¹¹⁸ In many cases, this approach eliminated the need for new online retailers to carry inventory of their own, saving such companies up-front investment and allowing them to offer what were in effect wholesale pricing over the Internet. This fast-emerging sales avenue threatened the standard price mark-ups charged by bricks and mortar retailers.

The advent of the Customer Choice Model in the USA caused reconfiguration of the local Swedish distribution channel. By investing heavily in storage facilities the distributors became the most efficient points of storage in the channels. During 1998-99 Computer2000 increased its facilities from 5 000 to 9 000 m² and Ingram Micro from 6 000 to 10 000 m².¹¹⁹ In the USA, Ingram Micro had taken over a number of physical handling operations of computer hardware resellers during the 1990s. In Sweden this trend caught on when Ingram Micro and IMS Data struck an agreement in mid-1999, which would transfer IMS Data's physical product handling and convert them into an Ingram Micro operation. IMS' Göran Hjälte heralded the deal and claimed that it would enable IMS to finally compete with Dell Sweden:

¹¹⁷ <http://www.mercurycenter.com/svtech/reports/gmsv/index.shtml>, Posted at 7:06 p.m. PST Monday, February 22, 1999 Compaq suspends consumer PC sales to Web retailers, Eric Auchard, Reuters.

¹¹⁸ Ingrams datorer testas på Sverigemarknaden, Anja Edvardsson, IT-Branschen, No 14, 1999.

¹¹⁹ Distributörerna breder ut sig, Pia Rehn, IT-Branschen, No 8, 1998.

“The new deal implies that our suppliers, distributors and we as resellers do what each firm is best at. During the last years, all actors involved in the indirect channel have assumed tasks that do not suit them. We now see that the right firm do the right things and it really feels like a better alternative to the direct channel where one firm does everything on its own.”¹²⁰

The deal was worth about SEK 4.5 billion over 3 years and would reduce IMS Data’s business risk for inventory considerably. IMS would continue to sell computers as before, but would instead receive a commission. IMS proclaimed that this was a response and an alternative to direct selling firms like Dell Corporation. As a result Ingram Micro quickly increased its turnover in Sweden. The deal implied that over 50 people would lose their jobs. The transfer of the physical flow from IMS to IngramMicro marked the end of a long process that had started in the early 1990s, in which resellers had consolidated into larger resellers like IMS, Martinsson, PCLan, and Alfaskop.¹²¹

In early 2000 TCM, another reseller followed suit by transferring SEK 1.8 billion of computer sales to Ingram Micro.¹²² As a result of these deals the distributors grew substantially faster than the overall market.¹²³ The Customer Choice Model transformed the resellers into agents, since their margins on the computers themselves had been reduced to nothing. Since the system was administrated and controlled by the distributors, causing disparity, confused pricing, internal competition, and infighting among the resellers, this arrangement was becoming a costly and cumbersome vehicle for Compaq Sweden to reach its customers. Compaq Sweden wanted to recapture the control over the distribution channel by setting end prices and still relying on the distributors to use their information systems to handle the physical handling of the computers as well as the accounting of agent fees. By introducing standardised pricing across channels, the customer price would be the same regardless of which distribution channel the customer used.¹²⁴

The Customer Choice Model and Electronic Commerce

By early 2000 Compaq Sweden was able to offer its customers BTO and CTO capability in Sweden when selling Prosignia. Previously Compaq Prosignia had been delivered in three standard configurations, but it was now possible to buy a personally customised Prosignia directly from Compaq Sweden. Channel members still offered the standard configurations (of Prosignia) to customers and were not able to offer personal customisation.¹²⁵

¹²⁰ IMS Data byter skepnad, Peter Widén, IT-Branschen, No 14, 1999.

¹²¹ Hausse i IMS efter Avtal, Thomas Dietl, Dagens Industri, September 8, 1999.

¹²² TCM dumpar logistiken på Ingram Micro, IT-Branschen, Maya Uusitalo, No 3, 2000.

¹²³ Kanalen dödsdömd? Inte än. Pia Rehn, IT-Branschen, Nr 1, 1998.

¹²⁴ ÅF är oroliga inför Compaqs nya e-handel, Fredrik Andersson, IT-Branschen, No 1, 2000.

¹²⁵ Compaq erbjuder möjlighet att skräddarsy datorer via Internet, Press Release, Stockholm, January 25, 2000.

The Prosignia was an exception. In the large business segment Compaq Sweden was still dependent on its channel members to offer customisation, and in the consumer segment it did not offer customisation. Regarding product groups, only the Prosignia commercial desktop series was offered via Compaq.se. Trying to strengthen and sharpen the ability to offer customisation after the sale, local channel members were encouraged to specialise on particular customer groups and geographical areas.

Compaq Corporation had worked several years to acquire skills to offer BTO and CTO. Its key business relationship was with Pcorder.com. Ross Coley, who had been former vice president of Compaq, led Pcorder.com. In 1996 Ross Coley was given the assignment to re-engineer Compaq's distribution strategy, in one of many similar programs during the 1990s and was subsequently recruited to PcOrder.com. Until Ross Coley left Compaq, PcOrder.com had only worked with computer hardware firms that were not relying on the distribution channel for its distribution. The business case that pcOrder.com put forward to its customers, was that it allowed assemblers and manufacturers to bypass the reseller by offering Internet based configuration capability. When Ross Coley came to pcOrder.com he gradually changed the focus to a more friendly approach towards the resellers, signing up many of them as customers of PcOrder.¹²⁶

PcOrder.com offered Compaq Corporation the possibility to integrate configuration in its Internet sites and made it possible to continue the transformation of Compaq Corporation, making Compaq Corporation order driven instead of forecast driven. With the help of PcOrder.com's software for order routing and inventory management, enterprise clients could configure systems online at pre-negotiated prices. Compaq Corporation in subsequent steps took help from PcOrder.com to create Extranet-based pages for its large business customers. It was also offering resellers the option to co-brand their site together with Compaq Corporation.¹²⁷

Compaq Corporation decided that it had to master configuration. In a third step PcOrder.com received an order to consolidate electronic commerce initiatives within Compaq Corporation, and unify them into one set of configuration engines for all customer segments. PcOrder.com would provide Compaq with electronic product catalogues, cart tools, and manufacturing databases. PcOrder.com claimed that this would enable both direct and indirect online sales in one coherent setting, with one seamlessly integrated supply chain.¹²⁸

¹²⁶ Compaq's channel champion: Ross Cooley, Eric Hausman, Computer Reseller News, Manhasset, November 15, 1998.

¹²⁷ Compaq's extranet expands, Aaron Ricadela, Informationweek, Manhasset, July 5, 1999.

¹²⁸ PcOrder strengthens Compaq link, David Jastrow, Computer Reseller News, Manhasset, July 5, 1999.

To its surprise Compaq Sweden found that resellers did not want to co-brand sites. Compaq Sweden had hoped that it would be able to reconnect its resellers with its new CTO capabilities. In many cases resellers reluctantly had become brokers, earning commissions on behalf of the buyers, as they facilitated comparison between brands. The resellers were no longer ready to follow the instructions of Compaq Sweden, since it would dilute the trust that they were trying to build with its customers. Most resellers did not want to risk taking on inventory again and had no resources or capabilities to do so. Compaq Sweden tried to reduce the tension in the channel by claiming that Sweden was different compared to the US. It argued that in Sweden it had an Internet channel for PCs, but that it was only directed to small firms and only contributed marginally to sales, and that there were no ambitions to increase sales via this channel at the time.¹²⁹

Channel members were not convinced. Instead, resellers were and became increasingly loyal to the distributors, which offered resellers the CTO and BTO capabilities on their own computers, and of Compaq, HP, IBM, and other top branded computer hardware manufacturers as well. By consolidating many brands, and by offering CTO and BTO, as well as financing reseller operations, the distributors offered a strong value proposition to downstream channel members. In response to the reluctance of resellers to co-brand sites, Compaq Sweden started to push its own direct channel by withdrawing the price protection programmes. During 2000 the duration of price protection was reduced from 60 to 15 days and it made the distributors reluctant to take on inventory and forced them to raise prices to downstream channel members, making the direct sales channel more competitive.¹³⁰

The distributors were also facing new competition that they had not anticipated. Logistic firms based in Sweden or with representation in Sweden, like TNT, DHL, The Swedish Mail, ASG, and Bilspedition started to investigate if they could use the skills they had built up in serving direct selling firms like Dell and Gateway2000 to replace the distributors. The logistic firms argued that the storage service provided by the distributors was unnecessary and that it was more cost efficient to bypass the distributors and ship the computers directly to the customers. In their view, there should be no storage other than the means of transportation, reducing waste and inventory costs further. Some logistic firms were even contemplating moving into installation.

¹²⁹ Brakförlust för ÅF när Compaq säljer direkt, Johan Cooke, IT-Branschen, No 7, 2000.

¹³⁰ Distributörerna har fått nog – försämrat prisskydd drabbar branschen, IT-Branschen, Mattias Malmqvist, No 9, 2000.

The distributors teamed up with the logistics firms and separated customer contact and material flow. It outsourced the physical handling to the logistics firms by allowing them to ship computers directly, but safeguarded the customer relationships.¹³¹ In the emerging free-for all Ingram Micro decided to sell computers directly to some customers under special long-term agreements, in effect bypassing its own customers, retailers, and resellers. The customers were Uppsala and Umeå University and implied lower prices. The agreements received strong criticism from channel members buying from Ingram.¹³²

The distributors were also facing competition for control of the channel by large retail chains like Onoff, City Stormarknad, El-Giganten, and Siba. Together they had a dominating market position in consumer PC retailing, and were looking for ways to reduce their purchasing prices. Historically they had bought from the distributors. The retailers were not impressed by the logistics and the “price-list-printing” of the distributors, which they considered less valuable as they themselves had built up their own logistical systems. To bring down prices they started to purchase batches of computers directly from Compaq Sweden and the other manufacturers, bypassing the distributors. By establishing direct contact with Compaq Sweden, the retailers could skip the margin charged by the distributors, becoming more competitive compared to smaller retailers, which were not allowed to buy direct.¹³³

Period	1999	1998	1997	1996	1995
Turnover, MSEK	6.225	6.367	2.974	2.410	2.360
Balance Sheet Total, MSEK	1.750	1.858	530	640	599
Profit, MSEK	238	119	34	78	104
Solvency, percent	55	41.2	44.9	33.1	25.7
Return on Total Capital, percent	13.6	6.40	6.50	12.3	17.4

Table 10.12 The financial performance of Compaq Sweden during the late 1990s¹³⁴.

¹³¹ Kan han köra om distributörerna? Joakim Karlsson, IT-Branschen, No 11, 1999.

¹³² Chock för återförsäljarna: Ingram säljer direkt, Fredrik Andersson, IT-Branschen, No 2, 1999.

¹³³ ÅF-kedjorna ratar distributörerna, Fredrik Arvidsson, IT-Branschen, No 18, 1999.

¹³⁴ The financial performance of Compaq Sweden During the late 1990s the acquisition of Digital contributed substantially to turnover and profits in Sweden. Compaq Computer AB, Annual Report, 1999.

The Quest for a New Business Model

The gradual discovery towards the end of 1999 by both sides i.e. by Compaq Sweden as well as by channel members, that the relationship was challenged, made it easier for Compaq Sweden to move more forcefully and openly to direct customer relationships.¹³⁵

Compaq Sweden reorganised the organisation to become customer driven. By using the sales force that came with the Digital acquisition Compaq Sweden was able to establish direct contact with its business customers. With Compaq.se it became possible for Compaq Sweden to sell directly to customers and it established transparent prices to avoid confusing customers. During the autumn of 1999 Compaq Sweden reduced prices by up to 30 percent to ensure that the indirect channel, which it still relied on, would be competitive with Dell Sweden.¹³⁶

Compaq Sweden also benefited from the development of the Prosignia model and improving BTO and CTO capabilities. But Compaq Corporation was weak in the Internet sphere. On April 13, 1999, Compaq unveiled a program to use its large computers and service skills to get customers on the Internet. During the spring of 1999 the situation became acute when servers - Compaq's stronghold and key money earner - were slowing down. Meanwhile Compaq Corporation was occupied with integrating the Digital acquisition. Compaq Corporation was also struggling to keep up with changes in its core PC business. The most important was direct selling over the phone and on the Internet. In the first quarter of 1999, Ziff-Davis Market Intelligence claimed that Dell Corporation took the lead in sales of PCs to corporate customers, grabbing 21 percent compared to Compaq's 18 percent.¹³⁷

In a drastic move, Compaq USA slashed the number of North American channel members that would be allowed to buy directly from Compaq Corporation in the USA from 39 to 4. The new initiative was called the Distributor Alliance Program. The idea was to make the channel as efficient as the Dell distribution system.¹³⁸ In Europe, a similar move was contemplated which would reduce the number of distributors within EMEA from 100 to 10.¹³⁹ The new initiative would reduce transportation costs, speed final computer assembly, and bring newer computers faster to the customers¹⁴⁰.

¹³⁵ Compaq säljer direkt i Sverige, Fredrik Arvidsson, IT-Branschen, No 11, 1999.

¹³⁶ Snart struntar vi i att sälja Compaq, Peter Widén, IT-Branschen, No 11, 1999.

¹³⁷ For Compaq: A Different Kind of Y2K problem. Business Week, April 26, 1999.

¹³⁸ Compaq Reshapes channel Landscape, Craig Zarley, Computer Reseller News, Manhasset, May 10, 1999.

¹³⁹ Compaq säljer direkt i Sverige, Fredrik Arvidsson, IT-Branschen, No 11, 1999.

¹⁴⁰ Compaq trims distributors, but will lose services chief, Matt Hamblen, Computerworld, Framingham, May 17, 1999.

The crisis enabled Compaq USA to streamline the physical goods flow further. The established contact with Compaq USA was moved for smaller channel members. Suddenly they had to do business via four selected channel members, which caused irritation among the channel members and made them look for new brands to promote harder¹⁴¹. Those channel members who stayed on were encouraged to buy from all four-channel members with direct access to Compaq USA, to force down the prices and maintain efficiency¹⁴².

In early 2000, Compaq Corporation obtained the opportunity of further augmenting its capabilities for servicing customers directly. Inacom, one of the leading distributors in the USA, had had financial and operational troubles for a prolonged period.¹⁴³ To offset its troubles Inacom decided to sell a large part of its operations to Compaq Corporation¹⁴⁴. Compaq USA represented more than 40 percent of Inacom's business, so Compaq Corporation felt obliged to acquire Inacom to maintain sales and customer relationships. The idea was to use Inacom infrastructure to turn around the struggling commercial PC business and obtain a direct channel for selling directly to businesses. Paradoxically, IBM and HP would continue to be customers of the Inacom unit bought by Compaq Corporation. Peter Blackmore, senior vice president at Compaq Corporation of worldwide sales and marketing commented:

"Under today's deal, Compaq will pick up 2500 employees, four configuration centres, access to Inacom's customer list, a call centre and, Inacom's order management, order tracking and e-commerce capabilities."¹⁴⁵ It was the complexity of building the front-end and back-end systems that drove Compaq to the acquisition route.

Inacom capabilities would strengthen Compaq Corporation to better support online customer configuration, purchasing, and tracking of its computers¹⁴⁶. Inacom was not the only USA distributor to be in severe trouble. The margins continued to be shrink, and by 1999 they were approaching zero. Only by providing financial incentives and administrative services could the distributors stay in the loop, as more and more channel members tried to buy directly from Compaq Corporation. Ingram Micro, with worldwide sales of USD 29 billion, in 1999 implemented a fee-based system to assemble, ship, and hold inventory for PC makers and invested heavily in e-commerce fulfilment. TechData, with sales of USD 17 billion, expanded its assortment to over 75 000 articles, including routers and PDAs.¹⁴⁷

¹⁴¹ Compaq's distributor policy surprises VARs, Jennifer Hagendorf, Computer Reseller News, Manhasset, Jun 28, 1999.

¹⁴² Compaq channel revamp continues, Elliot Markowitz, Computer Reseller News, Manhasset, September 6, 1999.

¹⁴³ Inacom files with court for Chapter 11 protection, Carolyn April, InfoWorld, Framingham, June 26, 2000.

¹⁴⁴ Inacom charts new course, set sights on e-business, Jerry Rosa, Computer Reseller News, Manhasset, January 17, 2000.

¹⁴⁵ Compaq buys distribution assets from Inacom, Michael Kanellos, CNET news.com, January 4, 2000.

¹⁴⁶ Compaq to acquire Inacom's custom assembly assets, Paul McDougall, Informationweek, Manhasset, January 10, 2000.

¹⁴⁷ Requiem for a business model, Lynn Cock, Forbes, New York, July 24, 2000.

The acquisition of Digital proved a costly and difficult task. By most measures Compaq Corporation moved quickly and decisively to integrate the two firms. Yet it was difficult for Compaq Corporation to find revenue growth and strengthen its market position. The problems with the Digital acquisition and the poor relative performance of Compaq compared to Dell and IBM eventually forced Eckhard Pfeiffer out of his job. Chairman Benjamin Rosen, together with two other board members installed themselves in the office of the executive. After a long fruitless search, Michael Capellas, the CIO at Compaq was named new president.¹⁴⁸ He had been named COO after Eckhard Pfeiffer was ousted and was made CEO when Compaq's board could not find anyone else to take up the challenge.¹⁴⁹

The new objective of Compaq Corporation was to maximise the benefits of e-business for Compaq's customers by focusing on complex enterprise applications and solutions that could be implemented quickly and efficiently. Michael Capellas launched a new five-point programme to change Compaq, which involved 1) The formation of three global business groups, each with a clear customer focus. 2) Reinforcement and upgrading of the role of the worldwide sales and marketing organisation, with one front to the customer. 3) Separate corporate quality and customer satisfaction organisation that reported direct to Capellas. 4) A separate dedicated organisation to build e-commerce capabilities. 5) A new supply chain to reduce cycle times and to increase predictability.¹⁵⁰ The organisation to build e-commerce capabilities focused on integrating Compaq.com with the rest of the firm. After less than 6 months, Capellas decided that electronic commerce had to be tightly integrated with all aspects of Compaq operations. In effect Compaq.com was folded into the general organisation before it got off the ground as a separate entity.

The formation of three global business groups was a radical change. Traditionally Compaq Corporation had maintained product divisions as the key organisational unit, complemented with separate functions for sales and manufacturing. For instance, in 1995 Compaq Corporation maintained four product divisions: 1) The system division for servers, 2) The desktop PC division for commercial desktops, 3) The portable PC division for notebooks, and 4) The consumer products division.¹⁵¹

The name of product divisions changed over time, but they were the central power structure within the firm. As Compaq Corporation added product groups the number of product divisions was increased. The 1999 reorganisation launched by Capellas implied that three global business groups replaced the product divisions: 1) Enterprise solutions, 2) Commercial Personal Computing, and 3) Consumers. During 2000, Compaq Corporation realigned the operations of its enterprise solutions into enterprise computing and global services, making it four global business groups.¹⁵²

¹⁴⁸ CIO stands for Chief Information Officer, COO stands for Chief Operating Officer, and CEO for Chief Executive Officer.

¹⁴⁹ Compaq's Rockin' Boss, *Business Week*, September 9, 2000.

¹⁵⁰ Capellas, M.D. Letter to customers, August 19, 1999. Compaq.com.

¹⁵¹ Annual Report for Compaq Corporation, 1995.

¹⁵² Form 10-K Compaq Corporation for fiscal year ending December 31, 2000.

Epilogue

Compaq Corporation decided that it wanted to grow rapidly in storage products. This field was dominated by EMC. The need for storage was growing rapidly and it was considered a market that was recession-proof. Compaq and IBM Corporation entered into an alliance for networked storage. The key point of the alliance was to make the storage equipment of Compaq and IBM compatible and make it possible to buy storage equipment from both Compaq and IBM and integrate them, making previous investments in storage more valuable for customers. It was also an attempt to create an industry standard in the storage equipment market.¹⁵³ The alliance implied that all channel members of both firms could sell both brands in parallel.¹⁵⁴

In millions (USD) /Year	2000	1999	1998
Enterprise Revenue/Income	14.316/2.140	12.974/1.201	10.498/948
Global Services Revenue/Income	6.993/944	7.162/1.148	3.990/776
Commercial PC Revenue/Income	13.136/289	12.185/(448)	11.846/(46)
Consumer Revenue/Income	7.586/170	5.994/262	4.932/183
Other Revenue/Income	352/27	210/(281)	(97)/(115)
Total Revenue/Income	42.383/3.570	38.525/1.882	31.169/1.746
Income (loss) before and income taxes	875	934	(2662)

*Table 10.13 Financial data by business segments for Compaq Corporation.*¹⁵⁵

¹⁵³ Compaq och IBM i allians för nätverksbaserad datalagring, Compaq press release Stockholm, June 10, 2000.

¹⁵⁴ IBM och Compaq i samarbete, Maya Uusitalo, IT-Branschen No 1, 2000. These data exclude unallocated shared expenses, restructuring cost and related activities. The last row indicates group income. Figures within a parenthesis indicate a loss.

¹⁵⁵ Compaq Corporation Annual Report, 2000.

Compaq Corporation entered the storage equipment market in the same way as it entered the server market. By first imitating and emulating the competitors, Compaq Corporation could deliver similar performance at a fractional price. Eventually, Compaq broadened the product portfolio and increased production, driving prices down hard. In storage Compaq Corporation did this three times as it entered the DAS (Direct Attached Storage), SAN (Storage Area Network) and NAS (Network Attached Storage) markets. Compaq Corporation also took care to make its products compatible with the important Windows, Unix, and Linux standards, making the technology independent of the software employed.¹⁵⁶

Overall, during 2000 Compaq Corporation generated less than 50 percent of its revenue from its consumer and commercial PC divisions. Servers, storage, software, and services made up more than 50 percent and grew faster in terms of revenue. The commercial PC division was bleeding. In an interview, Michael Capellas argued that IBM was the model for Compaq Corporation to emulate and he expected the two firms to become increasingly similar over time. According to Capellas, Compaq Corporation had given up the consumer market to Dell Corporation and saw no opportunity to make money on the PC, since Dell Corporation was so focused on price competition.¹⁵⁷

Region/Year	2000	1999	1998
Americas	18.966 (44.5%)	17.351 (45%)	13.981 (45%)
EMEA	14.178 (33.5%)	14.420 (37.5%)	11.929 (38%)
Asia	9.239 (22%)	6.754 (17.5%)	5.259(17%)
Net Total Revenue:	42.383	38.525	31.169

Table 10.14 Net revenue by region for the 1998-2000 in USD millions and per cent.

During 2000, Compaq Corporation decided that it should follow Intel closely, launching products quickly on the latest technology. In addition, Compaq Corporation introduced an accelerated development schedule, aimed at putting together new products in less than 100 days, compared to the more typical 18 months in the industry, leaping ahead of Dell, HP, and IBM.¹⁵⁸

¹⁵⁶ Compaq slår sig in på datalagringsmarknaden värd 6.5 miljarder dollar med den nya TaskSmart N2400, Compaq press release Stockholm, August 7, 2000.

¹⁵⁷ Compaq hoppas på den mobila världen, Martin Wallström, Nyheter-IDG, February 9, 2001.

¹⁵⁸ Research firms say Compaq back on track, Joe Wilcox, CNET News.com, March, 20, 2000.

Compaq Corporation also started to reduce the number of products in the product lines, systematically reducing the number of complex configurations, particularly among PCs. The server division was also being trimmed in terms of both technologies and products. In parallel, Compaq Corporation broadened the product mix, adding printers, launching iPaq, which were “light” computers working mainly as terminals emphasising connectivity and network performance, and additional handheld PocketPCs.¹⁵⁹

The iPaq quickly became a success. It derived its heritage from the notion of “thin clients” which challenged the client/server-computing model, which had put the PC at its core. As many firms rushed to become electronic commerce businesses applications and data ran on central servers, rather than on PCs. With little asked from of the PC other than to provide access to these servers by means of a browser, the importance of the PC was diminishing. Selling for about half the price of a PC and offering strong opportunities to standardise software and reduce maintenance, many large firms started to opt for the iPaq.¹⁶⁰

Meanwhile, Compaq EMEA was gradually introducing direct customer contact. Depending on customer segment the share of direct sales was increasing. Compaq EMEA set a goal of making 40 percent of its total business and 60 percent of commercial PCs directly with its customers by the end of 2000.¹⁶¹

Compaq Sweden continued to manage the channel members with great energy. In a gathering of over 1000 people in May 2000 in Stockholm, Compaq Sweden presented Compaq Awards to the channel members that it wanted to reward for good work done. For the year a new category was created “e-reseller of the year”.¹⁶² In May 2000 Compaq Sweden started to offer Presario machines via Internet based resellers. This was the first time that Compaq Sweden sold consumer PCs via this channel. The first vendor, MicroWarehouse was also allowed to sell a broad assortment of high-end PCs. Compaq Sweden explained the new move:

“Our partners possess much knowledge about our products and can give the consumer extra value which we ourselves cannot offer. MicroWarehouse is the first one, but we expect our resellers to sell Compaq products via the Internet shortly.”

Ove Söderberg, Compaq Sweden.¹⁶³

¹⁵⁹ Compaq launches new products in crowded field, Joe Wilcox, Staff writer, CNET, news.com, June 19, 2000.

¹⁶⁰ A Bad Business, The Economist, July 3rd, 1999.

¹⁶¹ Brakförlust för ÅF när Compaq säljer direkt, IT-Branschen, Johan Cooke, No 7, 2000.

¹⁶² Compaq prisar framgångsrika partnerföretag, Compaq press release, Stockholm May 19, 2000.

¹⁶³ Compaq erbjuder bredare sortiment via Internet partners, Compaq press release Stockholm, May 24, 2000.

Compaq Sweden was doing well in Sweden. Compaq Sweden was the leading company, capturing a 33 percent market share. In the market for PC servers Compaq Sweden had captured more than 50 percent of the market.¹⁶⁴ During the third quarter of 2000 Compaq Sweden increased sales by over 24 percent with the overall market growing at 16 percent.¹⁶⁵ Compaq Sweden launched a new support facility on the Internet, similar to that of Dell Sweden, with online resources and system documentation.¹⁶⁶ Compaq Sweden also managed to obtain approved status from Statskontoret, again making Compaq Sweden a preferred supplier to governmental agencies. This market was worth more than SEK 4.5 billion per year and the sales department of Compaq Sweden were determined to capture a substantial portion of this segment.¹⁶⁷

Compaq Sweden started to restructure its operations in Sweden. In December 2000, Compaq Sweden sold its repair-shop agreements to IT Workshop, relieving itself of hardware support.¹⁶⁸ Compaq also expanded its operations in Karlstad, gradually taking over Ericsson staff across Sweden as a part of large outsourcing deal with Ericsson. By mid 2001 Compaq Sweden was expected to take over the responsibility for over 20 000 users in Sweden. The contract with Ericsson was valued at over 1.3 billion SEK. If the outsourcing deal became successful, Compaq Corporation would assume global responsibility for hardware, software, and support of PCs at Ericsson around the globe.¹⁶⁹

The success of Compaq Sweden led to a management reshuffle, where additional Compaq Sweden executives were moved to Munich to work for Compaq EMEA. Still, most of the management team of Compaq Sweden had worked 5-10 years for Compaq Sweden and stayed put.¹⁷⁰ Shortly thereafter, Compaq EMEA launched a new wireless centre in Stockholm for the development of Compaq wireless solutions, services, and products, driving Compaq EMEA's push into wireless technologies, by building a community of over 300 specialists across EMEA.¹⁷¹

¹⁶⁴ Compaq tar täten i PC-försäljningen under andra kvartalet, Compaq press release Stockholm, June 29, 2000.

¹⁶⁵ Compaq tar täten när PC-försäljningen ökar, Compaq press release Stockholm, September 26, 2000.

¹⁶⁶ Compaqs nya webbplats ger användare services@clickspeed, Compaq press release Stockholm, November 22, 2000.

¹⁶⁷ Statskontoret tecknar ramavtal med Compaq, Compaq press release Stockholm, November, 2000.

¹⁶⁸ Compaq säljer verksamhet till svenska IT Workshop, Compaq press release, December 6, 2000.

¹⁶⁹ Compaq expanderar sin IT-verksamhet i Karlstad, Compaq press release, December 13, 2000.

¹⁷⁰ På nya poster inom Compaq, Compaq press release Stockholm, October 25, 2000, and compaq.se.

¹⁷¹ Compaq Launches Wireless Centre Showcasing end-to-end business solutions centre, Compaq press release Munich, November 27, 2000.

Dell Sweden

“Our only religion is the direct model” Kevin Rollins, vice chairman of Dell Computers.¹⁷²

The Direct Sales Model 1983-1990

The Student Salesman

Dell Computer Corporation, originally Personal Computer, was a relatively late entrant in the computer hardware industry. The firm was started in Austin, Texas in 1983.¹⁷³ Not until 1989 did the firm establish operations in Sweden. Michael Dell started his company on the observation that computer salesmen often knew less about the PCs they were selling than their customers. He believed that he could offer better service over the phone - as well as better prices, by selling dealers excess inventory by mail.¹⁷⁴ When the PC became popular around 1982, IBM established a system where the resellers received rebates on a gliding scale depending on the number of computers they bought. Many resellers bought as many computers as they could. What they could not sell, they would sell at 15 percent below the list price on the grey market for PCs.¹⁷⁵

In 1983, Michael Dell started working for short stints in the computer business. While studying at the University of Texas, he bought computers from IBM, upgraded them and then started knocking on doors in Austin, his hometown. In the spring of 1984, to his parents despair, he started to consider leaving university. Their dream was for Michael to become a doctor and Michael promised to continue his studies if the summer vacation would prove bad in terms of sales. But during his first four free weeks Michael sold computers worth over USD 180 000. Dell realised that instead of upgrading old computers he could earn more by buying the components and assembling the computers himself. When he received a declared interest for a computer, he would locate it, and make sure it got to the new owner. Right from the outset, the business was not primarily one of assembling computers, but of acting as a middleman, similar to a reseller, brokering computers that previously had found no buyer.¹⁷⁶

¹⁷² America's Most Admired Companies, Eryn Brown, Fortune, March 1, 1999.

¹⁷³ Dell Computer Corporation is a Delaware corporation that was incorporated in October 1987, succeeding to the business of a predecessor Texas Corporation (also named Dell Computer Corporation) that was originally incorporated in May 1984. Based in Round Rock, Texas, Dell conducts operations worldwide through wholly owned subsidiaries.

¹⁷⁴ The Resurrection of Michael Dell, Fortune, September 18, 1995.

¹⁷⁵ Dell, M. and Fredman, C. Direct From Dell. Strategies That Revolutionised an Industry. Harper Business, New York, 1999.

¹⁷⁶ *ibid*

The formula was to first take the order, then the assembly, followed by the immediate transport to the buyer. From the outset, Dell Corporation acquired the habit of offering both BTO and CTO as two central parts of the offering. No unit would be produced until Dell Corporation had received an order. In addition, it would be produced according to the specifications of the end-user. This firm linkage between sales and production made production a sub-process to the selling process and instigated the discipline: no unit would be built to stock (BTS).

In Dell Corporation's case, the business model emerged as a result of his lack of financial and physical resources. Customers had to pay upon delivery, since Michael Dell lacked the liquidity to finance his customers. There was no stock, since he had no room for it in his student room. Michael Dell maintained contact with his customers by phone, and there were no offices or showrooms or resellers. As a result, complaints, new needs, and questions about what to buy were mixed in the contact that was established between Michael Dell and his customers.¹⁷⁷

Dell Corporation, formed formally in 1984, initially relied on students and other marginal private customers for sales. These customers were price sensitive and at the same time had time to install and make the computers work. These customers did not care about brands and did not mind the lack of a store or a reseller. They wanted the computer as cheaply as possible and were prepared to accept the uncertainty of buying from a small, unknown firm. The limited purchasing power of customers gave Dell Corporation the opportunity to find a loyal cadre of customers. Since these customers were considered marginal by other computer hardware firms, Dell Corporation was left relatively alone in the segment.¹⁷⁸

The Creation of the Direct Sales Model

A small number of firms, established similar operations, notably Gateway2000 that was founded in 1985. In many ways Dell and Gateway2000 were resellers, with the distinction that they were buying components and made the final assembly themselves under their own brand. Both firms initially found marginal customer groups like private people that wanted to get inside their own computers, knew about computers, and were attracted at the thought of being their own installation and service technicians. They therefore did not worry about not seeing the computers before buying. Nor did they expect the computer to work perfectly. These customers were not that sensitive to failures. In some cases this was something that the buyer looked forward to fixing. Both firms had weak brands, but they were the choice for customers who wanted to buy clones and favoured an USA brand.

¹⁷⁷ Dell, M. and Fredman, C. *Direct From Dell. Strategies That Revolutionised an Industry.* Harper Business, New York, 1999.

¹⁷⁸ *ibid*

Dell Corporation sales grew rapidly during the late 1980s from a low base, but wanted to grow even faster. It considered various downstream channel members that could sell Dell computers. It found channel members, but they were mostly weak and second-rate resellers who could not drive sales. At the same time, Dell found itself locked out of the established skilled resellers used by the other computer firms. These firms had already built up their relations with resellers and could see no reason to work with Dell Corporation, who sold direct to customers and thus could take away the customer at any time.

During the late 1980s, Dell USA together with the marketing agency Goldberg Moser O'Neil developed ads that featured a Compaq and a Dell machine with identical or similar price/performance showing the lower cost of the Dell model. By featuring Compaq and Dell computers side by side Dell Corporation singled out Compaq Corporation as its main competitor. The computers that Dell Corporation sold were not notably different from those of its competitors. In addition, Dell Corporation was gradually able to position itself as similar or even comparable to Compaq Corporation, which was the market leader.

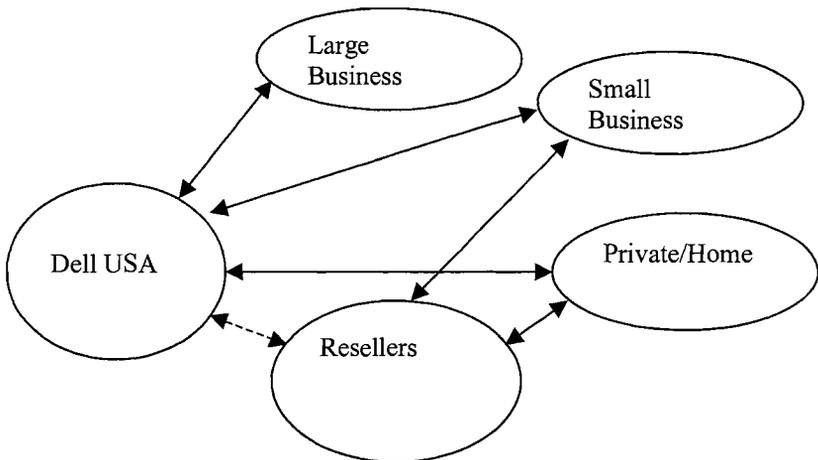


Figure 10.6 The Direct Sales Model¹⁷⁹

¹⁷⁹ The Direct Sales Model was characterised by a focus on the private/home and small business customers, with some gradual reorientation towards large businesses at the end of the period. In the USA, Dell relied on a combination of resellers and direct customer contact. In Sweden, Dell started to focus on large businesses from the outset, escaping the Direct Sales Model and the reseller contacts. The arrows indicate instances and direction of capability acquisition. The dotted line indicates indirect capability acquisition from customers. Hence, Dell USA acquired capabilities directly from its customers as well as indirectly via resellers.

The European Entry

When entering Europe in the late 1980s, Dell Corporation transferred its USA concept to Europe. A centre to manage Europe was established in Bracknell, UK, called Dell EMEA. During the build up of its European operations, Dell Corporation and Dell EMEA were constantly experimenting with the structure of its organisation and operations. During the start-up phase each local EMEA market imported kits from Dell USA and then performed basic BTO and CTO upon receiving a firm order by fax or phone. In Sweden this was carried out in Uplands Väsby. Dell Sweden used light trucks to ship the computers to the customers. Dell Sweden focused on about 10 desktop models, referred to as “vanilla products” because of their standard features.

When Dell EMEA started to generate enough demand, a new manufacturing facility was established in Limerick, Ireland in 1991, to provide for the whole European market, in the same way as the Austin factory served the whole USA. Dell EMEA arranged for shipment and logistics from Limerick to customers across EMEA, laying the foundation for selling computers in Europe. When Dell Corporation established the manufacturing facility, it was constructed somewhat differently compared to the USA. In particular it relied on suppliers to establish operations nearby geographically to shift inventory costs backward in the channel. Functions and tasks were continuously being moved, partly to handle growth, but also to find better ways to support the market and handle growth.

The internationalisation process in Europe forced Dell Corporation to think through its business model. Dell Corporation regarded Europe as a more conservative, less developed market with national peculiarities and standards. The distribution systems for computers in Europe were more complex and the distribution channels were longer and more diverse compared to the USA. This led Dell Corporation to make a start in the UK in 1987 where it expected its business model to work, given the relative maturity and penetration of computers as well as the perceived relative openness of these markets.¹⁸⁰

The office in Sweden was established in 1989 and was opened for business in February 1990. For the Nordic region Stockholm became the important node, servicing Finland, Denmark, and Norway. Dell Corporation was a marginal player in the USA, with an uneven track record in which strategies and approaches had been tried and discarded. Dell Sweden did not have to go through the same maturing process; instead it could start working using what had been developed in Dell USA. In particular, Dell Sweden started to focus on large business customers from the outset. This choice was further simplified by the industry structure in Sweden, with a relatively high number of large firms.

¹⁸⁰ Dell, M. and Fredman, C. *Direct From Dell. Strategies That Revolutionised an Industry.* Harper Business, New York, 1999.

Dell Sweden developed traditional customer records when it implemented Scala in 1989-90. Scala was a business system written in Sweden, suitable for Sweden, and Dell Sweden used local software consultants for the implementation. The system used in the USA or UK was deemed unsuitable for Sweden. The customer records were a standard feature in Scala Business System and were subsequently implemented in the whole Nordic region: Sweden, Norway, Finland, and Denmark, and later on in the Benelux Region. For repeat orders Dell Sweden staff could access the records and did not have to register customer information twice. Dell Sweden staff could check the records, verify that the customer had paid its earlier bills, and then focus on entering the new order at hand.

In the USA, Canada, and the UK, a business system called DOMS was used. DOMS was internally developed with the assistance of external consultants. DOMS could not be translated to other languages, which was one reason that Scala was implemented in most of Europe. Scala was different since it supported 16 languages, which made it suitable for implementation in small European markets. In Dell Corporation's European operations GDIS was used where German was spoken, which was an in-house solution with significant external consultants involved. DOMS, Scala, and GDIS had three basic components: order management, invoicing, and customer records, and were the basic building blocks in the information infrastructure in EMEA markets, regardless of which system that was used.

In addition, the description of the content of the computers was standardised. This was done by assigning the computers model number, where components, both those specified by the customer and those known to suppliers and Dell Corporation, were assigned the same model number. Furthermore, the individual computer was assigned a bar code unit number to make it unique in the production process.

Dell Sweden structured and simplified the description of a computer and its vital components for the Swedish market, so that the offering became transparent for the customer and made it possible for Dell Sweden to formulate the choices that customers had in terms of configuration. The ability to make the offerings transparent emanated from internal work by Dell USA. This work was originally focusing on creating process advantages in ordering, assembly, and delivery. An integral part of creating process advantages was a mapping of how the offer could be represented and communicated. A key idea governing the build-up of process advantages was that information should be distributed as widely as possible within the organisation, and that information should be available in the right form for the staff that needed the information to service and support customers. Dell USA developed the description of the computers for marketing communications purposes together with marketing agency Goldberg Moser O'Neil.

Using classical direct marketing tools, like newsletters, price-lists, and product presentations developed by Dell USA and Goldberg Moser O'Neil, Dell Sweden brought in new business customers, as well as updating established customers concerning its newest and most attractive offerings. Buyers could call or fax their orders, and they were checked from a feasibility point of view. If there was uncertainty regarding the fulfilment of an order in terms of configuration, availability of components, or time, Limerick was consulted. Limerick continually updated its order handlers about its status, and this information was available to the order handlers when they received new orders. If the order was accepted, the customer received a confirmation, and the order was faxed to Limerick, where assembly started. If the order could not be accepted, the buyer was contacted so that the order could be adjusted to Dell production capacity. When assembly was done, third-party carriers brought the goods directly to the final destination via a network of terminals and trucks. Dell EMEA used Irish Express Cargo with ASG as a Swedish subcontractor.

One facet of having direct contact with the customers was an evolving insight into how customers bought computers, and what motivated and stimulated customers to buy. Reading these signals was an important source of information for Dell Corporation and Dell EMEA. Dell Sweden started to learn about replacement cycles in different industries and segments, and could thus anticipate demand. Dell Corporation experimented with SAS and other early versions of customer relationship analysis and management tools.¹⁸¹ This direct feedback loop made Dell Sweden acutely aware of its shortcomings in quality, performance, and desire. In addition, it made Dell Sweden sensitive to losing customers. The direct feedback loop forced Dell Sweden to give customers at lot of attention, to learn, and to listen to the needs and demands of customers.

The attention given to customers slowly established Dell Sweden and gave it customer awareness. Many who bought a Dell computer did so because of referrals from existing customers. Dell Sweden used the marketing communications language developed by Dell USA, which would explicitly try to stimulate referrals and cater to those customers who would advocate Dell computers. The marketing communications language developed was technical, the pricing was at the forefront, and the general focus on price/performance was aligned with technical resources and specifications. It was necessary to be computer literate to buy a computer from Dell Sweden, but it also made those customers that actually chose Dell similar. In particular, Dell Sweden's concept caught on with customers who wanted to get a lot for their money and were not interested in the brand.

¹⁸¹www.sas.com/2001-11-26/ SAS Institute is a leading software supplier founded in 1976 in Cary, North Carolina. It is the largest privately held software firm. SAS started out with software for data mining and analysis. This core strength was extended with datawarehousing software and enterprise performance. During the 1990s SAS focused on customer relationship management (CRM) and supplier relationship management (SRM). In 2000 SAS had 37.000 customers in 111 countries. Over 95 percent of the top 100 Fortune 500 were SAS customers.

The Partnership with Intel

When Dell Corporation's sales took off in 1990 it was faced with a constant short supply of components. Dell Corporation had made extensive use of external suppliers. Regarding the inbound components Dell Corporation gradually upgraded whom it bought components from. When it entered Europe it started to get attention from component suppliers. The rebates that Dell Corporation could extract from suppliers because of its growth were substantial and could reach 20 percent. A product life cycle of a computer model was typically 6-9 months and most components had to be ordered 50-100 days in advance of assembly. If demand digressed from the forecast, Dell Corporation had to offload or buy extra components on the spot market, sometimes at a heavy loss or at a step price.¹⁸²

By eventually supplying customer feedback to the purchasing department, Dell Corporation obtained valuable information about customer demand, which it could use to offload components on the spot market that were less in demand or would become less in demand, but which was unknown to other computer manufacturers. To make sure it got enough supplies, Dell Corporation signed long term volume commitments based on sales forecasts on standardised high volume components, which gave it protection if it needed extra supplies.

A key relationship was developed with Intel. Intel could sell everything that it produced, but had difficulties in getting the PC manufacturers to take on and introduce its newest chips. Compaq Corporation and other PC manufacturers wanted to buy older chips that offered reliability and better margins. Intel wanted its new chips to start selling as quickly as possible. Intel convinced Dell Corporation that it should buy the newest chips at higher prices, compared to older established chips that already sold at substantial volumes. Intel argued that customers would appreciate buying the newest technology, and were ready to pay a premium for this privilege.

In 1991, Dell Corporation decided on always buying from known suppliers offering industry standard components - as a means of building trust for the Dell brand and its offering. Buying fresh chips from Intel gave Dell Corporation an opportunity to regain advanced customers that it had lost to Gateway2000, IBM, and Compaq. These customers wanted to buy state of the art technology and Dell Corporation made a virtue of being the first computer hardware firm to launch new models based on Intel's new chips. This created an impression of innovation and versatility around Dell Corporation. As Dell Corporation gradually became an important customer it managed to upgrade the technological and logistical sophistication of its suppliers.

¹⁸² Minnesbriest – Då sticker priserna på datorernas spotmarknad, Dagens Industri, Mats Paulsen, February 10, 1994.

Dell Corporation adjusted its own product life cycles to that of Intel's. Intel had started to work in quarters, and would launch price reductions and new products once a quarter. Dell Corporation decided that they would follow this pace, i.e. designing, planning production, and pricing products in quarters. Dell Corporation thereby contributed to shortening product-life cycles in the PC industry, which used to be half a year. Competitors, who tried to sustain and prolong product-life cycles to achieve economies of scale and to empty their channels, found themselves perceived as laggards by their customers. Dell Corporation could afford to follow Intel closely since it had no stocks of ready-made computers that had to be sold before new ones could be made. The Dell BTO system enabled Dell Corporation to hold little inventory and also made it possible to buy the newest technology.¹⁸³

The Pricing Strategy

In 1990 Dell Sweden started to work with the pricing strategy that had been developed by Dell USA. Pricing strategy was a local decision point and one of the key variables that the Swedish management used to communicate the value of its offering. This pricing strategy made Dell Sweden work differently compared to the prevailing logic in the computer hardware industry in terms of new product launches.

Traditionally, new products were launched at a high price in order to skim the market. When components got cheaper the price was gradually lowered. Late in the product-life cycle the product was sold at a loss to pave the way for new products. At that stage the product was pushed in high quantities to achieve economies of scale. Dell Sweden introduced its products at a low price from the outset. The focus was on the average margin during the product life cycle. When the new product was launched margins were kept low to make the new offering competitive. Dell Sweden lowered prices gradually, but at a slower pace than the component prices fell. Before the product was nearing maturity, Dell Sweden introduced yet a new product.

Working in this way Dell Sweden offered attractive products that could not be obtained at the same price from other sources at that time. Refraining from market skimming enabled Dell Sweden to build strong and stable sales to large businesses. These buyers bought large volumes of computers over long periods of time. For them it was important that Dell Sweden offered the lowest price/performance on average. This practice had been developed in the USA to great effect.¹⁸⁴ Once buyers were convinced that Dell Corporation offered the best value, many did not bother to check other suppliers, nor did they compare prices carefully. Instead they bought on trust and for convenience.

¹⁸³ The Resurrection of Michael Dell, *Fortune*, September 18, 1995.

¹⁸⁴ Dell takes another stab at hot market for notebook PCs, Bradley Johnson and Alice Z. Cuneo, *Advertising-Age*, February 21, 1994, Vol. 65, No 8, p. 6.

Dell Sweden established a carefully positioned price list. By offering CTO and BTO customers could simply and conveniently add components, features or just upgrade the basic offerings. The basic offering would be positioned as sufficient for the basic user, but not really adequate for the advanced user. Since most customers bought a particular computer model from Dell Sweden early in its chip trajectory, most customers opted to expand memory or hard-discs to be ready for future rather than the present needs. Dell Sweden priced the components attractively, but with substantially higher margins than the overall computers, which enabled Dell Sweden to raise the average selling price and thus the margin per unit. The practice of up selling, as it was called internally, became a standard practice that Dell Sweden used for all offerings.

In addition, customers would mostly add, seldom replace, and virtually never take away a component like memory or hard-discs. The starting price that Dell Sweden offered was thus made the floor price, thereby establishing a price that both parties agreed upon, and upon which the customer could only add. Dell Sweden would regularly achieve a margin of 20-25 percent on the base computer, and 30-40 percent on the added components, which raised the average margin substantially. In many cases the computer that the customer bought was only marginally lower in price compared to the competitors, but the customer had often obtained more value, i.e. more memory or hard-discs. The customers seldom perceived the up-selling practice as offensive or unfair.

The prompt response from customers made it possible for Dell Sweden to quickly adjust production according to the new emerging requirements. Through customer guidance and short lead-times Dell Sweden could quickly release new technologies and price reductions could be implemented at short notice.¹⁸⁵ In addition, Dell Sweden focused on machines and technology for which there was a clear demand in the marketplace. Dell Sweden did not set out to educate the market, but rather to benefit from educational efforts made by competitors.

The Direct Sales Model and Electronic Commerce

During the Direct Sales Model the basic BTO and CTO process was established, with a focus on postponement and customisation. Dell Corporation minimised the stocks of finished goods and performed assembly after a customer order was received, to the specifications given by the customer. By linking up with Intel and other component suppliers, Dell Corporation obtained a quarterly product scheduling cycle, releasing new products in a predictable manner. The closeness to Intel and the advantage that Dell Corporation derived from following Intel closely affected the price/performance marketing communication language that Dell Corporation came to practise.

¹⁸⁵ Computer Sweden, *Direktsäljande Dell styrs av kundernas plånböcker*, Stefan Bohlin, October 25, 1996.

As the overall PC market grew in the USA and demand became more diversified the core customer group of Dell Corporation and Gateway2000 proved limited in numbers and purchasing power. Both Dell Corporation and Gateway2000 responded by adjusting their business models and offerings. A new aspect was that the users increasingly wanted the latest and fastest processors, and were no longer ready to put up with substandard components and parts. Gateway2000 was able to keep the core private customers and extend its franchise to small businesses. One reason was that Gateway2000 opened showrooms to reach private customers and small businesses.

Towards the end of the 1980s, Dell USA had gradually found a new segment, large businesses which looked upon the computer as a commodity or even a kit of parts, and who had strong internal computer departments which could install and maintain PCs. Since Dell Corporation could not keep up with Gateway2000 Corporation in terms of implementing a new distribution strategy, the large business customer group gradually and out of necessity became the core customer group for Dell Corporation. Large businesses did not want the latest bells and whistles; instead they wanted standardised interchangeable computers at everyday low prices. These firms were often located outside of large USA cities and were used to buy via mail order, and regularly used the phone to interact with its suppliers and customers.

During the late 1980s the European organisation and the Nordic office were established. The timing of the start enabled Dell Sweden to skip the mix of direct sales and resellers. When Dell Corporation entered Sweden it had already defined itself as a firm direct selling desktop computers to large businesses and mature or advanced private users by telephone. Electronic commerce was not utilised or considered. At Dell EMEA, EDI connections were implemented in a few instances and were contemplated on a larger scale.

The emerging key customer group was large businesses. Dell Sweden was focused from the outset on selling to large business customers. A primary learning relationship was established with a few large business customers. The organisation, products, services, and terms were gradually adjusted to serve this particular customer segment. Dell Sweden derived most of its computers from the manufacturing facility in Limerick. The Dell EMEA production system relied on bar codes and on the computer description skills to make the offering transparent for the customer and make sure that each computer could be uniquely identified. Dell Sweden interacted directly with its customers and responded to demand signals. Using the direct feedback loop from customers, Dell Sweden was able to quickly adjust the offering to customer needs.

Dell Sweden built up its customer records from the outset. The implementation of the Scala Business System presupposed that the identity of the customer was known. Dell Sweden utilised the customer records in its marketing communication: newsletters, price list, advertising, and product presentations. Dell Sweden used the customer records as a starting point for gaining new customers, stimulating referrals from existing customers.

The Relationship Model 1991-1994

The Choice of Customers

The phone was the principal communications tool for Dell Sweden and most of the interaction with customers took place over the phone. For Dell Sweden it was evident that the phone was an efficient way to reach customers. In addition, it offered the opportunity to rapidly penetrate new markets or customer segments. Dell Sweden worked hard to improve customer interaction via the phone. It started to work with question sheets in order to quickly identify and help its customers with problems. This facilitated interaction between sellers and buyer so that the order could be taken by phone accurately and speedily. Dell Sweden acquired and developed various support and answering systems and imported such systems from other Dell EMEA subsidiaries and Dell USA. Dell Sweden chose to rely on solutions developed by Dell USA, which it brought to Sweden. With the support of external consultants and support from Dell Corporation and EMEA, new methods to serve Swedish customers were developed. Dell Sweden was a pioneer in Sweden, using the phone not only for order handling, but also for marketing, service, and support.

In 1991 the customer records in the Scala Business System were elaborated. Dell Sweden added features and uncovered data that was already available, but not used. The new features in Scala indicated the quality of the customers: how many purchases a customer made, when a purchase was made, what was purchased, what was returned, and what was paid for. By developing the customer records Dell Sweden was able to lay the foundation for establishing relationships with its customers. By logging the interaction with customers, Dell Sweden could determine purchasing behaviour, demand patterns, and satisfaction levels.

Through the logging of end buyer interaction Dell Sweden got a wealth of information about the performance of its computers and their operations. The customers were not made aware of the extent of the logging. This enabled Dell Sweden to improve and change components and avoid costly refunds and service calls. Dell Sweden started selecting customers that it wanted to keep and it came to appreciate large businesses as customers. The large businesses were solid customers, paying their bills and thus Dell Sweden did not have to put effort into checking their payment records and risk default on its account receivables. It knew its customers would pay, and did not have to charge its customers for the risk of not getting paid. No single customer accounted for more than 10% of Dell Sweden sales, but during the 1991-94 Dell Sweden was dependent on its five largest customers who drove the sales of the whole company. The manipulation and analysis of data extracted from Scala was made on spreadsheets and internally programmed using rudimentary software and databases.

The numbers gathered by Scala provided Dell Sweden with two important revelations; 1) That there was a strong need for a personal sales force if Dell Sweden was going to succeed in the large business segment, and 2) That customers had to fit Dell Sweden's business model. Dell Sweden could not do business successfully with everyone and Dell Sweden had since its market entry opted not to deal with some customers. Dell Sweden used technical language in its advertisements. It chose vehicles for advertising that were aimed at business people and technical people. Dell Sweden did not offer any computers directed to the consumer segments, and priced its packages so that they would not be attractive for most consumers. Yet Dell Sweden had many dissatisfied customers, which indicated that it needed to think through which customers it wanted to cater to.

The Creation of the Relationship Model

During the early 1990s, Dell Sweden had only maintained a small unit of sales representatives, since the focus was on phone based customer contact. The belief was that personal contact and interaction was wasteful and should be kept at a minimum. The important thing was to sell computers, not socialise with customers. The sales staff was supposed to spend their time at their desks pushing computers. Meeting with customers was considered expensive and old-fashioned. In response to customer demand, individual sales staff started to see their customers in person. This activity was tried within Dell Sweden without much attention or discussion. It was a matter of experimentation on a small scale. Dell Sweden knew that the practice was used in the USA, but it was not transferred systematically to EMEA, and it was considered a diversion or weakness to use sales representatives when the phone was available.

The experience that Dell Sweden accumulated by using sales representatives was shared with other Dell EMEA country managers. Following Dell USA's practice for regional managers, Dell EMEA country managers started to meet on a regular basis in 1991 to exchange locally developed experiences. Dell Sweden found out that several other local subsidiaries had come to the same conclusion: a personal sales force was important to boost sales. During the country managers' meetings it became evident that local managers tried many different schemes to increase sales.

For example, in several countries, particularly Germany, the number of informal resellers was substantial. In other national markets, notably the UK, there were experiments with sales representatives. Encouraged by the success and Dell EMEA's tacit acceptance of sales representatives, Dell Sweden gradually started to increase its personal sales force during the 1992-94 period. It was turned into a valuable tool for increasing sales within the large business segment.

Most new customers that joined Dell Sweden were professional or computer oriented people, educated and second or third times buyers. A key reason to why Dell Sweden sold well was because it was the preferred choice of computer departments that did not want to do business with resellers who competed by offering the same services as many internal computer departments. By supporting in-house maintenance organisations, Dell Sweden knew that it created a loyal cadre of ambassadors that would pitch Dell computers. For customers with in-house maintenance organisations, Dell Sweden offered a variety of programs, including specialised computer training programs, a repair parts assistance program, and other customised programs to provide access to the Dell Sweden's technical support team. The in-house computer department could claim the knowledge that it gained from Dell Sweden as its own, boosting its profile.

This mode of entry proved successful but also limited, since it did not offer Dell Sweden any contact with top management. When Dell Sweden had educated and managed its sales force for a while, it suddenly started to grow quickly within its own segment of large businesses. This new growth was generated in a different way: top down with top or at least senior management contact, in combination with bottom up contact, which had been Dell Sweden traditional approach.

The key decision-makers in the large business segment were used to personal sales representatives and account managers. This was what they knew from the mainframe years of IBM. Many of the CIOs felt pressure to reduce IT related costs, which were increasing year by year. In many organisations, the CIOs did not have as much control of PCs as they did of other computers and systems. Individual staff or units bought whatever computer they liked and central directives on standards were often neglected. CIOs surrendered to this situation, while others tried to control the purchasing process of PCs. One problem for those CIOs who wanted to take control of the PCs was that there was a limited number of speaking partners. Either the CIOs could continue to rely on IBM, which many did, or they could do business with resellers, locally managed businesses without central co-ordination or contact nodes. Dell Sweden offered CIOs the opportunity to take charge of PCs, in the same way as CIOs had control of mainframes and minicomputers in their organisations.

Finding the Unique Selling Point

Dell Sweden tried numerous ploys and angles on the market before it found a unique selling point that was appreciated in the market place. It learned from its users that many office clerks were worried about monitors with radiation. There was also news coverage of people suffering from overexposure to electronic gadgets. In response to these worries, one of the leading unions in Sweden, TCO (Tjänstemännens Centralorganisation) had developed a metric system to evaluate radiation from PC monitors as early as 1982. Proposing a minimum standard for its members, called TCO 92, the union started grading computers and Dell Sweden quickly decided to offer monitors with little radiation.

During 1992-95 Dell Sweden announced that it offered monitors approved by TCO as part of the standard offering. In 1995, TCO launched a new standard called TCO 95 that encompassed the whole computer. TCO 92 focused on radiation, energy consumption, and fire security. TCO 95 included an environmental evaluation of the contents of the computers and specific recommendations on what materials computer manufacturers should use. In addition, TCO 95 proposed ergonomic properties of the computers. The work done by TCO became internationally renowned and over 25 computer manufacturers adopted the TCO standard in Europe.¹⁸⁶

The monitors were available but none of the large computer firms had made them standard. In the minds of its users, Dell Sweden obtained a strong selling point, which allowed Dell Sweden to connect directly to the users. This made Dell Sweden the preferred supplier and it often became the decisive factor when Dell Sweden was chosen. It made the large firms who were customers of Dell Sweden appear worker friendly and caring, addressing a growing sentiment that radiation was dangerous. Dell Sweden was the first supplier to always offer TCO92 in Sweden, and spread the practice to the Dell EMEA. Inspired by the success of Dell Sweden, Dell USA tried to introduce the TCO standard in some of its computers.¹⁸⁷

Within Dell Sweden the relatively quick introduction of the TCO standard was considered the single most important reason as to why Dell Sweden succeeded in establishing itself as a significant supplier of desktop computers. Dell Sweden made it common practice to develop and communicate selling arguments tuned to different audiences. Dell Sweden stimulated contacts with its customer on many levels to further tie Dell Sweden and the buying organisations together. Most of these measures were simple and were done at low cost. For instance, in Dell newsletters a lot of space was devoted to information on how Dell Sweden solved the problems of the customers, where the customer users of the customers featured in name and picture. Dell Sweden also took great care to make sure that customers knew their dedicated sales representatives by first name.

The Segmentation Strategy

In 1992, Dell Sweden decided that it would develop direct sales marketing programs and services specifically geared to the large business customers. This was a necessity because these firms could easily switch suppliers. Dell Sweden wanted to establish long-term relationships with these firms in order to stabilise its sales. A key method used by the sales force in convincing the CIOs was the offer of establishing binding agreements, setting out rules of co-operation between Dell Sweden and its customers. These rules of engagement were quite explicit and promised the customers savings and performance in terms of speed of delivery, price and quality, in return for explicit or implicit loyalty to Dell Sweden.

¹⁸⁶ TCOs datorkrav på väg bli internationell standard, Dagens Industri, Thomas Dietl, December 30, 1994.

¹⁸⁷ Computer Sweden, Direktsäljande Dell styrs av kundernas plånböcker Stefan Bohlin, October 25, 1996.

To deliver on its tough commitments, Dell Sweden created account management teams, consisting of sales, customer service, and technical support representatives who were instructed to form long-term customer relationships. Each major customer account was served with a single source of assistance on issues ranging from order placement to system configuration, connectivity, and technology transitioning.

This new approach was inspired by Dell USA and adjusted to local circumstances. The contracts that Dell Sweden entered into locally carried fewer legal and financial implications. This way of working created a division of labour within Dell Sweden between those working with large firms and those working with the private/home and small business segments. Dell Sweden was mentally split into transactional and relational functions, where transactional encompassed home/private and small businesses and focused on customers purchasing few computers in small numbers. Relational focused on creating long-term relationships with large Swedish firms. This mental division co-existed with an organisation based on customer groups, which was also used in Dell Sweden. In 1990 Dell Corporation established four basic customer segments¹⁸⁸:

- **Large businesses** – large corporations with more than 1 000 employees
- **Public customers** – government and education
- **Medium-sized businesses** - firms with 200-1 000 employees
- **Private/home and small business customers** – homes and small businesses with less than 200 employees including private consumers

When a customer group became significant in numbers and/or volume, an organisational unit catering to those customers was spun off, first just by a reorganisation of desks, then with more formal boundaries and an assigned manager. A mix of customer demand and anticipation of opportunity governed this spin-off process. Transactional customers, private individuals and small businesses, were not stable customers that Dell Sweden could or had the opportunity to work with over time. Typically these customers were knowledgeable computer users and not first-time buyers of computer systems. Some of them had come across Dell computers in work and wanted to buy a computer for the home. As this customer group grew, Dell Sweden developed and maintained an in-house sales force that marketed its products and services to these customers by advertising in trade and general business publications and by mailing a broad range of direct marketing publications, such as promotional pieces, catalogues, and customer newsletters.

¹⁸⁸ For large businesses Dell Sweden has used the name large business, global and enterprise. For medium sized business the name used sometimes is PAD, standing for Preferred Accounts Department. Dell Sweden has often treated the small business and the private/home segment as one, calling the division SMB. The division of customer groups has varied in Sweden, but even more so between countries. In general, small countries have had fewer segments, and the minimum required size for a segment has been smaller. To create large enough customer groups in small national markets, Dell EMEA for instance, has decided that a medium sized business should have more than 200 employees in Sweden, but 400 in Germany.

Not all customers in the relational segments were attractive to Dell Sweden and it practised a customer segmentation strategy developed by Dell USA, which was applied across Dell EMEA. The idea was that mature customers with internal skills were interesting customers. The working method was to look at the customer stock from a time perspective. The assumption was that customers passed a number of stages in their needs for computers as well as in their relationship with Dell Sweden, and that different products and services as well as marketing and communications tools should be practised in different phases. The internal phrase used in Sweden was “kundskap”, i.e. knowledge about customers.

Two distinct organisational units evolved as a result of the segmentation strategy practice. The first was a department devoted to acquiring new customers and the second was an organisational department devoted to handling customers that Dell Sweden risked losing. These two units were divided along segment/organisational lines so that every segment had its own customer acquisition team and “retention” customer team. The customer acquisition teams focused on first entering the organisation with a small order, and then learning more about the organisation in order to increase sales over time. The customer retention teams focused on understanding the purchasing behaviour of its existing customers to create early warning systems and identify key factors that could be improved to keep customers loyal.

By limiting defections of good customers, Dell Sweden was able to build sustainable sales that also increased quickly. Organising customer management according to customer acquisition and retention was efficient in terms of staffing needs. An increase in volume of 100 per cent demanded about 70 per cent in new staff. Local staff costs were low in relationship to overall sales, and varied between 1-5 per cent depending where Dell Sweden was in the growth cycle in a particular segment. The cost structure was not too fixed and instead Dell Sweden tied costs to revenues.¹⁸⁹

Customer acquisition and customer retention became two key aspects of customer stock management. Based on a Dell Corporation metaphor, the customer stock was mentally regarded as a sink, which should always be full, but not too full and not too empty. This concept was used to manage the customer stock in terms of number of customers and volumes. By using the sink metaphor, Dell Sweden could defend trade-offs between organisational units regardless of segment or customer task. The issue was for Dell Sweden to achieve balanced growth, i.e. as fast as possible without customer dissatisfaction or financial distress.

A number of times during the early 1990s Dell Sweden and Dell EMEA had to apply the breaks to make sure that it could handle the growth. Dell Sweden and Dell EMEA repeatedly had periods with too fast growth, during which the increased demands on support and production could not be handled. If necessary, Dell Sweden did a number of things to reduce the growth rate. Advertising was stopped. Dell Sweden refrained from bidding for orders that looked only marginally profitable. In addition, it put a stop to calling on new customers.

¹⁸⁹ Computer Sweden, *Direktsäljande Dell styrs av kundernas plånböcker* Stefan Bohlin, October 25, 1996.

By keeping track of purchasing patterns the unit for customer retention could rapidly identify which customers it had lost or was in risk of losing. Dell Sweden used a variety of sources: records from Scala, logging of customer contact, databases, customer surveys, and financial reports. A key task of the management of the segments was to constantly review the purchasing behaviour of its customers to quickly detect defection or risk of defection. This information was analysed for patterns and used to direct upcoming marketing strategy. Customers who were expected to defect were exposed to a number of ploys to prolong and turn around the relationships. These ploys involved extra attention by the sales force and attractive offers. If necessary, Dell Sweden competed on price not to lose orders, but it committed itself to not selling any computers at a loss.

As the organisation of Dell Sweden developed, the names as well as the content of the four basic segments varied. It changed its labels and experimented with its organisation to adjust the organisation to which customers it wanted to reach and to those customers it wanted to communicate with. In particular the division between the segments changed in terms of number of employees, which was a key segmentation variable. The selling organisation was allowed to grow at different paces depending on how different segments grew.

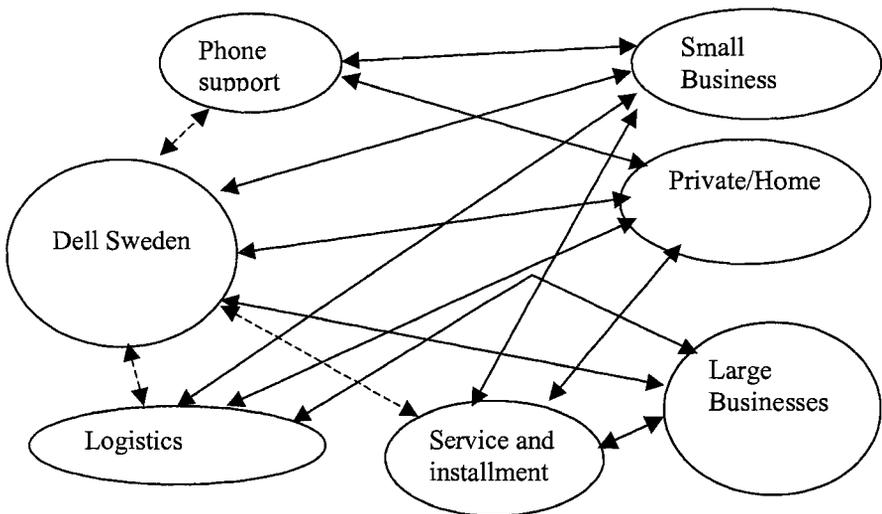


Figure 10.7 The Relationship Model¹⁹⁰

¹⁹⁰ The Relationship Model was characterised by a focus on the large business segment, with a specialisation on customers with whom Dell Sweden could establish business relationships. The Private/Home and Small Business segments were managed on an ad-hoc basis and contributed marginally to sales and profits. While customers perceived that they interacted with Dell Sweden, in fact they interacted with partners for phone support and service and installment. The arrows indicate instances and direction of capability acquisition. Dotted lines indicate indirect capability acquisition from customers.

The Withdrawal from Indirect Channels

Despite the lockout from the resellers Dell Corporation maintained some indirect sales via resellers. During 1986-94, Dell Corporation had continued to supplement its direct marketing strategy by marketing and selling computers through solution providers. Solution providers customised Dell computer systems with specific end-user applications through the addition of hardware, software, or services. The solution providers were similar to the large business segment in that they used the PCs as inputs in their own production and therefore wanted to preserve margins by buying the computers at the lowest price possible.

Because the solution providers frequently packaged complete application-specific solutions, they were also able to benefit from Dell's custom manufacturing and technical and marketing support programs. To provide the solution providers with added flexibility, Dell USA offered several programs tailored directly to their needs. For example, solution providers could purchase complete systems from Dell USA and have them shipped directly to the user's installation site, allowing them to reduce inventory, handling, and other related costs.

As Dell Corporation celebrated its 10-year anniversary in May 1994 it faced a turning point. Either it found new revenue and could join the top tier players or fade away as the personal computer market consolidated. Within Dell Corporation the operative word was size, and to achieve size, Dell Corporation would have to extend its distribution channels to retail chains and resellers.¹⁹¹

While Dell USA had relationships with almost 100 channel members, only about 20 did a meaningful amount of business with it. As it sought to add traditional reseller capabilities in pre and post sale customisation and service to its product line, it began to actively search for systems integrators, value-added resellers, and service providers to support its new servers.¹⁹² The internal goal set in 1994 was to boost the channel business to as much as 1/3 of revenue by courting regional resellers rather than distributors. Dell Corporation wanted to increase the number of indirect channel member from 100 to between 200 and 250, focusing on resellers that were high on the value-adding curve.¹⁹³

In late 1994, Dell Corporation announced that it would discontinue sales of products through indirect channels. Dell USA discovered they were losing money in the indirect channel business and decided to focus on the direct channel. The direct channel business accounted for 87% of sales. In contrast, its retail channel members contributed less than 2% of its overall sales, while value-added resellers (VAR) made up the rest.

¹⁹¹ Dell hits turning point Kimball-James-G Business-Marketing, May 1994; Vol. 79, No, 5, pp. 4, 40.

¹⁹² Dell serves up new strategy, products, VijayanJaikumar Computerworld, May 9, 1994, Vol. 28, No 19, pp 51-56.

¹⁹³ Dell hopes to up channel business by going after regional resellers, Craig Zarley, Computer Reseller News, October 10, 1994, No 599, pp 135-136.

The search for channel members was suddenly not in line with overall management objectives. Dell Corporation planned to refocus on its traditional direct sales and mail order business model. Dell would stop selling through its retail members in the U.S., Canada and Europe: CompUSA, Sam's Club, Best Buy, Price/Costco, and retailer PC World.¹⁹⁴ Dell Corporation cited minimal retail sales offset by a strong resurgence in its consumer-direct business as the reason. The losses in the retail channel and the resulting withdrawal from the retail channel changed the overall approach to the indirect channel, whether it was directed to consumers or businesses.¹⁹⁵

When Dell USA started to leave the channel members in 1994, it decided that it would always invoice the end user rather than the channel members. Top management during 1994 refocused the company on phone and mail order, despite internal resistance. Ending its five-year flirtation with the indirect channel, which failed to produce more than marginal revenues, Dell USA had come to realise that its traditional build-to-order business model did not work in the indirect channel.¹⁹⁶

Leaving the channel members, there was a debate within the Dell Corporation on how to increase sales. A number of measures were taken in different directions reflecting this uncertainty on how Dell Corporation was going to approach the market. After fierce debate Dell Corporation opted to rely almost exclusively on direct marketing rather than using channel members. Within Dell Corporation there were numerous managers who questioned whether Dell Corporation, which by 1994 sold five percent of PCs in the USA, would be anything more than a niche player in the industry.¹⁹⁷

Most of the debate took place in the USA, little affecting Dell Sweden, being later in the process. Thus Dell Sweden did not encounter the 1993-94 crisis in the same direct manner as the USA operation, where it created considerable uncertainty. But Dell EMEA had also experimented with channel members, particularly in Germany, and Dell Sweden had built up a small number of channel members with whom it had established long-term relationships. Dell Sweden used the channel members for complicated installation, where the work done in Limerick was insufficient. To control the channel, Dell Sweden forced the channel partners to charge no margin on the computers they resold and Dell Sweden came to insist on always invoicing the customer.¹⁹⁸

¹⁹⁴ Dell forsakes retail for direct approach, Vijayan Jaikumar, Computerworld, July 18, 1994, Vol. 28, No 29, p 32.

¹⁹⁵ Financial Times, International Company News: Dell withdraws from retail distribution, Louise Kehoe, July 12, 1994.

¹⁹⁶ Dell seeks electronic roots Thayer C. Taylor, Sales and Marketing Management, September 1994, Vol. 146, No 10, p 22.

¹⁹⁷ The Resurrection of Michael Dell, Fortune, September 18, 1995.

¹⁹⁸ Dell: Ja, visst har vi återförsäljare, Pia Rehn, IT-Branschen, No 1, 1999.

A result of the bickering and experiments that took place in the USA was the renewed commitment to direct sales. In addition, a number of guiding principles emerged and became established. These principles were a focus on liquidity, profitability, growth, and the direct customer contact.¹⁹⁹ In the end Dell Corporation was more aware of its direction and strategy, although it had hesitated and changed its mind repeatedly along the way. The bickering created an internal mantra stating that Dell Corporation should not look too much on what the competitors were doing for guidance. Instead, Dell Corporation should follow the customers.²⁰⁰

The Birth of Dell.com

Dell USA tested various electronic commerce strategies in 1994. A key reason was that Dell Corporation feared that its withdrawal from the indirect channel would slow down its growth. Dell Corporation hoped electronic selling would restore its crown as the number one direct marketer of computers. Gateway2000, who utilised showrooms, held that title with a 5 percent share of PCs shipped in the USA in the first quarter of 1994 vs. 4.6 percent for runner-up Dell Corporation.²⁰¹

Dell USA was considering setting up kiosks in retail stores, both staffed and non-staffed, where potential customers could browse through Dell catalogues and order systems directly from the firm.²⁰² Additional sites, such as airports and shopping malls were tried. Dell USA experimented with two on-line services that Dell Corporation wanted to use for shopping. One was called CommerceNet, a commercial set-up specialising in electronic products; the other was a service on Internet called Mosaic, which was built around free software that made the network navigable to non-experts. The trials included procedures for customers to place orders directly to Dell Corporation and were tested on small customer groups.

During 1994, Dell Corporation started an Intranet site called Dellnet, which was soon to be accessed by some 60 percent of the computer-using workforce within the company itself. Dell's Intranet started in the USA, and was then followed by Canada. Dell Corporation then rolled out connections in Europe, Asia, and Australia. The Intranet was gradually connected to internal legacy systems - for instance the databases in research and development, order handling, business planning, budgets, and financial performance.

¹⁹⁹ Direct from Dell – Strategies That Revolutionised and Industry, Michael Dell with Catherine Fredman, Harper Business, 1999.

²⁰⁰ Dell Computer Corp.'s Michael Dell, Richard L. Brandt, Upside, April 1998, Vol. 10, No 4, pp 98-102.

²⁰¹ Dell seeks electronic roots, Thayer C. Taylor, Sales and Marketing Management, September 1994, Vol. 146, No 10, p 22.

²⁰² Dell forsakes retail for direct approach, Vijayan Jaikumar, Computerworld, July 18, 1994, Vol. 28, No 29, p 32.

Essentially, the Intranet connected Dell's internal data infrastructure with Dell's employees. The Intranet spread information about the plans and products of the company. The Intranet increased with what speed information was absorbed within the organisation. This information empowered staff in the organisation and substantially increased the feedback loops coming in from various part of the organisation to the centre, in response to what was laid out on the Intranet.

Dell Corporation started to consider opening Dellnet directly to the customers to facilitate interaction with customers. Dell USA started connecting customers to Dells internal infrastructure via Dell.com. The benefits to Dell USA of offering more support over the Internet were clear. To give phone support cost 25 dollars per inquiry. Dell USA's online service operation saved millions of dollars for itself and its customers. Dell.com focused on delivering technical support where costs were high and demand high. Dell USA had used a simple FTP protocol to allow customers to download machine specifications since 1989 and knew that there were customers who were interested in machine specifications.

There was no advertising, no direct mail, or public relations involved. In the service area there were about 35 000 pages. Dell USA was also adding "non-selling" information, asking themselves what would provide value to Dell customers in their striving to become more knowledgeable about computers. As the website grew, Dell USA put out ample information about the firm, such as annual reports, real time stock-prices, operational statistics information, etc. It found that there was a relationship between financial information and activity on the Internet. Every time the executive staff communicated information about quarterly financial performance, or made a significant announcement, or even sent out a press release, there was a traffic increase on Dell.com.

The Relationship Model and Electronic Commerce

With the implementation of telemarketing systems and the ability to describe the properties of computers, Dell Sweden was able to start selling computers in Sweden. The Scala Business system enabled Dell Sweden to log information about customers and stimulated Dell Sweden to choose large businesses as customers. Dell Sweden acquired skills to conduct direct marketing and established a direct-sales force that sold a special package of services to large business customers. Dell Sweden implemented a segmentation strategy by first dividing customers into transactional and relational and then further into four customer groups. For each customer group, customer acquisition and customer retention skills were developed.

Dellnet and Dell.com/se were opened and provided information to customers about technical specifications. Dellnet was a result of experimentation started as early as 1989. The opening of Dellnet made Dell Corporation structure and distribute information more efficiently across the organisation. Dell.com was built upon the experience gained with Dellnet and the content was similar. At this stage, Dell.com did not accept orders from customers and there were no links between the internal legacy systems. Dell Corporation focused on personal sales contacts in person or via the phone.

A manifestation of the strength of the Relationship Model at Dell Sweden was when Intel in 1994 had a problem with the mathematics processor in its new Pentium chip. Dell Sweden knew where and to whom it had sold computers, and could relatively easily help customers switch from faulty to correct processors. Dell Sweden was able to solve the problem and exchange the processors directly instead of having to go the whole way through retailers and distributors. This was much more complicated for other computer hardware firms working via resellers who did not know who the customers were. Since Dell Sweden did not have any stock it was able to switch to faultless chips immediately. Three days after IBM announced their freeze of Pentium sales Dell Sweden was able to supply faultless computers. Many customers ordered from Dell Sweden, since they could not order from IBM.²⁰³

Dell Sweden achieved significant success in the business-to-business market, which constituted over 80 percent of its total sales of by 1994. But even in the business-to-business market Dell Sweden had varying success. Most of its volume was in desktop computers, which it sold to large businesses where the Relationship Model worked nicely. The Relationship Model did not fit many customer segments in which Dell Sweden wanted to grow. To become the dominating firm it had to become stronger and more versatile in selling computers to private individuals, small businesses, public institutions, and medium sized businesses. In the medium sized business segment the resellers were pushing Compaq, IBM, and Hewlett-Packard. Dell Sweden did not see how it could and should penetrate this segment effectively.

In response to Dell Sweden's strategy, competitors introduced efficiencies in their own indirect channels to narrow the price difference, which made price less potent as a competitive tool. The emerging understanding within Dell Sweden was that the Relationship Model had to be substantially reworked and augmented to attract new customers in new customer segments.

²⁰³ Computer Sweden, Dell slår rekord utan återförsäljare, Nicklas Lindstrand, March 17, 1995.

The Hybrid Model 1995-96

Development of the Offering

During late 1993 and 1994, Dell Corporation suffered substantial losses. The 1994 loss resulted from an extraordinary charge when Dell Corporation was forced to withdraw its notebook computer products due to design flaws.²⁰⁴ As a stopgap measure, Dell Corporation sold a notebook computer purchased from competitor AST Research Inc, while it was seeking to re-establish a presence in the notebook market.²⁰⁵ In late 1994, Dell Corporation unveiled a new line of notebook computers called Latitude.²⁰⁶ It took Dell Corporation over two years to create a notebook line-up with which it could compete.²⁰⁷

It was not before 1994 that Dell Corporation found suppliers who would take on making Dell notebooks. Finding suppliers was difficult for several reasons. One was that Dell's brand name was not strong at that time. Another reason was that Compaq Corporation had skilfully built up business relationships with the most proficient subcontractors. Bringing in John Medica, the head of development of notebook computers at Apple Computers, significantly raised skills in Dell Corporation in terms of design, usability, and manufacturing simplicity, making Dell an interesting partner to work with for Taiwanese subcontractors.²⁰⁸

In 1996 Dell Corporation linked up with Quanta, which at that time was a small Taiwanese subcontractor. Quanta soon became the favourite since it was ready to work closely with Dell Corporation.²⁰⁹ Together they created the "Taiwan Direct Shipment Model", which was a complete set of routines that allowed Dell to outsource the entire assembly and logistics to Quanta. The skills that Quanta and Dell developed jointly attracted attention from several other computer companies, making Quanta also a supplier to Compaq and Hewlett-Packard eventually, as well.

²⁰⁴ International Company News: Dell posts 'disappointing year' with 43% decline, Financial Times, Louise Kehoe, March 4, 1994.

²⁰⁵ Thinking small at Dell, Peter Burrows, BusinessWeek, February 28, 1994, No 360 (Industrial/Technology Edition), p 43.

²⁰⁶ Dell returns to the market with impressive notebook. McLean-Dan Info-Canada, September 1994, Vol. 19, No 9, pp 1, 26.

²⁰⁷ Dell back in portable market, Suzanne Wintrob, Computing Canada, August 3, 1994, Vol. 20, No 16, p 15.

²⁰⁸ Financial Times, International Company News: Dell seeks return to notebooks, Louise Kehoe, August 9, 1994 .

²⁰⁹ Laptop King, Bruce Einhorn, Business Week, November 5, 2001.

Buying notebooks from subcontractors implied that Dell Corporation had to open kits for testing, software loading, branding, tagging, and installation of memory and hard discs. Dell Corporation adopted the practices and standards developed by Compaq Corporation and other branded computer makers using Asian subcontractors. By creating specially designed kits of notebook computers, Dell Corporation shifted more manual work to the subcontractors, but could carry out BTO and CTO as it wanted. In particular the customers could perceive that they had the same opportunity to obtain BTO and CTO as with the desktops.²¹⁰

Dell Corporation wanted its subcontractors to pre-assemble rather than assemble the computers. In practice, the scope given to customers regarding customisation was narrower compared to desktops since the subcontractors were competitive on price and Dell Corporation did not want to have too much manual work done in Texas or in Limerick. Yet Dell Corporation did not want to hand too much responsibility to the subcontractors because it wanted to ensure the quality of the notebooks. As a result, the customisation that was taking place, although limited, was costly and made Dell Corporation less competitive in notebooks than in desktops with regard to differentiating the offering in terms of BTO and CTO because its production process was expensive with assembly carried out twice.²¹¹

When Dell Corporation started its operations in Sweden in late 1989 it only offered desktops. When it started selling notebooks in 1991, Dell EMEA had severe and repeated problems with its notebook computers, which made Dell Sweden reluctant to market the notebook line. Until 1994 Dell Sweden did not have a well functioning notebook line of computers. But in 1995 Dell Sweden was able the notebook market in Sweden successfully.

A key reason was that Dell EMEA had become engaged in developing and adjusting BTO and CTO processes, which presumed a direct link between Dell EMEA and Asian subcontractors. Dell Sweden was no longer a one-product-line company and put a disproportionate share of its marketing expenditures on notebooks, which raised the overall growth of the notebook market.²¹² The ability of Dell Sweden to offer the market a competitive line-up raised the profile of Dell as a brand and as a firm. Dell Sweden decided that it should offer the best price/performance combination in every product category, and that it should never surrender this position in the market place.

²¹⁰ Dell back to notebooks, Bradley Johnson and Alice Z. Cuneo, *Business Marketing*, March 1994, Vol. 79, No 3, p 40.

²¹¹ Dell it like it is, Michael Fitzgerald, *Computerworld*, April 11, 1994, Vol. 28, No 15, p 40. A commentary discusses Dell Computer Corporation's vision for the future and the state of technology.

²¹² *Computer Sweden*, Johan Andersson, March 17, 1995.

Dell Corporation had focused on large firms attracted by the combination of the latest technology and configuration to their specifications. In terms of sales, Dell Corporation, Gateway2000 Corporation, and the other direct sales firms were niche actors well into the mid-1990s. One reason for this was that the PC platform came in many different shapes and formats.

In addition, the hardware firms selling PCs broadened their product portfolio by selling servers and workstations, not just desktops or notebooks. Dell Corporation was not active in servers and workstations and these product groups grew substantially faster than desktops. Dell Corporation had to broaden its product range in order to be able to grow its market share faster than the overall growth rate of the market.²¹³

During 1995-96, Dell Corporation expanded its product development group from one focusing on both desktops and notebooks to four separate teams, with the additional teams focusing on servers and workstations respectively. A main source of inspiration for the new organisation was Compaq Corporation, which had a set up of product divisions as the key organisational units. Some product development work was also located in Limerick to tailor the products for the needs of Dell EMEA. Units like Dell Sweden often contributed information about local configuration practices of competitors.

The struggle with notebooks provided Dell Sweden with a new set of skills regarding how to enter and grow a new product market. Dell Sweden expanded its product range substantially, starting with servers in 1996, workstations in 1997, and storage equipment in 1998. As a result of the problems related to notebooks, in the later product introductions, Dell Sweden entered into a new product line with a period of test sales. To start with, it worked with a small group of customers, while at the same time trying to perfect its ordering and manufacturing process.

When confident that the production and selling process could sustain a higher volume, Dell Sweden gradually increased the order flow by increasing marketing. By using the prolonged test period to improve its operations, Dell Sweden could rapidly sustain volume increases at a later stage without setbacks in quality or delivery times. Once it had entered a new product market and felt confident in its own ability, its aim was to take a substantial market share quickly to achieve critical mass in terms of upstream procurement. This way of introducing new product lines became standard practice within Dell EMEA.

²¹³ Dell serves up new strategy, products, Vijayan Jaikumar, Computerworld, May 9, 1994, Vol. 28, No 19, pp 51, 56.

During 1996, when Dell Sweden entered the market for PC servers, there was a different agenda than in previous market entries when its own growth and profits were paramount. Dell Corporation envied and aspired towards the position of Compaq Corporation in PC servers, where it was weak. The practice within the PC industry was that servers rendered higher margins. This was also possible since PC servers competed with the considerably more expensive Unix servers. Dell Corporation decided that it would try to enter the market by charging the same margins as in the desktop segment. In 1996, Dell Sweden sales were divided into 77 per cent desktop computers, 20 per cent portable computers and 3 per cent servers. The objective was to increase the server share to 15 per cent of total sales and the portable share to 25 per cent.²¹⁴

The Creation of the Hybrid Model

During 1995-1996, Dell Sweden developed formal relationships with a number of downstream logistic, support, and service partners in order to establish operations in Sweden more firmly. From the outset in 1989 Dell Sweden had utilised third-party carriers like ASG to transport computers from the Limerick facility to terminals in Sweden for reloading, some assembly and shipment to final destinations. By 1993 Dell Sweden become an important customer and ASG developed a standard business procedure tailor-made for Dell Sweden. Initially ASG integrated shipments of Dell computers with their general transport infrastructure, but as Dell Sweden grew, the third-party carriers were asked to ship directly to buyers, while minimising or abolishing internal reloading to maximise speed and to avoid damage to the goods.

In the desktop segment, Dell Sweden excelled in terms of offering BTO and CTO. This worked increasingly well with customers with having internal support capability and with whom Dell Sweden had established long-term relationships. There was a realisation within Dell Sweden that BTO and CTO could not solely be relied upon to sustain the growth rate and ensure customer satisfaction. Instead, service packages were introduced that included service, support, and sometimes education. Dell Sweden opted to work intensively with channel partners like Comma (later Telenor Comma) to improve its service performance. Dell Sweden implemented a practice of promising service that it had difficulty in delivering. By giving ambitious promises Dell Sweden committed itself and its service organisation to stretch existing capabilities beyond the current level.

²¹⁴ Computer Sweden, Direktsäljande Dell styrs av kundernas plånböcker, Stefan Bohlin, October 25, 1996.

By 1996 the service offer was the most generous on the market. For Dell Sweden the service offer was an important tool to win new customers who were otherwise unsure of the help they would get once they had bought a computer from Dell Sweden.²¹⁵ The service packages were particularly valuable for winning small business and private individuals as customers. Dell Sweden experimented with either including the service packages in the price of the computer or alternatively offering it as an optional item, by using its up-selling tactics. For the most part, a practice was developed of charging for everything that the customer wanted. The pricing varied substantially, sometimes generating high margins, sometimes selling at a loss. The reason for this variation could be attributed to the availability of good channel partners and the construction of deals with them. It was also difficult to anticipate the level of usage of the service packages.

Dell Sweden offered free telephone support lines for its customers. These lines were as a rule congested. Dell Sweden used advanced call centre methodologies in order to manage the flows, but it repeatedly found itself short of people to service the phone lines, or had underestimated the need for support. Dell Sweden opted not to address the support needs fully via the phone. In the first year of ownership, if a repair was required following diagnosis by a Dell technician from one of the phone technical support teams, the customer would receive a visit from a trained on-site engineer by the end of the next business day to perform the repair. In years two and three the customer would receive a "Collect and Return" service fully funded by Dell Sweden. This 3-year service offering covered hardware sold to the customers, including base unit, monitor, keyboard, and mouse.

Three quarters of Dell Sweden's own organisation was in contact with the customers, but it was not sufficient. In 1996 Dell Sweden changed its support organisation drastically. As new and more advanced products came on line the support needs did increase, not only due to increasing sales, but also because problems were becoming more complex due to the expanding product line.²¹⁶ Dell staff had to answer questions about servers that it could not address. Furthermore, Dell Sweden had difficulty in recruiting staff, both in sales and support.²¹⁷

²¹⁵ Most of the Dell Sweden desktop systems included a standard one-year, next business day, on-site service contract. In addition, basic warranty coverage for many systems included a three-year limited warranty, while some systems were covered by a one-year limited warranty. The three-year warranties included one year of parts and labour coverage and two additional years of parts-only coverage, while the one-year warranties included a year of parts and labour coverage and could be upgraded to include years two and three with parts and labour coverage or parts-only coverage. Dell Direct Customer Newsletter, No 4, 1996.

²¹⁶ Computer Sweden, *Direktsäljande Dell styrs av kundernas plånböcker*, Stefan Bohlin, October 25, 1996.

²¹⁷ Computer Sweden, *Direktsäljande Dell styrs av kundernas plånböcker*, Stefan Bohlin, October 25, 1996.

In 1996, Dell Sweden implemented a new support organisation with three levels. It was created and organised on a European basis, but was based on a Dell USA blueprint. The first level was placed in every national market and would receive calls for support from customers. Support level two was placed in Stockholm, which would handle questions that the local support staff could not handle in Sweden, Norway, Denmark, and Finland. There was also a level three-support organisation in Limerick, which would assist the whole support organisation in Europe.²¹⁸

In addition to creating three levels of support, Dell Sweden also mapped out how the support staff could use knowledge within the firm to answer customer questions. Dell Sweden connected the technical specialists who staffed the support lines with Dell marketing, manufacturing, and product design groups, making employees in diverse positions exposed to support questions. In 1996 Dell Sweden gained on-line access to each customer's original system configuration and service history. Dell Sweden contracted other firms like Digital Sweden AB and Telia Networks AB, which had created strong local service and support organisations, to provide instant after-sale service for machines that were defect and needed support. Dell Sweden was careful to keep customer contact and was reluctant to hand over to much responsibility to its channel partners.

It was also in 1996 that Dell Sweden started to work with Unisys in Sweden, following an international strategic link-up between Dell Corporation, Wang Corporation, and Unisys Corporation. The objective of the partnership was to enable Dell Corporation to become a business partner with its customers throughout the lifecycle of their IT-projects. This link-up intensified during 1997 as both Wang and Unisys gradually gave up on their own product lines and started to focus more on consulting, service, and support. Dell Sweden's ambition was to deliver integrated solutions and services - from helping the customer to identify the correct solutions for their business needs to operational and professional services. These services focused on achieving the highest possible availability of the installed solutions without supplying the services themselves. This strategy gradually won over many independent large consultant firms like EDS and Anderson Consulting, who did not want to work with IBM, Digital Equipment Corporation, and Hewlett-Packard, because they offered competing services.²¹⁹

²¹⁸ Dell Direct Newsletter for the Public Sector, 4th quarter 1996.

²¹⁹ What Dell does best. Dan Briody, Ephrain Schwartz and David Pendery, *InfoWorld*, April 6, 1998, Vol. 20, No 14, pp 1, 35.

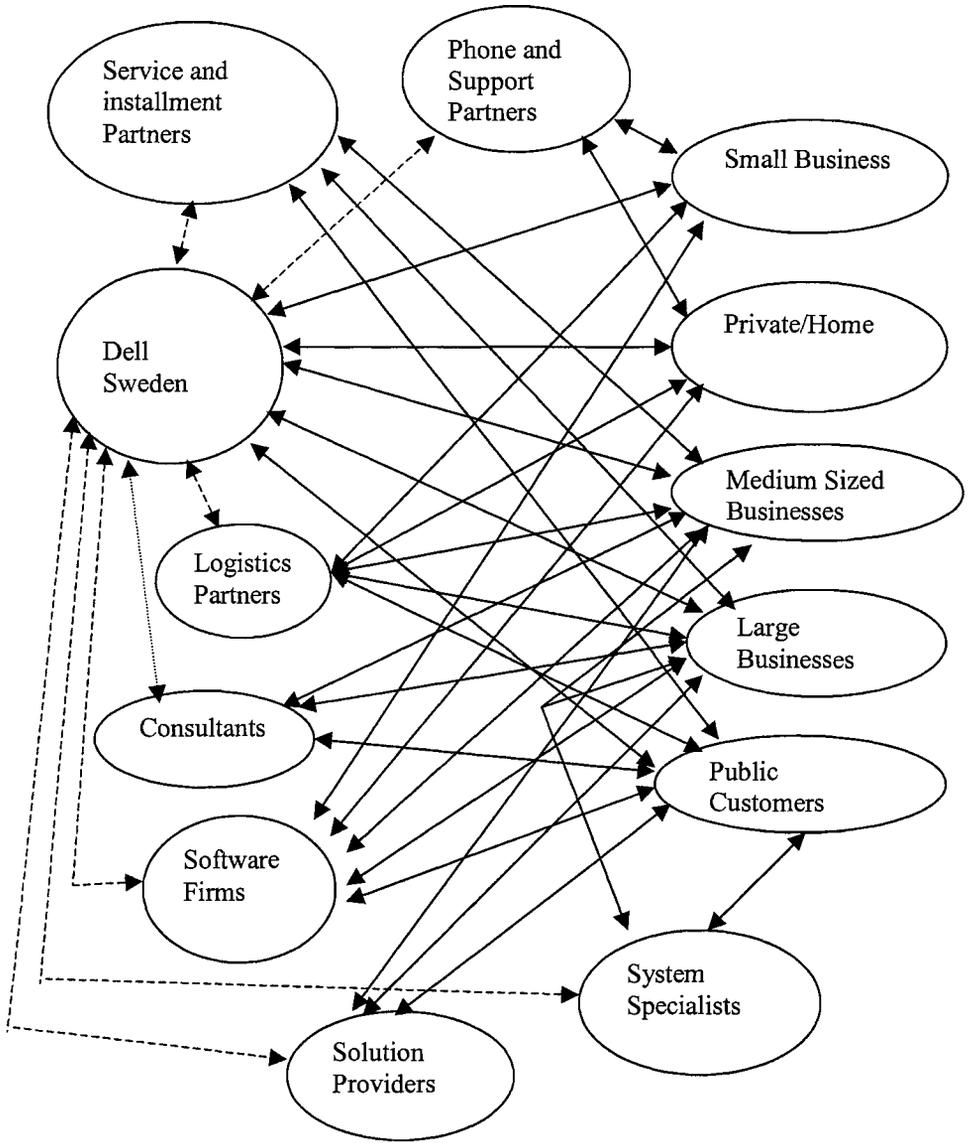


Figure 10.8 The Hybrid Model²²⁰

²²⁰ The Hybrid Model was characterised by one basic offering, which was complemented and supported by a number of external partners for customisation. This implied specialisation according to customer segment within a national market. The arrows indicate instances and direction of capability acquisition. Dotted lines indicate indirect capability acquisition from customers.

The Technology Partnerships

Dell Corporation had historically relied on assembling components and software designed and produced by other firms, Intel and Microsoft in particular. Dell Corporation had since long realised that it would not be able to develop many relevant technologies in-house.²²¹ Research funding had been low and devoted to the integration of components and software into packages that worked well together. Dell Corporation focused more on designing and developing computer systems that adhered to industry standards and incorporated technologies and features that Dell believed were those most desired ones by its customers.²²²

Typically Dell Corporation would follow closely what was happening in the marketplace and then launch a similar product if it started to sell well by competitors. To accomplish this objective, Dell Corporation started to systematically evaluate, obtain, and incorporate new hardware, software, communications, and peripheral technologies that were primarily developed by others.²²³ This enabled Dell Corporation to participate in the computer industry without technology leadership in its products and without spending much on R&D. Starting in 1995, Dell Corporation developed relationships with a number of industry software vendors across its product lines including Microsoft, Oracle, Informix, Novell, SAP, and PeopleSoft. Dell Corporation also developed relationships with more specialised vendors such as Alias Wavefront, Autodesk, Bentley Systems, Parametric Technology, and Unigraphics Solutions.²²⁴

In 1995 Dell Corporation started to invest more in R&D. The reason was the introduction of the new product lines. Notebooks, servers, and workstations were more complex products that needed more R&D. During fiscal 1996, Dell incurred USD 95 million in research, development, and engineering expenses compared with USD 65 million for fiscal 1995. By the end of 1996, Dell Corporation held 230 USA patents and eight foreign patents. By the end of 1996 Dell had 314 USA patent applications pending and 40 foreign applications pending in several European and Asian countries.²²⁵ Towards that end, Dell Corporation decided to increase spending on R&D further, planning to employ about 1,600 engineers, spending more than USD 250 million annually focusing on clustering technology, storage, and mobile products.

²²¹ In 1993, Dell Corporation and Texas Instruments entered into an agreement to cross-license their respective patent portfolios. Under the terms of the agreement, Dell Corporation would make annual royalty payments to Texas Instruments. In 1993, Dell and IBM entered into a patent licensing agreement. Under the agreement, the parties licensed to each other, within prescribed fields of use, all their current patents and all patents entitled to an effective application filing date prior to February 1, 1999 that was owned by either of the parties or any of their subsidiaries. Dell Annual Reports 1996-1999

²²² What Dell does best. Dan Briody, Ephraim Schwartz and David Pendery, InfoWorld, April 6, 1998, Vol. 20, No 14, pp 1, 35.

²²³ In 1999 Dell Corporation and IBM Corporation entered into a close partnership, following the 1993 agreement, when they launched a 16 billion USD technology agreement. As chapter of the contract, Dell would purchase storage, microelectronics, networking, and display technology from IBM for integration into Dell computer systems. Dell Press Release, March 13, 1999.

²²⁴ Dell Annual Report 1995-96

²²⁵ Dell Annual Reports 1996-98

In 1996, Dell also started a more conscious program to develop a portfolio of patents that it anticipated would be of value in negotiating intellectual property rights with other firms within the computer hardware industry.²²⁶ The increase in research and development efforts in 1995-96 was not only applicable to product techniques, but also to assembly and process techniques, where Dell Corporation worked towards accuracy, efficiency, and co-ordination in its business system.

The Selling of the Hybrid Model

Utilising the Hybrid Model, Dell Corporation learned how to deliver high-level customer satisfaction, customer services, and products by using the telephone, facsimile machines, the mail, the Internet, and private delivery services and outside channel partners for transportation, service, software, hardware, and support. The firm offered a variety of service and support programs in its geographic markets. It had come to realise that it had to tailor its service and support programs offered in various markets, depending not only on customer category, but also on the overall maturity of the national market, and of the composition of its customers in a particular market. It also relied to varying degrees on external channel partners to provide support and service depending on the availability of such partners.

The largest and most mature buyers had the scale and scope to keep sufficient in-house competence to buy from Dell Sweden, but as the firm grew its customers became more and more dissimilar. In its marketing and branding efforts, Dell Sweden started using the “direct model” slogan during 1996. The concept of the “direct model” was increasingly used internally and externally by Dell Sweden to communicate the proposed differentiation that Dell Sweden offered compared to its competitors. Because Dell Sweden sold directly, it argued that it offered better value, which made Dell an easy proposition within many large organisations. Dell Sweden was appointed the best reseller in some surveys, despite the fact that it was not a reseller according to the classical definition. In a survey, based on interviews with business customers grading resellers, Dell Sweden, which was the winner, had 75 percent satisfied customers. The respondents ranked the seven qualities that they valued the most. Number one was product quality, then came correct shipments, technical service, lead-times, prices, availability, and warranty terms.²²⁷

The “direct model” was however becoming more and more of a mental creation, rather than an adequate description of operations. Dell Sweden was becoming a network organisation, dependent as never before on not only upstream suppliers and channel partners, but also on downstream partners and service providers that could complement Dell Sweden in service and support. In Sweden and elsewhere, Dell computers were sold through channels or arrangements that mimicked traditional channel partnerships. Dell Sweden touted the virtues of the “direct model” and slammed the role of the indirect channel whenever it could.

²²⁶ Computer Sweden, Dell satsar på större servrar, Martin Wallström, May 15, 1998.

²²⁷ Computer Sweden, Direktsäljande Dell bästa återförsäljaren, Stefan Bohlin, April 15, 1998.

Dell Sweden quietly had no choice but to rely on various firms that in all but name were channel members. Dell Sweden expanded this practice forcefully during 1995-96. These firms did the configuration and support for customers (with Dell computers) without any formal agreement, but with informal consent and support. They were running thousands of Dell systems through its integration centres, outsourcing contracts, doing customised software loads, testing the machines, and integrating third-party products to meet customer specifications. Dell Sweden in many respects started to become similar to leading indirect PC computer firms like IBM, HP, and Compaq. This was common not only in Sweden, but also in Germany and the USA.²²⁸

The Hybrid Model and Electronic Commerce

The Hybrid Model was created as a result of the broadened product portfolio, which challenged the Relationship Model. During the Hybrid Model Dell Sweden extended BTO and CTO capabilities from a desktop to a notebook environment, finally learning to sell notebooks successfully when it could postpone assembly. During the Hybrid Model Dell Sweden laid the foundation for success in electronic commerce, although most of the measures that it took were aimed at strengthening Dell Sweden in general and were not directly linked to electronic commerce. Dell Sweden complemented the core offer with service packages and developed its own internal support organisation. Dell Sweden established stronger channel partners in logistics, service, and support, and expanded the informal network of channel partners.

By the mid-1990s computers were gradually becoming commodities, used as input goods for consultants, system integrators, and software firms that supplied systems and solutions to other firms. Increasingly, the value added was not confined to the physical properties of the product. While Dell Corporation emphasised its relationships with the end-users, it came to rely on independent firms that provided pre-sale and post-sale support and some customisation using Dell hardware. Dell Corporation also came to rely on the recommendations from independent channel partners, which preferred Dell Corporation to other brands their competitors were co-operating with.²²⁹ As a result the Hybrid Model replaced the Relationship Model. The Hybrid Model broadened its customer base and also stimulated other firms to imitate Dell Corporation.²³⁰

²²⁸ Dell: Ja visst har vi återförsäljare, Pia Rehn, IT-Branschen, No 1, 1999.

²²⁹ Dell serves up new strategy, products, Vijayan Jaikumar, Computerworld, May 9, 1994, Vol. 28, No 19, pp 51, 56.

²³⁰ Power Duo, Business Week, April 21 1997. Apple clone maker Power Computing had big plans. Power was founded in mid 1993 and it was set to hit 700 million USD in sales by 1997. Power made fast computers products and employed the direct-sales model that made Dell and Gateway2000 stars. Power made clones of Macintosh computers. Power Computing brought in people from Dell, Joel J. Kocher, to help and hosted plans to expand into the PC-arena.

The Hybrid Model was looser in its organisation and relied on outside partners and self-organisation of independent and semi-independent actors that worked together to handle a diverse set of customers with an increasingly broader product portfolio. By providing customers with numerous choices regarding service and product, Dell Sweden obtained a reputation for being customer friendly and customer driven.

The Hybrid Model mobilised decision-makers of customers and independent consultants who preferred Dell computers, which drove sales rapidly and without too much sales expenditure. As a result the mix of the business between sales to major corporate, government, medical and education accounts, and sales to small to medium businesses and individuals shifted.²³¹

In 1996 unit sales jumped 71 percent, more than five times the industry 13.6 growth rate.²³² As a result of the broadened product line and the increasing diversity of customers that followed, in conjunction with the need to augment the value added offered, the Hybrid Model replaced the Relationship Model. The Hybrid Model allowed Dell Sweden to expand rapidly in several segments without tying capital and internal resources. Dell Sweden was able to piggyback on investments in staff, skills, and systems made by other parties. A precondition for Dell Sweden's success was the availability of such parties. In Sweden this was facilitated by a general trend towards outsourcing and firms that wanted to specialise in making it their business to support businesses like Dell Sweden.

Net revenue, by region in million USD (per cent):	1996	1995	1994	1993
Americas	3.474 (65.5%)	2.400 (69%)	2.037 (71%)	1.459 (72.5%)
EMEA	1.478 (28%)	953 (27%)	782 (27%)	553 (27.5%)
Asia	344 (6.5%)	122 (3.5%)	54 (1.9%)	1.3 (-)
Total revenue:	5.296	3.475	2.873	2.014

Table 10.15 Net revenue by region in million USD and per cent²³³

²³¹ Annual Report, Dell Corporation 1997.

²³² Annual Report, Dell Corporation 1997.

²³³ Annual Report, Dell Corporation 1996. Dell US was still the dominating market. Dell EMEA and Dell Asia were gaining importance slowly.

While the Hybrid Model greatly expanded the reach and penetration of Dell Sweden, it did not establish Dell Sweden as a leading firm in the new segments. Instead, it gave the firm a toehold in many segments, causing sales to increase rapidly in total, but not in terms of customer segment market share. Within Dell Sweden there was discussion on how to hold on to the new customers, but it could not formulate any strategy that offered the same possibility to build long-term customer relationships with the new customers. The new market segments had been treated in the same fashion as the core large business segment. Dell Sweden was lagging in those segments, relatively to its competitors and its large business segment. Dell Sweden had to develop its reach to include those customers that needed more pre-sale support, product customisation, or more after-sale support, and where direct relationships as practised by Dell Sweden were not sufficient.

The Customer Segment Model 1997-98

The Shift from the Phone to the Internet

In July 1996, Dell Corporation launched a new website for the USA market and subsequently launched websites for other countries, reaching Sweden in April 1997 as one of the first in Europe.²³⁴ The new Internet site offered the opportunity for customers to place orders for computers directly via the Internet. The new features had been designed without the knowledge and consent of the top management of Dell Corporation. The new features had been created by a group of engineers for experimental purposes and had been tested on a small number of customers. The top management of Dell Corporation, on becoming aware of the new features, did not believe that they would boost sales.²³⁵

For top management the key was still the power of the telephone: “at Dell, we remain committed to retaining a total customer focus. We talk directly with tens of thousands of customers every day and build long-term relationships with them. These direct relationships provide us with a constant flow of invaluable information, which enables us to provide the systems and value-added services most relevant to customer needs around the world”.²³⁶

Customers could browse through the computers that Dell Sweden offered, and select a pre-configured system. It would either take it as packaged or add options. Once the customer had chosen systems features, customers could configure and recalculate the price. The order was finalised over the Internet or by calling a sales representative. Both Internet and phone orders were manually entered into Dell's ordering and inventory system. If an order were placed via the Internet, Dell Sweden would also send an e-mail confirmation of the order to the customer. A novel feature was that customers could check on the progress of recently purchased machines by clicking on to the status bar at the top of the page and accessing Dell's Order Status. Once inside Order Status, customers could input their order number, allocated once an order was placed with Dell Sweden, and query the system to find out at what stage of production and delivery the order was at and the estimated date of delivery.

During the first three months of operations Dell Sweden sold on average ten computers a day, worth an estimated USD 25 000, through the Internet. While the site, hosted in Bray, Ireland received traffic of about 10 000 hits a month, it did not generate much revenue. By letting customers get access to information about order status, Dell Sweden was able to significantly reduce the number of incoming calls.

²³⁴ Dell Direct. Newsletter for Swedish Customers of Dell, No 3, 1997.

²³⁵ IDC: Compaq måste ge klara besked - Exekutiv Report, IT-Branschen, Victor Falkteg, No 8, 2000.

²³⁶ Quoted from the management discussion in the Annual Report of Dell Corporation 1997.

Many customers who had visited the site called Dell Sweden later to make the purchase. Dell Sweden enjoyed a shorter pre-sale process and the average number of calls needed for Dell Sweden to close a sale fell from about three to two. Having everything online helped made many sales over the phone easier and faster. The sales representative did not have to take the customer through the options and explain them, and the time it took to close the sale was thereby reduced. The Internet was considered a cost reduction device within Dell Corporation, and a primary focus was to reduce the number of people working in relation to sales.²³⁷

By opening up the technical support pages to everyone, Dell Corporation had learnt that customers could serve themselves, thereby saving Dell Corporation money. Many customers became appreciative since they saved time and could access the information when it suited them, and not when Dell Corporation offered phone support. As Dell Corporation realised the potential for increased customer satisfaction and cost savings it quickly extended the services that the Internet site offered. Dell Corporation started to offer support information, followed by pre-sale support and information about order and shipment progress. This was followed by configuration and order capabilities. The idea was to offer the same services on the Internet as on the phone.

Ordering a PC by using the Internet site paralleled the process followed when talking to Dell sales representatives over the telephone, except that the choices were presented on the Internet. Customers started by deciding which platform they wanted (desktop, server, etc), and could then choose a model (for servers 2200 or 2400 etc) and had between five and some twenty different options regarding the platform. Typical choices were monitor size, number and speed of processors, memory capacity, and hard-disk capacity. To facilitate the order handling Dell Corporation together with external consultants developed the configuration that became a cornerstone of the web site.

By using this configuration, Dell Corporation could make sure that incoming orders were possible to manufacture and provide users with the actual price of the computer to facilitate swift decision-making by the customer. The basic choices remained fairly intact over time. As competition intensified Dell Corporation pre-loaded its computers with a number of features that previously had been options to match other computer vendors and what Dell Corporation believed customers locked upon as "a basic box". A number of choices thus disappeared, while others were added over time. The Internet site offered online information about the various options that were available, including photos, product specifications, and processor performance. The product configuration flexibility added up to over 1.5 million different possible configurations for a given platform.

²³⁷ Dell Computer AB reported in its annual reports 1996-99 that it had 96, 128, 204 and 242 locally employed people during 1996 to 1999. During the same time period it reported a sales commission of 66, 131, 329 and 513 MSEK. Hence, while sales increased with a factor of 7.77 (513/66), headcount increased with only 2.52 (242/96). These figures are not fully comparable since activities were shifted around within Dell Nordic and Dell EMEA. Most people that were added during 1996-99 to the local organisation were sales people reflecting to increasing local focus on sales activities.

During the autumn of 1997, Dell Sweden started to integrate its marketing communications with the Internet in order to direct its customers to the Internet. The drive to integrate the whole firm with the Internet was driven by Dell Corporation. Leaflets, price lists, and advertising would present the “Build your own machine at dell.se” slogan. The goal was to transfer as much customer contact as possible from the phone to the Internet in order to save on costs. Dell Sweden started to offer subsidies, mostly in forms of free freight, to those customers opting to purchase their computers on the Internet. By mid-1997, the Internet site accounted for USD 2 million in daily sales for Dell Corporation, and was growing by 20 percent a month and contributed to five percent of total sales at that time. By the end of 1997, sales for Dell Sweden over the Internet settled at about five per cent of total sales and grew in tandem with the overall sales growth.

The Internet turned into being Dell Sweden’s new order handling staff, configuring and ordering the PC. As a result, Dell Sweden was becoming even more of a reseller of Intel and Microsoft products. Furthermore, the transparency of its offering increased. Swedish customers were increasingly sensitive to price inconsistencies since they could compare prices and performance from many vendors easily. In response, Dell Sweden set up a local pricing unit, which monitored the price developments in the market place as presented on the Internet by itself and its competitors. To make sure that Dell Sweden was competitive, prices were adjusted daily. Dell Sweden did not always match competitors, but it took great care never to surrender its position as the branded computer maker with the lowest prices. By setting up the local pricing unit, Dell Sweden digressed from standard prices set by Dell EMEA, which were set in Euro and were supposed to be used uniformly across national markets.

Dell Sweden discovered that customers who used the Internet bought more expensive products via the Internet than via the phone. Left to their own devices on the Internet, customers would naturally start to up-sell themselves. The configuration facility provided on the Internet stimulated customers to order extra options, especially from corporate accounts where customers often had a fixed amount that they could spend and tried to use up the last penny. The average closing price usually fell just short of about 10 percent above the average selling price achieved by phone. Dell Sweden made the Internet address a part of its marketing communication. The Internet site was also becoming the first point of contact for some customers.

In 1997, Dell Sweden made its customer database a key competitive tool. On a regular basis Dell Sweden measured many financial indicators. From 1995 and onwards, Dell Sweden measured non-financial indicators to assess the operational performance. Dell Sweden measured 1) How many new customers it acquired over a given time period, 2) How many customers it had in total, and 3) How many customers it was losing partly or completely during a given time period.

With the shift of customer contact to the Internet, Dell Sweden started to gather more data about its customers and their behaviour. It collected more than 50 variables generated by the Internet and phone from customer interaction. By logging end-user contact, Dell Sweden got a good grip on purchasing behaviour, demand developments, and configuration preferences. The logging made it possible to guard product quality and customer satisfaction. The logging of customer contact also showed clearly what Dell Sweden had long known, but had been unable to measure adequately. Those customers not belonging to the large business segment, who still bought Dell computers, behaved and had the same or similar needs as the large business segment customer.

The Creation of the Customer Segment Model

Dell Sweden's offer to the market and its way of approaching the customers proved perfect for mature, big businesses with strong internal computer departments. These departments had bought IBM historically and had a high internal level of knowledge and were mature buyers of computers. They did not need the hassle of going via a reseller; instead they wanted speed and accuracy. Furthermore, the internal computer department could argue and defend why it should remain a part of the firm, and could justify its existence by performing a slight customisation of Dell computers.

A conclusion drawn by Dell Sweden from the gathering of behavioural customer data was that in order to be able to attract customers belonging to other segments it had to develop a new strategy. The main ambition with this new strategy was to enable Dell Sweden to penetrate the private/home small business, medium business, and parts of the public segment where Dell had moderate success. Dell Sweden had so far not been able to succeed in these segments, for lack of resources, preoccupation with the large business segment, and lack of ideas on how to reach these customers efficiently enough.

Whenever Dell Sweden had tried to reach out to customers belonging to these segments in a manner not traditional it, costs ran up faster than sales. Yet, finding profitable ways to sell to these customer segments was a necessary step if Dell Sweden was to rid itself of its dependence on a few big accounts that provided the bulk of sales. Furthermore, Dell Sweden was troubled by its limited ability to serve multinational business customers who demanded one-stop shopping on a world-wide basis for standardised solutions, a segment where it had a strong position but where purchasing patterns were changing.

Other national markets within Dell EMEA experienced limited success in several customer segments. Dell Sweden was one of the seven markets in Europe where Dell was growing most rapidly. In addition, it was considered one of the more mature markets in Europe. The difficulties encountered in Sweden were taken with great seriousness at Dell EMEA. Dell EMEA's growth in Europe was driven by increased demand from business customers throughout the region. In the second quarter of 1998 Dell EMEA announced a unit growth of 87 per cent compared to the same period the year before. This growth rate was almost five times the growth rate of the overall European PC market.²³⁸

²³⁸ Dell Financial Interim Report, Second Quarter 1998, www.dell.com

This pattern was consistent with how Dell Corporation fared in the USA market. But there were differences between Dell USA and Dell EMEA. First, Dell USA grew faster overall than Dell EMEA despite the fact that Dell Corporation had a higher market share in the USA. In addition, the variation in performance between individual European markets was quite substantial. Dell EMEA was strong in the UK, weak in Germany, and moderately successful in France.

There were several major markets in Europe where Dell EMEA was not represented, like Italy. In February 1998 Dell EMEA announced that it had opened a direct sales office in Italy. Dell had previously sold its products in Italy through an exclusive channel member. This co-operation had generated significant sales of Dell products to both small and large accounts. Dell EMEA had hitherto neglected the Italian market, the fourth largest market in Europe, because of lack of resources to develop many markets simultaneously. Dell Italy would focus on the business sector initially, but the plan was to introduce most products within a short time span. This aggressive roll out resulted from the belief within Dell EMEA that it had developed strong skills in geographically extending its concept.²³⁹

Dell Corporation considered Europe a complicated market with a nationalistic orientation. These markets were isolated national markets that were difficult to access and serve, and with a tendency to highly value long-term personal business relationships. Previously Dell EMEA had been of secondary importance but it was now becoming a top priority since Dell USA was reaching a 20 percent market share and growth was expected to taper off. The USA market generated huge surpluses that Dell Corporation could invest in Dell EMEA. In early 1998 a decision was taken by Dell Corporation to try to conquer the European market. Dell Corporation decided to benchmark the European operations with the USA operations in order to improve the performance of Dell EMEA, which was lagging both in terms of geographical coverage as well as market and product penetration.

Dell Corporation had organised its operations into four geographic regions and supported customers in each area through four independent regional business units. The Americas region, which was based in Round Rock, Texas, covered the United States, Canada, and Latin America. The EMEA region, which was based in Bracknell, England, covered the European countries and also some countries in the Middle East and Africa. The Asia Pacific region, which was based in Hong Kong, covered the Far East (exclusive of Japan), Australia, and New Zealand. The Japan region covered only Japan and was based in Kawasaki. All regions also had their own manufacturing facility, bar Japan: Dell manufacturing facilities were located in Austin, Texas; Limerick, Ireland; and Penang, Malaysia.

²³⁹ Dell Continues European Expansion with opening of Italian Office, Dell Press Release, February 23, 1998

In the USA, operations were divided into four regional units: North, West, South, and East. Each region was responsible for its corner of the USA market. Inspired by the USA organisation, four regions were created during 1998 to capture the European market. The regions were run from Dell EMEA's headquarters in Bracknell, UK: Western Europe, Northern Europe, Southern Europe, and Central Europe. Africa and the Middle East belonged operationally to EMEA, but were of marginal importance in terms of sales and managed themselves.

The basic idea behind the reorganisation was that Dell EMEA needed better mechanisms for learning across national borders. By creating a new management level that would interact with country managers, Dell EMEA thought that it would facilitate learning. The goal was to avoid making the same mistakes in several markets and also to speed up the implementation of the Dell way of business in the European marketplace.

Even within the Nordic region there were substantial differences. Dell Nordic was successful in Sweden, but not strong in Norway, Finland, Denmark, and Iceland. In particular, Dell did not sell well in Norway. In Finland it had first entered the market briefly, then pulled back using an agent, and then eventually bought the agent in 1998. Finland had been considered a marginal market, but Dell reconsidered this view, when it realised that Finland was strong both in terms of both PC and mobile penetration. Denmark had been neglected by Dell Nordic and had been left in a vacuum between Dell Nordic and Dell Germany.

The success in Sweden was partly a reflection of the industry structure with most large businesses headquartered in Stockholm. The establishment of Dell's headquarters in Sweden made the organisation mainly Swedish and focused on Sweden. In February 1998 Dell EMEA announced the creation of the Northern Europe region. This region included the Benelux and Nordic countries and was run from Bracknell, UK, close to Dell EMEA's headquarters. The Northern Europe Region replaced the Nordic organisation based in Stockholm. The support, service and sales for the whole Nordic market had been largely based at the Swedish office in Uplands Väsby²⁴⁰. The closure of the Nordic Region led to a management reshuffle. The creation of the new regional unit, Dell Northern Europe, served an additional purpose of distributing Dell's activities in the Nordic Region.²⁴¹

In early 1998, about 90 per cent of total sales in Sweden went to those customers segments (Large Businesses, Public Customers and Medium Sized Businesses) where relationships could be established. This proportion had been quite stable during the 1990-97 period. Within Dell Northern Europe there was activity devoted to designing strategies for making stronger inroads in the segments of private consumers and medium and small businesses.²⁴²

²⁴⁰ Computer Sweden, *Direktsäljande Dell styrs av kundernas plånböcker*, Stefan Bohlin, October 25, 1996.

²⁴¹ Dell Announces New Northern European Region and Appoints Vice President, Northern Europe, Dell EMEA Bracknell, February 23, 1998

²⁴² Nu lägger Dell in övertäckning, IT-branschen, Maria Ottoson, No 1, 1998.

Dell Northern Europe realised that the demands of these markets were different, especially in terms of support needed to help these new customer categories in the use of their computers. Dell Sweden had earlier avoided the trend toward sub-USD1000 systems. Instead, Dell Sweden had focused on increasing sales of notebooks, servers, and workstations to large business customers.

Volume	1995		1996		1997	
Compaq	1922	100	2049	100	2889	100
EMEA	1922	100	2049	100	2887	100
Indirect	0	0	0	0	2	0
Direct						
Dell EMEA	532	100	741	100	1124	100
Indirect	51	10	68	9	101	9
Direct	481	90	673	91	1024	91
IBM	1356	100	1589	100	1835	100
Indirect	1292	95	1535	97	1779	97
Direct	65	5	53	3	56	3
Hewlett-Packard	725	100	881	100	1224	100
Indirect	725	100	881	100	1224	100
Direct	0	0	0	0	0	0
Total EMEA	14708	100	16312	100	18969	100
Indirect	10606	72	12132	74	14311	75
Direct	4102	28	4180	26	4658	25

*Table 10.16 PC distribution channels in Western Europe.*²⁴³

By creating a new organisational unit separate from the Stockholm office, Dell Northern Europe would start penetrating the small business and private/home customer segments where it was weak. The organisation for this was relocated to Copenhagen, Denmark where a new regional call centre was established in June 1998.

²⁴³ IDC and Dataquest. Quoted from Gabrielsson, 1999. Figures are stated in total and for selected companies in 1000 units and percentage share.

The call centre would focus on the private/home and small business market in Denmark, Finland, Norway, and Sweden. The centre was given the explicit mission to figure out how these segments could be served profitably and successfully.²⁴⁴

The split of the organisation into customer segments was not carried out completely. A number of functions that were remnants of the Dell Nordic organisation were left in Sweden. In addition, local management favoured duplication of functions across the Nordic countries, instead of central functions for the whole region.²⁴⁵ Most customers in the Nordic Region did not notice the organisational changes within Dell EMEA. Instead of interacting with Dell Sweden only, most customers were interacting with Dell Sweden, Dell Northern Europe, and Dell EMEA for service, support, and sales. Every customer segment had a special organisational unit towards that purpose. This unit was not country specific, but segment specific.²⁴⁶

Instead of unified national subsidiaries, managed independently and catering to customer segments in a given geographical market, the market was redefined. This region was a larger geographic entity and enabled Dell EMEA to divide the organisation into organisational units that could specialise in customer segments across regions, following the USA example. This implied the closure of Dell Nordic, which enabled Dell Northern Europe to grow fast without incurring too high costs.

The reorganisation did not mean a reassessment of the basic customer segmentation that Dell Corporation and Dell Sweden had come to practise in the early 1990s. In Sweden, many employees working with private/home and small business customers were asked to move to Copenhagen. In addition, new sales and support staff was recruited in Copenhagen and southern Sweden. Those employees who did not want to move to Copenhagen were offered work mainly in the medium-sized business segment, in which Dell Sweden tried to increase sales, for the first time challenging the stronghold of Swedish resellers.

²⁴⁴ Dell Announces New Northern European Region and Appoints Vice President, Northern Europe, Dell EMEA Bracknell, 20 February 23, 1998.

²⁴⁵ Dells nya satsning i Sverige, Helena Reistad, IT-Branschen, No 1, 1998.

²⁴⁶ This way of organising the operations of Dell Sweden implies that there are no meaningful official records of how Dell Sweden has performed financially. From the local annual reports it can be inferred that Dell Computer AB is a whole owned subsidiary of Dell International, Inc. Delaware, USA. This company is the legal unit responsible for the Swedish market. Dell Computer AB obtains its computers mostly from an entity called Dell Products, which deliver products to customers in Europe. These products are manufactured in the US and in Ireland. Dell Computer AB is only a commissioner, implying that there are no reliable figures of its turnover for the local operations. Instead, Dell Computer AB reports the margin that it obtains from commissioning the computers. Since Dell EMEA can set this margin at its own convenience, the figures do not tell much about the financial performance of Dell Computer AB. For example, according to the annual reports of Dell Computer AB it sold products from Ireland for 1.419 MSEK during 1997-02-01-1998-01-31 and made a profit before appropriations and taxes of 26 MSEK. Sales were 3.570 MSEK during 1998-02-01-1999-01-31, and it made a local profit before appropriations and taxes of 87 MSEK. During 1999-02-01-2000-01-31, Dell Computer AB reported sales from Ireland amounting to 2.224 and a profit before appropriations and taxes of 21 MSEK. This year was very good for Dell in Sweden, and so the change in reported sales reflect a change of reporting procedure, making the figures confusing.

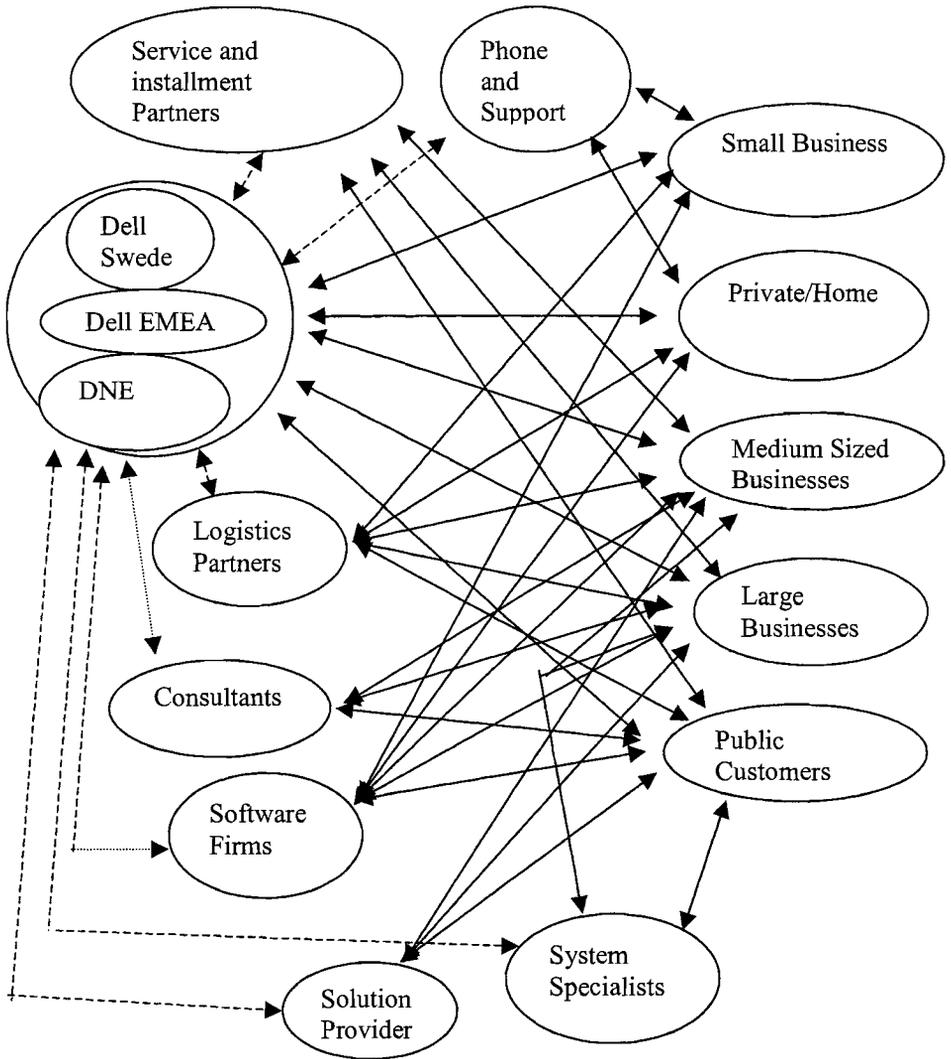


Figure 10.9 The Customer Segment Model²⁴⁷

²⁴⁷ The Customer Segment Model was characterised by segmentation according to customer group. This implied specialisation according to customer segment rather than national market. This enabled every customer segment unit to develop particular skills for its particular segment. This was achieved by splitting the Dell Nordic Region organisation, creating the new Dell Northern Europe unit and by moving the small business unit to Copenhagen. The arrows indicate instances and direction of capability acquisition. Dotted lines indicate indirect capability acquisition.

The Global Accounts

As Dell Northern Europe focused on the private/home and small business segments via the new centre in Copenhagen, there were new challenges emerging in the large business segment that forced Dell Sweden and Dell EMEA to introduce new services and products. Dell Sweden could sense that the buying behaviour of its core customers, large businesses, was changing. Dell Sweden became aware that multinational corporations increasingly demanded one-stop shopping across several national markets or even continents. The reorganisation of Dell Nordic allowed Dell Sweden to focus on its business customers. Special task forces were set up to focus on one customer. The task force was set up as close as possible to the headquarters of the buying organisation, attempting to take global responsibility for all purchases made by that customer.

In addition, multinational firms wanted services that Dell Sweden was unable to provide or could provide only with great effort and cost. These services included one-stop shopping for many national markets, total cost of ownership programmes including financial services, hardware and software standardisation, inventory management, theft protection programmes, and service programmes. The changing needs from large business customers were particularly clear in the server business. Dell Sweden developed VAS (Value added services) programs for dedicated servers.

The trend was towards fragmentation – previously one server had been used for up to three different tasks, now every server was to be pre-configured to a certain task, for instance e-mail, storage, web, and database servers. Furthermore, customers were demanding pre-installed applications programs like SAP, Microsoft Exchange, and Lotus Notes. Large business customers could via VAS order pre-configured specially tuned servers for special tasks.²⁴⁸

Dell Corporation also announced a program, called DirectEffect, starting in the USA and the UK, to increase the number of software applications available across its product line to assure customers that the software they deployed on Dell systems were proven and tested. The program was designed to formalise the way Dell worked with an increasing number of third-party solution providers. By using the capabilities of the Internet, the ambition was to offer access to, and information about Dell software alliances. Through the Direct Effect Program, independent software vendors could certify and support their products with Dell hardware and take advantage of being listed on Dell's website, thereby enhancing their opportunity to sell software.

Through the "Direct Effect" website, software vendors could download, complete, and submit an application for membership into the program. Upon approval, the vendor could purchase Dell hardware at reduced rates for development and demonstration purposes, be listed on Dell's website and have their products made available through DellWare, a division of Dell that resold third-party products, peripherals, and services. In effect, this made Dell a vendor of software.

²⁴⁸ Ed Thompson, Gartner Group, quoted in Dell Direct, Customer Newsletter, No 1, 1999.

In November 1998 Dell EMEA launched a new set of services for large business customers. Dell EMEA saw it as a clear step towards achieving its goal to become the vendor of choice for customers who were using industry standard based solutions to run their mission critical applications. The new services offered support in a number of areas, provided through Dell's virtual service partners, utilising the worldwide business partnerships with Wang and Unisys.²⁴⁹

Dell EMEA also improved its pre-sale services for large business customers who needed to test large complex implementations before projects were rolled-out. Dell offered "the European Applications Solutions Centre". Based in Limerick at Dell's new manufacturing plant and modelled after a similar centre in Austin, Texas, this facility allowed for proof of concept testing, performance analysis, tuning, and systems integration using both Dell and business partners products. It was capable of simulating environments of many thousands of users.²⁵⁰

A way to attract and keep large business customers was global supplier partnerships with important customers. Dell EMEA offered one-stop shopping on a global basis. Shell Oil was the strongest reference Dell EMEA had. Shell's IT department approved and defined what standard configurations Shell bought. Dell EMEA and Shell set up sales support in every country; and reports that told Shell management where the machines went and at what prices. This meant that the Swedish multinationals could buy their computers from one source and use one main point of contact.

The premier example that Dell Sweden used as a reference customer in Sweden was Skanska, who chose Dell Corporation as its global supplier. Whenever anyone of Skanska's 37 000 employees needed a new computer Dell EMEA would deliver and pre-install the software that Skanska required. The customer received a computer ready-to-use and saved a lot of money. Suddenly, customers of Dell Sweden could purchase computers for the whole organisation regardless of where in the world the firm had offices.²⁵¹

²⁴⁹ Dell and Wang Global Announce A Strategic Partnership in Europe, Middle East and Africa, Press Release from Dell EMEA, Bracknell, March 20, 1999. Dell Corporation and Wang Global had formed their initial relationship in 1994 and gradually augmented it, with Wang Global providing services on Dell products in an increasing number of countries.

²⁵⁰ Innovative Systems Designed for Space-Conscious Corporate Data Centres, Dell press release, November 3, 1998.

²⁵¹ Veckans affärer, King Dell kopplar greppet, Hans-Olof Englund, June 2, 1996.

Dell Sweden also launched ImageWatch, which was a service that gave Dell customers advance notice about future changes in Dell's products.²⁵² This service was directed to IT-managers in large firms and organisations and had been developed in the USA in co-operation with Ford and Boeing. When other customers found out about the special treatment that Ford and Boeing received, they insisted on the same service, which forced Dell Corporation to launch a formal programme. Via ImageWatch, IT-managers got support for their planning of future purchases and renewal of the systems. Up to 6-12 months prior to product launch they would receive information about hardware changes, peripherals, and software. The ambition was to offer a possibility for IT-managers to plan for shifts in technology in order to keep down costs. ImageWatch co-ordinated the plans of IT-managers with Dell product launches and stimulated customer loyalty. ImageWatch was made available for customers in Europe, USA, Canada, and Japan. Those who got access had to confirm in writing that they would safeguard the information.²⁵³

The thought behind these efforts was to create an offering with unparalleled customisation of product and services. In addition, by creating rich intimate information flows, Dell Sweden set out to communicate trust and accountability towards its business customers with the clear message that co-operation would be beneficial to both parties. By entering into complex, demanding contracts with its customers in return for single supplier status Dell Sweden wanted to exclude its competitors and take control of the customer relationship. During the Customer Segment Model in 1997-98, Dell Sweden managed to negotiate far-reaching contracts with large business customers such as Telia, Volvo, and SEB, which contributed to sales growing by more than 50 percent per year in Sweden.²⁵⁴

The Information Systems Strain

As Dell Sweden gradually transferred its customer interaction to the Internet by shifting its emphasis from the phone to the Internet, it encountered serious strain on its information systems infrastructure. The development of internal systems had been lagging, despite the fact that Dell Corporation had built much of its success on efficient logistics and clever information systems. Inside Dell Sweden and EMEA there was a mixture of internally developed software programs and modules, and externally written standard programs, and externally written tailor-made programs. Many of these programmes were connected; some were stand alone and occasionally even nationally oriented.

²⁵² Dell Imagewatch Service Enhances Technology Management for Corporate Customers, Dell Press Release, January 22, 1999.

²⁵³ Dell Direct, Customer Newsletter, No 1, 1999.

²⁵⁴ Nu lägger Dell in överväxeln, Maria Ottoson, IT-Branschen, No 1, 1998.

Dell Corporation in 1995-96 tried SAP R/3, but discarded it as too complex and rigid. Dell Corporation did a number of feasibility and cost studies, but decided not to implement it. One thing that scared Dell Corporation was the costs that would arise every time Dell Corporation would have to implement changes in the systems. For EMEA which mainly used Scala, it would become an extremely expensive exercise to change to SAP, since Dell EMEA had developed special versions of Scala to fit the local markets.

Over time the national systems had become increasingly different depending on the evolution of national market conditions. Differences in tax, logistics, business terms, currencies, vocabulary, segmentation, and products made a consolidation of the business systems too expensive for Dell EMEA and Dell Corporation at that time. A fundamental problem was that Dell Corporation had a unique production process that most ERP-suppliers could not handle or adapt to without significant rewriting and associated costs. In Bray, Ireland, where most of the information systems infrastructure was hosted, figures and data were consolidated by rudimentary back-end systems that could handle the national differences.

In 1997 Dell Corporation took the initiative to create a new business system. A major reason was the growth of the business generated via the Internet. In 1997, many customers tried to buy via the Internet, but had to give up or had to be helped by the phone. In addition, all orders that were received via the Internet had to be manually checked and manually entered into Dell Sweden's legacy system. In many cases the customer had to be called for clarification. Meanwhile Dell was devoting its resources to adopting the direct seller-buyer concept from a phone to an Internet interface. It had a thorough internal debate as to whether orders for computers should be linked directly to Dells legacy systems, mainly supplied by Scala, or continue to be manually entered.

When the volumes increased Dell EMEA found it necessary to implement a new system and started a project to implement Oracle Finance, which was installed in Italy, where Dell EMEA had opened up operations in 1998 and could start from scratch. The plan was to adjust and refine Oracle Finance and then to roll it out as quickly as possible across Europe. There were numerous problems emerging with the program that had to be solved first, which delayed the implementation of it in Europe. In the meantime, Dell EMEA attempted to standardise the legacy systems as much as possible to simplify a shift to Oracle Finance.

Dell Corporation mixed different suppliers in order to create the best IT-solutions that handled everything from production to order handling. This led to high costs when staff changed tasks within the organisation or when a reorganisation was to be enacted, since it was not clear which system should be used. In addition, Dell Corporation and Dell EMEA were coming to a point where they had huge quantities of data that they did not know how to, or were unable to, consolidate into meaningful information. During 1997 a number of report cards were created, which aimed at addressing this issue. Many of the reports were created by e-mails delivered to others, who then consolidated the information and aggregated it further before it was presented to top management.

Dell Corporation claimed that it was one of the most daring corporations in the world when it came to mixing different business programs and information systems. Dell Corporation utilised a best-of-breed-strategy (to choose the best solutions for each module) instead of the traditional strategy of having one supplier and an integrated solution.²⁵⁵

To support this strategy, Dell started to build an internal architecture called G2 that linked internal programs through a system for message handling and implemented a system from Glovia for materials administration. Glovia was also integrated with Dell's own logistic system and with Oracle Finance. The goal with the Oracle-system was to fit units around the world into an integrated order system that also included all transaction handling.²⁵⁶ While Dell EMEA was awaiting Oracle Finance, the information infrastructure developed itself differently in various national markets. Across EMEA management information systems like Hyperion, Ross, and EDW were used, replaced, and experimented with.

The Premier Pages

Dell Sweden's original business customers were not using the Internet site to the extent that it had expected. This pattern was consistent with the development in the USA, where customers of Dell USA did not buy much either. Instead, Dell USA was testing the effectiveness of TV-spots to generate phone orders for its products, which was an unusual step for a firm that derived the vast majority of its revenue from the business market.²⁵⁷

Most customers used the established phone channel to place orders and to gain information. In many cases the sales representatives and buyers knew each other by name and many Dell representatives entertained these relations intensively, afraid that they themselves would lose business and bonus to the Internet channel. As the management of Dell Sweden came to realise the potential channel conflict it started to design a new incentive system for its selling representatives. Sales representatives were attributed bonus for sales made via the Internet. It no longer mattered to the sales representatives if the sale was made via the phone or via the Internet or a combination, since the bonus was calculated on the customer account level. This measure quickly transformed sales representatives to ambassadors of the Internet as they realised that they could save time by transferring business to the Internet.

The sales representatives were given a new tool when Dell Sweden started to utilise a practice developed by Dell.com, the "Premier Pages". Premier page Internet sites were customised password protected Extranets, which Dell Sweden created for its corporate and public-sector customers. The practice started 1996 in the USA with Boeing and Ford as customers.

²⁵⁵ Computer Sweden, Dell väljer och vrakar bland leverantörerna, May 29, 1998.

²⁵⁶ Computer Sweden, Dell väljer och vrakar bland leverantörerna, May 29, 1998.

²⁵⁷ Dell tests TV as phone order generator, Bradley Johnson, Advertising Age's Business-Marketing, March 1996, Vol. 81, No 2, pp 2, 4.

To minimise processing errors, information specific to the customer – system preferences, support details, and inventory management policies – was included on the Internet page. Ford Motor cut procurement costs by two million USD when it moved its business with Dell online. Dell USA saved money too, because it did not have to hire as many order-entry people.²⁵⁸

The Premier pages provided one-stop access to simplified purchasing, purchase history reporting, order status, and help desk support made available to the customer. The premier pages enabled customers to configure and price the PCs they planned to buy. By mid-1998, there were more than 3 000 worldwide customer specific premier pages. This would grow to a worldwide total of over 12 000 by the end of 1999.

In Sweden the premier pages practice was implemented slowly towards the end of 1997 with about 15 accounts and then rapidly during 1998. Most of the pages were designed for one particular customer, but there were also group pages for medium sized businesses and special pages for public customers. The most effective premier pages proved to be those that were specially designed for a particular firm. By creating unique interfaces for each company or groups of companies, Dell Sweden communicated to customers that they would obtain special attention and customised customer contact in addition to product customisation.

The major benefit of using premier pages for the customer was that it offered a modicum of control over prices, models, and configuration. Dell Sweden tailored the offerings on every premier page to reflect the business deal struck between Dell and the customer.²⁵⁹ It offered reporting and statistical capabilities, informing the buyer of its business with Dell Sweden. The premier pages programme allowed Dell's sales representatives to negotiate overall agreements with the buying organisation and then deliver via the Internet as the buyer could order individual units from the Internet. Once a customer had obtained the premier pages they proved to be more loyal and satisfied customers.

Dell Sweden would offer three levels of access: user, buyer, and manager. The access levels involved several decision-makers within the buying organisations and assigned them roles based on importance and need. Users could see configurations and prices, buyers could place orders and see prices, and managers could do everything including getting reports. In addition, the order formula could be tailor-made according to the needs of the buyer – fields could be added or deleted.²⁶⁰

In principle any customer could have premier pages and have them operational within a few hours. From the customer page it was possible to have links to the homepage of the customer and to Dell's support pages. The customer got direct access to the account team at Dell.

²⁵⁸ Americas Most Admired Companies, Eryn Brown, Fortune, March 1, 1999.

²⁵⁹ Dell Announces Premier Dell.com, Press Release, September 8, 2000.

²⁶⁰ Dell Direct, Customer Newsletter, No 1, 1999

One result of the advance of the premier pages was that Dell Sweden suddenly could not maintain its list prices in the small business segment. It kept its list prices for its small business customers fairly high and stable, but via the premier pages Dell could give lower prices without them being exposed to all customers. In effect, this gave Dell Sweden possibility to match prices with the bargaining power of every customer group and maximise revenue from each one.

Within Dell Sweden, salespersons that used Dell.se to the full could achieve individual sales increases from five to eleven million USD. When salespersons realised that they could significantly raise their bonuses via the increased sales, the Internet was pushed hard. Dell Sweden also designed its Internet site so that customers could bring portions of it into their own intranets, and could integrate it into their own internal processes, and tailor it for their own employees to use. This lowered the customer cost of doing business with Dell Sweden and it kept customers loyal.

In the middle of 1998, Dell Sweden launched an Internet-based, paperless purchase order system. The system was designed to increase order accuracy, aid in receiving computer systems faster, make budget planning easier, and reduce duplicate procedures. The new paperless purchase order system was designed in conjunction with key Dell Sweden customers, among them Skanska. The goal was to obtain the simplicity of the Internet with the security normally found in EDI solutions. By completing a form and returning it to a Dell Sweden account executive, a customer of Dell Sweden could get subsequent purchase orders submitted and processed electronically.²⁶¹ The paperless purchase order system was made possible through the development of Dell's premier pages. By adding and integrating the paperless ordering system Dell Sweden augmented the functionality of the premier pages. A result of the paperless purchasing order system was that many customers decided to buy all their computers from Dell Sweden to maximise their savings and streamline their purchasing.

The paperless purchasing system enabled Dell Sweden to establish standardised electronic links with customers to facilitate the basic flow of money, information, and goods between the parties. This was common in the industry between manufacturers and their suppliers, between manufacturers and wholesalers, and to some extent between wholesalers and resellers, but it was uncommon between manufacturers and customers. The Internet was involved in the purchasing process in more than 50 percent of all individual unit purchases and about 25 percent of all sales in 1998. Dell Sweden was increasing its personal sales staff. It was the sales representatives who with personal sales calls closed the overall agreements and implemented the sales targets. Their success would then be described and defined as Internet sales. The sales on the Internet were closely aligned with the success of the sales representatives.

²⁶¹ New paperless purchase order moves Dell customer premier page service a step closer to virtual integration, Press Release from Dell, June 17, 1998.

The HomePC Debacle

During 1998, the sale of “HomePCs” increased rapidly for Dell Sweden and other suppliers. During the first quarter of 1998 Dell Sweden reached the third position in Sweden with 26 500 sold units (+40%). Lap Power sold 6 300 computers (+23%) during the same period according to DIA.²⁶² HomePCs were a result of a tax reduction scheme, introduced in January 1998, whereby an employer could offer a computer to its employees at a reduced tax rate. Over night the demand for computers increased strongly as the special variation of the private/home segment boomed.

The segment was special since Dell Sweden could use its established business relations with large businesses to sell computers to private individuals. In the early 1998 Dell Sweden quickly created specially designed packages that would fit this segment and marketed them to its relational segments. Dell Sweden thought that this would be an opportunity to enter the private/home segment via its established relationships, since it could leverage its business relationships to also enter the home computer market.

Dell Sweden spent 1998 trying to support the new customers by phone. Dell Sweden was taken by surprise by the extent of the support needs that the new customers had. The strong demand for support made the HomePCs business unprofitable; instead it proved a serious problem in terms of customer satisfaction. Many customers needed phone based computer introduction and education on a scale that Dell Sweden was not prepared or able to provide. This demand for support congested the support lines and created long wait-times for customers.

Dell Sweden found out that in many cases it could not help its new customers properly. Dell Sweden received bad press and had to defend its support performance by attributing it to the unexpected sales growth. One reason that the support facilities became strained was that Dell Sweden had trouble with fulfilment. Shipping computers to private individuals was not something that Dell Sweden was used to. Dell Sweden had many delays, missed to deliver what was ordered, and shipped the wrong computers to the wrong customers. Dell Sweden had to send out its channel partners on many service missions, since many customers did not even know how to start their computers.²⁶³

Dell Sweden realised that it was not equipped for the (immature) new customers, mostly private individuals who had never before owned a computer and now suddenly were using Dell’s support department that was devised for mature professional buyers. The home computer orders contributed to volume increase, but it implied problems for Dell Sweden and for the customers.

²⁶² Veckans affärer, King Dell kopplar greppet, Hans-Olof Englund, June 2, 1996.

²⁶³ Resumé, Försäljningen över nätet klickar rejält, Lars Ahlberg, March 19, 1998.

The trouble with the home computers forced Dell Sweden to reconsider its support activities and augment them substantially. Dell Sweden increased its internal service support staff with 27 people to improve the service to its customers during the summer of 1998. Dell soon realised that it could not handle support for the new customers and instead opted to use an external channel partner for these customers. This did not work properly and Dell Sweden changed service partners repeatedly.²⁶⁴

Entering 1998 Dell Sweden had about 50 000 invoiced customers. With the HomePC, Dell Sweden obtained direct contact with over 10 000 new end-users during 1998. This made Dell Sweden lose its overall operational focus and by mid-1998 Dell Sweden decided to raise prices in order to regain control over its support organisation and to avoid or reduce further sales in the HomePC segment. Dell Sweden felt that the “HomePC debacle” became a serious problem when its new customers did not get the attention they deserved or desired.

To solve the immediate problems Dell Sweden handled the complaints by compensating individual customers in money, time, or new computers. Just as Dell Sweden aimed at becoming a serious contender in the home computer segment the home PC seriously tarnished its image. In customer surveys during the autumn of 1998 Dell Sweden found that many of its regular business customers held Dell Sweden in higher esteem than private customers.

Country	No of sold computers in 3 rd quarter of 1998	Increase compared to same period 1997
Germany	1 285 983	18.9
UK	1 112 384	18.0
France	775 800	21.5
Netherlands	326 499	18.7
Italy	316 000	17.9
Sweden	313 683	68.6

*Table 10.17 PC sales in different European countries for the third quarter 1998.*²⁶⁵

²⁶⁴ Dell Direct, Customer Newsletter, No 1, 1999 From March 1999 all machine service was to be carried out by TeliService AB. For on the spot service Unisys AB was used, except for northern Sweden or for some large firms, where Telenor Comma continued to provide services.

²⁶⁵ Dataquest Inc. quoted from Dagens Nyheter, October 29, 1998.

The Customer Segment Model and Electronic Commerce

In 1997, the market share of Dell Sweden jumped from 7.3 to 18.3 percent. The unit volume growth in 1997 resulted from strong demand for products across product lines. This growth reflected Dell Sweden aggressive sales efforts, including pricing aimed at winning new customer accounts and increasing the penetration of existing customer accounts.²⁶⁶ Sales over the Internet were however limited. The new website offered the opportunity for customers to place orders with a configuration and price calculation facility that provided interactivity (BTO and CTO). This was complemented with the introduction of premier pages that provided personalisation to a select number of customers.

While desktop products remained the primary drivers of unit volumes (comprising about 85% of total units shipped during 1997), the growth rates in both the server and notebook product lines exceeded the growth rate in desktops during 1997. Unit sales of notebook computers and server products increased by 70% and 160%, respectively, during 1997. The effect of the increased unit volumes on consolidated net sales was partially offset by a decline in average revenue per unit, which decreased by 6% in 1997 compared with 1996.²⁶⁷

The success in the Swedish public sector was a key reason as to why Dell Sweden increased its revenues to such an extent. This segment had received attention by Dell Sweden since 1993. It was not a demanding customer group from a service or technology perspective. Instead, Dell Sweden had built its position as a reliable and value oriented supplier. This process took a number of years. Once it had persuaded the governmental unit responsible for purchasing that it was a competitive supplier on price that could aid the government in lowering computer costs, Dell Sweden won further approval, which contributed to a strong boost in sales that would continue into 1998. The 4th quarter statistics of 1998 from Statskontoret (the governmental office for public purchasing) showed that Dell Sweden had sold almost as much as HP Sweden and Compaq Sweden combined.²⁶⁸ The sales figures indicated that Dell Sweden was not particularly effective in diversifying its sales away from desktops that it was able to price competitively.

By 1998, Dell Corporation had become one of the top five computer vendors in the world as a result of its continued sales growth. It was even stronger in Sweden. While Dell's machines were still cheaper than comparable ones from Compaq and IBM, Dell Sweden was not able to lower prices as fast as they had usually done.

²⁶⁶ Annual Report, Dell Corporation, 1998.

²⁶⁷ Annual Reports, Dell Corporation, 1998 and 1997.

²⁶⁸ Quoted from Dell Direct Newsletter, 1st quarter 1998.

Normally Dell Sweden had enjoyed a SEK 1000-2 000 advantage, but that advantage was nearly gone. IBM, HP, and Compaq had cut costs to the bone, and Dell Sweden's price advantage suddenly appeared marginal. There was a realisation that the classical price/performance language used towards the customer was resulting in the PC becoming a commodity. Dell Sweden was building its business with little scope for differentiation and its margins would come under increasing strain as component prices fell.

By reorganising Dell Sweden according to customer segments on a larger geographical basis than Sweden itself, Dell EMEA thought that it would be able reach the different customer segments efficiently. The customer segmentation model facilitated a reorganisation of Dell Sweden, the closure of Dell Nordic and the creation of Dell Northern Europe, which made the European organisation similar to the Dell organisation in the USA. In the USA, Dell had utilised further segmentation as the principal way of handling growth, but Dell Sweden on its own had believed that further segmentation would not solve this problem, given the relatively small market and the costs associated with creating a new organisation for every perceived customer segment. The introduction of the Customer Segment Model made it possible to reach new customer segments more efficiently because of the organisational specialisation and focus on every segment.

The Customer Segment Model proved to be a success, although not in the customer segments where Dell Sweden and Dell Northern Europe put most effort (private/home and small and medium sized businesses) or in the product lines (notebooks, workstations, and servers) where it wanted to grow. Dell Northern Europe was still weak in the private/home segment and in the medium and small business segments. Dell Sweden enjoyed success in the public segment because it was a reliable and accountable low cost supplier that practised "every-day-low-pricing" on standard desktops. For public customers with a need to buy at the lowest possible price to make budgets keep together, this was valuable.

Net revenue by product line:	2000	1999	1998	1997	1996
Desktops	58	64	71	78	81
Enterprise	17	13	9	4	3
Portables	25	23	20	18	16

Table 10.18 Systems net revenue by product line in per cent of total revenue.²⁶⁹

²⁶⁹ Annual Reports, Dell Corporation, 2000-1997. Dell Corporation was slowly becoming less dependent on desktops.

Meanwhile, Gateway2000 focused more on the private/home and small and medium sized businesses. Starting in 1996 it had built up a chain of over 600 stores or kiosks. In Sweden, such a location was created in the centre of Stockholm. At these locations, customers could test and order a PC. The locations provided a platform for selling services such as classes, which offered margins as high as 90 percent, compared to the 20-25 percent margin earned on the hardware. Gateway2000, to the envy of Dell Corporation, concentrated on developing revenue streams from software, financing, and training programmes tailored for these customer segments.²⁷⁰

²⁷⁰ Commentary: How PC makers are reprogramming themselves, David Rocks, BusinessWeek, October 30, 2000.

Customer Contact Mix Model 1998-

The Changing Role of the Internet

In May 1998, Dell Corporation reported its 17th consecutive quarter of record revenue growth. For the third consecutive year, Dell Corporation had achieved yearly revenue growth of more than 40 percent in each quarter. Revenue increased 52 percent to more than USD 3.9 billion in the first fiscal quarter ending May 3, 1998. Inventory turned 46 times on an annual basis. In absolute dollar terms, Dell had maintained approximately the same level of inventory over the past two years, even as its revenues grew by more than USD 7 over the same period. Return on invested capital (ROIC), which measured efficiency, was a record 229 percent in the quarter. This was more than four times the rate of the closest major competitor. In 1998 Dell Corporation products were sold in more than 140 countries worldwide.²⁷¹

Year	Electronic commerce features
1989	TFP-downloading service of computer specifications
1990	EDI links established with a small number of key suppliers.
1993	Intranet created called Dellnet
1994	The launch of the first internet site, dell.com
1996	The launch of a new version of dell.com with configuration and ordering facilities
1996	Extranet premier pages to a limited number of customers including Boeing and Ford
1999	Over 12 000 Extranet premier pages

Table 10.19 The evolution of electronic commerce at Dell Corporation.

The Internet was one reason for the strong results and the efficiency boost. During 1998 Dell Corporation received ten times as many people going to the Internet site than calling on the phone. While it was struggling to make the Internet technology work, Dell Corporation received 200 000 people every week who got their problems solved via the Internet.²⁷² In 1998, Dell Sweden received about 10 000 phone calls a day. Customers called to inform themselves about prices and configurations, to enrol as customers and place orders, to obtain information about the progress of the order and shipment details, to file complaints, to ask for service, and to receive support and information on how to use the computers.²⁷³

²⁷¹ Dell Earnings Rise 63 percent on 52 percent sales gain, Press Release, May 19, 1998.

²⁷² What Dell does best. Dan Briody, Ephrain Schwartz and David Pendery, InfoWorld, April 6, 1998, Vol. 20, No 14, pp 1, 35.

²⁷³ Computer Sweden, Försäljning över Internet ska lyfta Dell mot toppen, Stefan Bohlin, February 24, 1998.

The Internet provided an efficient way to interact with customers. Every time a customer used the Internet to place an order, to receive information and support, etc instead of calling, Dell Sweden saved money. The savings on the transaction level varied between USD 1-5, depending on the time spent by Dell staff and on what kind of staff that were engaged. By early 1999 Dell Corporation was receiving an average of 1.5 million customer visits each week and at peaks could receive up to 500 000 visits in one day. In the business-to-business sphere it was the leading Internet vendor with unsurpassed global presence and reach. In terms of revenue it was a leading contender with firms like Intel Corporation and Cisco Corporation, who were selling as much in dollar terms but had much small customer bases.

Net revenue, by region:	2000	1999	1998	1997	1996
Americas	71	68	69	68	66
EMEA	22	26	24	26	28
Asia	7	6	7	6	6

*Table 10.20 Net revenue by region for Dell Corporation.*²⁷⁴

The customer visits generated worldwide daily sales of Dell computers placed over the Internet for more than USD 14 million in mid-1999. Sales were growing steadily since 1996, adding about USD 1 million a quarter. During mid-1998 the growth in traffic to the site was surpassed by the growth in revenue, reflecting a growing percentage of visitors who became buyers. By the end of 1998, the Internet transformed itself from a tool for cost reduction to a tool of sales generation. Instead of transferring sales from other channels, mainly the phone, to the Internet, it was taken as the starting point for what Dell Sweden could do. In Europe, the sales through the Internet were USD five million per week in late 1998 and increased continuously.²⁷⁵

As the Internet usage increased in Sweden, partly as a result of the home PC boom, sales closed on the Internet nudged upwards. Dell Sweden quickly obtained a market leader position on the Internet in Sweden. The competitors IBM, Compaq, Hewlett-Packard, and SiemensNixdorf were not noticeable on Internet. No one knew exactly how big market shares the different companies had, but Dell Sweden estimated that it had a 50 per cent market share on the Internet in early 1998. In Sweden the sales reached between 1-2 million SEK per week by the end of 1998. This was six to seven per cent of total sales. But the new customers of the Internet did not belong to Dell Sweden's core customers. Some 80 percent of the customers finding Dell Sweden via the Internet were not previous Dell customers.²⁷⁶

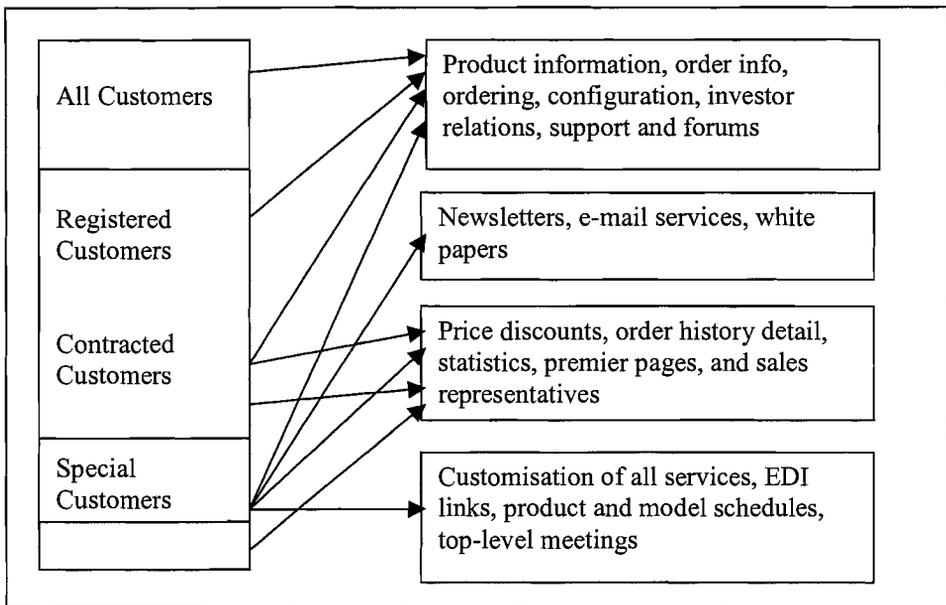
²⁷⁴ Annual Report, Dell Corporation 2000. Since Dell US implemented electronic commerce earlier than Dell EMEA and Dell Asia, it started to gain in comparison to Dell EMEA and Dell Asia, despite that Dell US had a higher market share and penetrated the US market well.

²⁷⁵ www.dell.com/se

²⁷⁶ Resumé, Rekordökning av näthandeln, May 14, 1998.

The Creation of the Customer Contact Mix Model

Dell Sweden had a growing problem with how to handle customers. Its customers were becoming increasingly diversified in terms of needs, but also diversified in their ability to combine and utilise Dell Sweden's services and support. These needs and abilities were not easily defined, and neither was the type of customers that wanted different combinations. The HomePC debacle was the most highlighted example of this. The segment strategy that Dell Sweden had used was becoming obsolete as customers were utilising Dell Sweden, Dell EMEA, and Dell Corporation service, products, and support in a manner that they felt was suitable. This led to a situation where the division of customers into segments was disintegrating.



*Figure 10.10 Customisation of customer contact at Dell Sweden.*²⁷⁷

²⁷⁷ Adopted from Hill, K. (1997) *Electronic Marketing: The Dell Computer Experience*, in Peterson, R. A. (Eds.) *Electronic Marketing and the Consumer*, Sage Publications. Customer services are segmented according to the importance of customers. Over time customers migrate and receive steadily more customised services

Dell Sweden had historically employed a number of marketing tools: newsletters, a personal sales force, direct marketing, and the Internet. Initially Dell Sweden had used one set of tools to serve the market place but as its business models evolved the marketing tools became more tailored. In the first instance, the tailoring was made on the segment level, and then it was made on a combination of the segment level and the individual customer level. Finally it was becoming more individually tailored to singular customers.

By using the marketing tools in different combinations depending on segment, Dell Sweden had learned how to approach different customer groups effectively. This experience was important because Dell Sweden thought that it had a number of tools available and that it had to change them depending on segment. Not every segment or customer was receptive to the same type of tools. In 1998 Dell Sweden and Dell Northern Europe decided to make this knowledge the guiding principle for the organisation of customer contact between itself and its customers.

Segment	Contact Pattern
Enterprise	Premier pages and personal relations. Strong electronic commerce penetration.
Public	Telephone, some premier pages. Moderate electronic commerce penetration.
PAD	Telephone, some group premier pages. Weak penetration, fragmentation.
SMB	Brand building, no coherent pattern, large differences among individual customers.

Table 10.21 Variations in customer contact patterns according to various segments

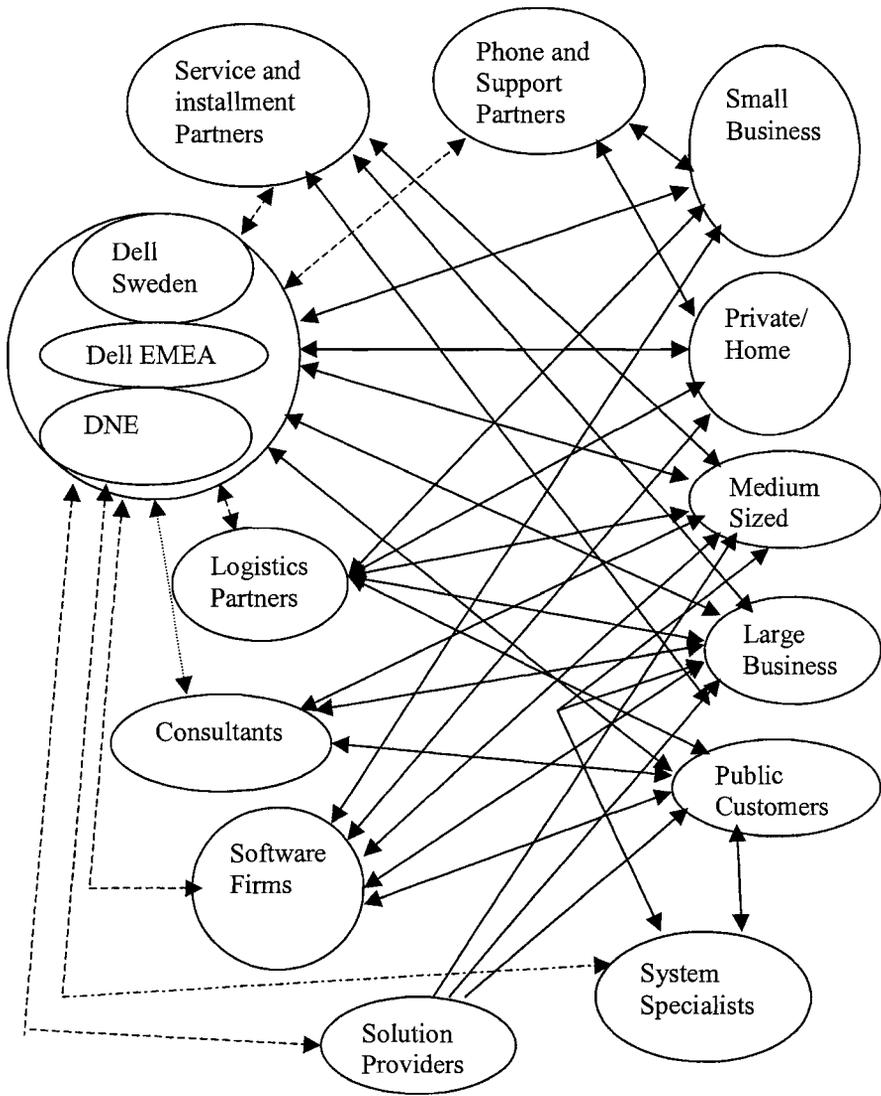


Figure 10.11 The Customer Contact Mix Model²⁷⁸

²⁷⁸ The Customer Contact Mix Model was characterised by segmentation according to customer group in combination with personalisation at the individual customer level. This implied specialisation in two steps, first according to customer segment rather than national market, then according to individual customer demand. This enabled every customer segment unit to develop particular skills for its particular segment and for individual customers. This was achieved by engaging Dell Sweden, Dell Northern Europe and EMEA, and Dell Corporation in serving Swedish customers. The arrows indicate instances and direction of capability acquisition. Dotted lines indicate indirect capability acquisition.

The Manufacturing Capacity Expansion

In September 1998 Dell announced that it would build its third manufacturing facility in Ireland. The first had been completed in 1991, when Dell Corporation entered the European market in earnest, followed by a second facility built during 1997-98. By 1999 Dell Corporation operated manufacturing facilities in Austin, Texas; Limerick, Ireland; and Penang, Malaysia, with a new facility being planned for Nashville, Tennessee. Dell's decision to proceed with a third manufacturing facility meant that it was now poised to be the largest employer in Ireland in the information technology sector by the year 2000. The company employed 3 400 people at its facilities in Limerick and Bray in 1998. In January 1998, a five-year target to create 3 000 new jobs had been announced by Dell EMEA. Dell EMEA was also making an additional investment of up to USD 90 million in the new manufacturing facility in Ireland.

Dell Corporation wanted to introduce its most advanced manufacturing techniques to its Irish facilities. In the USA, Dell was utilising external consultants and various firms that were experts on process improvement. This was also the focus of Mort Topfer, the vice-chairman who was obsessed with process quality and made sure that skills that had been found or developed in the USA were transferred to Dell EMEA. The manufacturing plant utilised an improved cell manufacturing process to meet the needs of Dell's CTO and BTO processes. When the new facility was designed there was an explicit ambition to reduce inventory levels. Dell Corporation held on average 11 days of inventory. The best indirect company held 38 days of inventory. The average retail channel held about 45 days of inventory, putting the total at 80 days - a little less than eight times the inventory level of Dell Corporation.²⁷⁹

Dell EMEA also started to think through its manufacturing process in more detail to obtain consistently high quality. The process consisted of preparations for assembly, functional testing, and quality control of the computer systems. Testing and quality control processes were also applied to components, parts, and sub-assemblies obtained from suppliers. Quality control was maintained through the testing of components, parts, and sub-assemblies at various stages in the manufacturing process. The quality control included a "burn" period for completed units after assembly, on-going production reliability audits, failure tracking for early identification of production and component problems, and information from Dell's customers obtained through its direct relationships and service and support programs. Dell conducted voluntary vendor certification programs, under which qualified vendors could commit to meet defined quality specifications. All manufacturing facilities were certified as meeting ISO 9002 quality standards.

²⁷⁹ Dell Computer Corp.'s Michael Dell, Richard L. Brandt, *Upside*, April 1998, Vol. 10, No 4, pp 98-102.

With the new plants Dell EMEA started to fine-tune the BTO and CTO manufacturing processes. Simultaneously Dell EMEA aimed at achieving rapid inventory turnover and reduced inventory levels. The new enhanced flexible manufacturing process allowed Dell EMEA to incorporate new technologies or components into its product offerings quickly. It made it possible for Dell EMEA to assemble computers more quickly with an augmented number of software and components. The BTO manufacturing process made it more difficult for Dell EMEA to achieve the same manufacturing efficiencies as computer manufacturers selling standardised products in high volume.

Dell's flexible manufacturing operations were not designed for batch production and the realisation of economies of scale. Minimisation of unit cost, while important, was never the overriding goal for Dell EMEA. Instead, profitability as well as scope for customisation ensured equal margin on every unit produced, which made Dell EMEA's manufacturing operations responsive to buyer specifications and needs. The people-related cost to producing personal computers was less than five per cent. The major factors contributing to overall cost were the cost of components, the time of assembly, the time of distribution, and the time of installation.²⁸⁰

The New Online Support Organisation

In late 1998, Dell EMEA launched an on-line service and support centre for the European private/home and small business segments. Dell EMEA touted it as a major innovation in customer service. It was a response to its trouble with satisfying small businesses and private/home customers. Located at support.euro.dell.com this facility gave customers access to the same technical reference materials used by Dell EMEA telephone support personnel. The service was launched in 12 languages (Czech, Danish, Dutch, English, Finnish, French, German, Italian, Norwegian, Polish, Spanish, and Swedish). The new virtual support centre was designed to help customers with three specific tasks:

- 1) Troubleshooting Dell computer systems; customers could find information about their specific machine by using Dell's tag driven retrieval system. Customers stated their service tag number, a unique reference allocated to all Dell products before they were shipped to the customer, and had access to machine-specific technical information, troubleshooting diagnostic tools, drives, files, utilities, and file updates that were related to their own specific machine. The tag driven retrieval system was based on the barcode system that was now made accessible to customers.
- 2) A general service support was designed to give customers general information such as access to frequently asked questions to Dell's technicians. Common symptoms and solutions to component and software based troubleshooting issues were presented. Technical information on components, peripherals, and software supported by Dell were included. There was also a review of the various service plans Dell had to offer.

²⁸⁰ Financial Times, Dell to expand Irish operation, John Murray Brown, January 23, 1998.

- 3) DellTalk forum was designed to allow Dell's customers to communicate with Dell or with other customers. The forum was a public discussion area moderated by Dell technicians. DellTalk gave customers an opportunity to talk to other customers about their Dell systems, share experiences, and receive advice and problem-solving tips. Within three months after DellTalk was opened it had been used by over 45 000 customers in EMEA.

Dell EMEA thought that it had developed a service offering that would enable it to grow rapidly by handling all types of customers. For the support Dell EMEA used a combination of segmentation at the group level together with personalisation at the individual level. During 1999 the new support facilities were gradually implemented and marketed. The idea was to try to build relationships with private/home and small business customers by being clear about the content and quality of the offering, and by not confusing the customer with too many temporary pricing gimmicks or complicated offerings that would disturb this long-term strategy. This was a new dimension and would enable Dell EMEA to customise not only the products themselves but also the customer experience as such. By strengthening its support and service organisation, Dell Northern Europe managed to make a minor profit on the computers it sold in the small business and private/home segment by mid-1999. This had previously not been the case.

The Changing Corporate Culture

Dell Sweden had by tradition been an entrepreneurial office, with responsibility for the other Nordic Market and with relatively great autonomy and little hierarchy. In many cases the local management in Sweden was allowed to manage the firm according to their own preferences, especially since Dell Sweden was doing comparatively well. Dell Sweden was a place where new methods were explored, with frequent but not dramatic reorganisations, ample opportunity for personal challenges, and new tasks.

This was partly a result of Dell Sweden being an early spin-off far off from the head-office in the USA. As Dell Corporation imposed the drive for discipline and organisation gradually on Dell EMEA, a number driven and analytical culture complemented this corporate culture. Staff working with quality and financial management was widely respected and their arguments were often taken into great consideration. These two strands of corporate culture were co-existing, but towards the end of the 1990s the analytical and number driven culture was gaining influence, which reduced experimentation and improvisation.

As Dell Corporation grew, it was becoming a complex organisation. By the end of 1999 Dell Corporation employed close to 35 000 people. This figure had increased rapidly in a few years, causing strain on the organisation. Dell Sweden also had trouble finding and keeping staff, as the labour market in Sweden became tighter. In response Dell Corporation hired external consultants and lawyers to design incentive programmes that would enable Dell Corporation to compete for good people.

Senior managers and people within management were offered bonuses and many also received stock options in the company. The rest of the staff received bonuses. The bonuses were closely tied to performance and Dell Sweden took great care to communicate exactly what would be rewarded. Dell based bonuses largely on the return on invested capital. On average, 8 percent of total salaries paid were bonuses. Dell's employees were also continually offered stock in the firm to buy. When Dell celebrated its 10th year on the stock exchange, all full-time employees received 200 stock options each – at that time valued at USD 66 each.²⁸¹

Dell Sweden stated that money should be one motivator among many and that personal development and satisfaction were important aspects of working for the firm. During 1998 and 1999 the defection rate in Sweden started to increase after having been lower than the average of the industry. Dell Sweden had to recruit new staff and teach them intensively to make them productive, both because of defections and because it was growing rapidly. One way to reduce and facilitate the speed with which new people could become effective was to improve the internal information infrastructure. The staff was becoming another constituency for automation via information systems.

By not only automating customer interaction, but also automating and organisationally streamlining staffing, Dell Sweden tried to make itself less dependent on individual employees. By using the Intranet, Dell Corporation spread information and news in the organisation. Performance was also communicated within the organisation in a mechanical fashion. For instance, every morning, every employee who entered the Intranet was exposed to the latest quality performance data; constantly keeping the staff alerted to key variables in the business.

Dell Sweden put emphasis on developing its marketing intelligence capabilities. Over the years, the Scala customer record database had grown substantially. There were over 60 000 customers of Dell Sweden by 1999. In 1999 Dell Sweden decided to try to augment this database with a new “customer control system” with customer data on who bought computers in Sweden, regardless if they were customers of Dell Sweden or not. This was achieved by buying, cross-referencing, and consolidating official and private databases, from Dun and Bradstreet and Interim Justitia, for example. The consolidated database allowed Dell Sweden to gauge many issues on the total market like total purchases, Dell Sweden's share of customer purchases, purchasing cycles, and customer satisfaction.

²⁸¹ Dell Computer – Segmentering ger flexibilitet, Elisabeth Precht, Svenska Dagbladet, January 27, 1999.

The Internet Architecture

Dell Corporation had an end-user base consisting of over 10 million people by early 1999. As such it was one of the largest traffic receivers in the world by all categories, fully comparable with business-to-consumer companies like Amazon.com and Ebay.com. Managing a site that got that kind of volume of traffic was a difficult challenge. Dell EMEA had located and managed its Internet hosting in Bray, Ireland, where all EMEA sites were managed. In Bray, Dell EMEA also ran its ERP systems and legacy systems. By keeping everything together Dell EMEA could wring out efficiencies and scale from maintenance and development. Dell EMEA used multiple Internet service providers that were routed into multiple data centres that hosted fire walls, intrusion detection systems, domain name servers, load balancing units, fast Ethernet switches, and application monitoring and alerting software.

The technical infrastructure that Dell EMEA was using was to a large extent based on the systems used in Dell USA. Dell EMEA's websites ran on multiple server farms made up of mirrored Dell Power Edge servers. These servers provided Internet content, commerce and non-commerce applications, and back-end SQL databases. The front-end of the Internet servers held static Internet pages and were hosted with multiple mirrored copies of data. These servers were the gateways to other applications and data behind the web servers.

Dell EMEA used many of the capabilities of Microsoft Site Server commerce edition, including site analyst and usage analyst, search server, personalisation and membership system, and commerce server. One layer of the application servers housed the online stores, which handled the sales through the commerce applications. Another layer housed its service and support applications and its premier page applications. These applications interfaced with multiple database servers, which allowed Dell to deliver dynamic web pages. The service and support systems were partly based on call-tracking systems from Edify Corporation and partly developed internally. The raw data from product information and technical support were produced and maintained in HTML format. Edify was also used for support-call tracking and recording.

The configuration that was presented on the websites, which allowed customers to customise their computers, was used by one third of the visitors. The original configuration was built using Next's web objects as a front end to an existing Tandem-based configuration system, partly delivered by PCOrder. Configuration information and pricing were stored on the legacy systems. The interface between web objects and the Dell legacy systems used Netwave as an integration layer. The ordering process on the Dell site was also a part of the web object legacy application.

Dell EMEA followed a strict development procedure to constantly modify the core content and applications on the site. An extended authoring community actively participated in the day-to-day publishing of the site. Dell EMEA's Internet authors developed either Html pages or applications on numerous servers. Some used ASP (active server page application) development via InterDev, while some used Visual Basic to develop custom components and Java Script to add sophistication to basic HTML. Content management was handled via Microsoft Visual Source Safe.

In early 1999, Dell EMEA implemented an XMS document management system to handle its text publications over the Internet. XMS offered a centralised way of identifying and controlling publishing on the Internet sites. The number of pages of information that Dell EMEA was managing was exploding as more and more markets got their own Internet sites. Only the technical specifications of sold computers consisted of over 35 000 pages of information, and the total amount of information available was over 80 000 pages. With the growth of the premier pages the task of updating and checking the information on all those pages started to become a considerable administrative task.²⁸²

The Customer Contact Mix Model and Electronic Commerce

Dell Sweden implemented personalisation during the Customer Contact Mix Model. The key capability in this respect was the premier pages systems that allowed Dell Sweden to personalise customer experiences and individualise interaction with customers. The XMS document system supported personalisation in that it enabled Dell Sweden to manage information more efficiently, despite the fact that the number of documents grew quickly. Dell Sweden improved addressability by augmenting its databases through integration of customer records with external databases including non-customers. Dell Sweden believed that the Internet offered a way to change the functioning of the market in the same fashion as when it had introduced new product groups with attractive price/performance features. The Internet succeeded to various degrees in different customer segments. The content of the usage also varied substantially.

Large Business Customers: In this segment Dell Sweden was able to rapidly use the Internet channel. It used the premier page programme to conduct the day-to-day ordering of unit sales. As the corporate customers wanted specially tailored company specific programs, Dell Corporation set up international units devoted to co-ordination across countries. Dell Sweden focused on personal relationships, physical contact, and on establishing principal agreements. The principal selling point was that large business customers could buy the same PC, in the same currency, and for the same price across the world.

²⁸² Dell Computer Corp.'s Michael Dell, Richard L. Brandt, *Upside*, April 1998, Vol. 10, No 4, pp 98-102.

Starting 1999, Dell Corporation integrated its national databases to be able to track and service customers regardless of where in the world the individual customer was. Different types of happenings, and breakfast meetings, and focus groups were used to make the overall contact frequent and updated. Eventually, personal sales efforts together with the Internet channel became the dominating customer contact pattern. When this customised usage of the Internet came into play, sales over the Internet started to grow faster than overall sales to this customer segment.

Public Customers: In terms of Internet usage, Dell's public customers were not as mature as the large businesses. In the public segment the focus on personal and phone sales remained high, but these customers wanted to continue to use the phone to greater extent for all steps in the purchasing process, including presale advice, support, and ordering. In the public segment, the adoption of Dell's Internet channel was slower and did not alter the customer contact patterns more than marginally. After repeated endorsement by the government, sales increased in bursts during 1999, with one sector or department adopting the Internet channel quickly, which caused stepwise Internet sales increases.

Medium-sized Business Customers. In this segment, Dell Sweden could not significantly transfer sales to the Internet. In this segment competitors and resellers were strong. They utilised local contacts and local presence, making it hard for Dell Sweden to reach customers. For these customers the phone was Dell's Sweden preferred channel. Dell tried personal and phone-based selling efforts for customers with 500 employees or more. For smaller customers the personal selling approach was deemed too expensive. For medium-sized businesses, Dell Sweden introduced group specific premier pages instead of firm specific pages in order to save costs. These pages proved less effective. Often these firms did not have centralised purchasing, which made the competition for business even more complicated. As a result of the Internet, the medium-sized business segment broke into several smaller groups. Some customers received the enterprise customer contact pattern, and others who did not respond to the Internet channel were approached with traditional phone-based selling efforts.

Small Businesses: For the small business segment, the picture was blurred and confused. Dell Sweden had not built up stable customer relationships with these customers. Since the customers in the small business segment bought low volumes it was not considered meaningful to build customer relations with them. The customers of Dell Northern Europe in this segment used the open Internet site at Dell.se for support, information, and ordering. Many customers had varying needs and knowledge and given the large differences among customers, purchasing patterns, and behaviour, Dell Northern Europe could not maintain coherent customer contact patterns. Some customers used the Internet for virtually all interactions; many used a combination of Internet and the phone, while some customers always used the phone.

The diversity of customers made it difficult to create a product and service offering that suited all customers. In this segment Dell Northern Europe saw no other way to achieve sales than to focus on building its brand. In addition to developing products and services that buyers could use in the combination they liked, Dell Northern Europe was considering various co-operative schemes with retailers and service providers, making the PC a component in a larger service bundle consisting of Internet access and a PC.

Private/Home: For the private/home segment the picture was similar to that of small businesses, but the managerial task was greater. The customers of Dell Northern Europe in this segment used the open Internet site at Dell.se for support, information, and ordering. The usage was erratic with low tolerance for faults and deficiencies in the Internet site, which caused swings of customers trying to use the Internet and the phone in parallel. When customers were irritated or frustrated with the Internet service they used the phone. The phone was a key tool to capture customers who needed extra help to complete a transaction. Dell Northern Europe discovered that minor obstacles that would not have deterred business customers could cause customers to change suppliers or abort the transaction altogether. In particular Dell Northern Europe had difficulty supporting e-mail queries. Mails were coming in from private/home customers especially. Unlike in a call centre, where Dell Northern Europe could control the volume of calls, there was no way to control the volume of support enquiries that it received by e-mail. As a result Dell Northern Europe invested in staffing and automated routing and handling of technical support questions.

The largest and most mature customers of Dell Sweden had the scale and scope to keep sufficient in-house competence to buy from Dell Sweden, but as Dell Sweden grew its customers became more and more dissimilar. As a result, the same customer interface applied to all customers, but in different ways. Private people used the Internet differently than did the small or medium-sized firms, central and local government, and educational institutions. In particular, private/home and small businesses mainly utilised the Internet site for transactional purposes and were sensitive to quality defects in the business processes, whereas large business used the support services extensively, but needed the personal sales force to become active customers on the Internet.

The Quest for a New Business Model

When Dell Corporation presented its results for 1999, Internet sales had increased to USD 14 million per day. Sales in Europe grew faster than for the rest of the company, the number of units being shipped increasing by 75.5%. In Europe, Dell EMEA was now number three. It grew 3.5 times faster than the PC market in Europe in general. No other computer manufacturer had the same developed business processes in place. In financial terms Dell Corporation was successful. It had managed to reduce inventory to a bare minimum, collect money quicker and quicker from its buyers, and delay payment to its suppliers longer and longer. As a result the capital requirements of Dell Corporation sank or held steady as a proportion of sales during the second half of the 1990s despite strong revenue growth, increasing return on invested capital dramatically.

Dell Corporation	2000	1999	1998	1997	1996
Operating Income (per cent of sales)	9.8%	11.2%	10.7%	9.2%	7.1%
Net Income (per cent of sales)	7.4%	8.0%	7.7%	6.7%	5.1%
Days of supply in inventory	6	6	7	13	31
Days of sales in accounts receivable	34	36	36	37	42
Days in accounts payable	58	54	51	54	33
Return on invested capital	243%	120%	107%	67%	34%

*Table 10.22 Selected financial data for Dell Corporation.*²⁸³

During 1999, the PC market was confronted with radical change on numerous fronts. First the PC platform was challenged. In 1996 Larry Ellison had launched the Network PC as an alternative to the PC platform. The Network PC never caught on, but there were now new challenges to the PC platform from all sorts of gadgets that could replace the PC as the basic vehicle to access the Internet, in particular from PDAs and mobile phones, which were becoming as popular as the PC. Compaq had already made the choice and was devoting substantial research to PDAs. Dell Corporation started a number of development projects to be able to introduce PDAs at short notice should that market take off, but Dell Corporation chose not to introduce them. Towards the end of 1999 it was becoming clear that the PC would have to compete with many Internet access devices and that Dell Corporation lacked access to several key technologies, mobile Internet in particular, which would threaten Dell Corporation's strong position in PCs.

²⁸³ Annual Reports Dell Corporation 1996-2000 as stated.

Another major change was the deals between PC makers and Internet Portals that took off in the second half of 1999. For portal companies, big PC makers such as Compaq could steer millions of customers their way. For PC makers, portals suddenly looked like a key revenue stream: companies such as Excite and Infoseek paid millions for the privilege of being featured on a new PC, and then there were opportunities to share advertising and transaction revenue generated on the joint sites. The assumption was that there was a fundamental shift under way in usage of personal computing. The PC and the software on it were becoming mere vehicles for connecting them to a wide array of services on the Internet. Dell Corporation wanted to have the battleground shifted from the physical desktop to the virtual space, in which it believed that it could create meaningful customer relationships with customers that it previously had considered transactional.

Gateway2000 created the first version of an Internet service portal, Gateway.net, in May 1998. Compaq was negotiating with potential partners to trade a stake in its Alta Vista search engine for Internet content or broadband access.²⁸⁴ For Dell Corporation, the new semi-indirect channel was one path to enter the small business market segment. In September 1998 Dell Corporation announced a deal with Excite to create a customised version of the Excite Internet navigation site for Dell customers. In the fall of 1998, when USA customers bought one of Dell's Dimensions PCs, they were able to sign up for Internet access from AT&T. Then, using either a basic browser from Dell or Microsoft Internet Explorer, customers were ushered to a web page co-branded by Dell and Excite.

The principle in FreePC schemes was the bundling of software, hardware, and services beyond the computer. By cross-subsidising a bundled package including the PC, customers would prefer a monthly fee, compared to making the up-front investment in a computer. The FreePC trend disturbed Dell Corporation, as new indirect channels were emerging that confused and diluted the value of Dell Corporation's offering. In Sweden, about 30 percent of the computers sold via retailers included Internet access sponsored by Internet service providers, which reduced the price of the computer itself.²⁸⁵

Dell Corporation was also engaged in a number of activities to increase sales in the private/home and small business segments, where it wanted to use the Internet to strengthen its consumer business.²⁸⁶ Dell Corporation had almost always remained loyal to Microsoft and Intel. By 1998 Dell Corporation wanted to break up Microsoft control of the desktop. Since the launch of Windows 1995, PC makers had been relegated to the role of distributors for Microsoft software and Intel microprocessors. They had watched their margins erode as Microsoft and Intel made huge profits. With the Internet, PC makers saw a chance to gain control of more of the profits.

²⁸⁴ A Net Gain for Gateway? BusinessWeek, July 19, 1999.

²⁸⁵ Nu blir PC:n sponsrad av telebolagen, Ia Genberg, IT-Branschen, No 3, 1998.

²⁸⁶ Dell makes it personal, Anonymous Stores, January 1998; Internet Shopping Supplement, p 22.

Computer Firm	Total Revenue	Percent of revenue based on Intel-based computers
Dell	28.5	93%
Gateway2000	9.1	85%
Compaq	39.4	55%
Hewlett-Packard	45.2	25%
IBM	88.2	18%

*Table 10.23 Total revenue in billion USD and percent of revenue based on Intel processors.*²⁸⁷

Dell Corporation wanted to get closer to buyers. Michael Dell commented: "Our industry has generally neglected the customer. I want to take the customer experience to a whole new level... and nowhere will that be more true than in the home-office PC market where the growth is going to be, and that is where I want us to go next to keep growing".²⁸⁸ By creating MyDell web pages, customised pages for small business and private/home-office consumers that were similar to the premier pages, Dell Corporation thought that it would be able to transfer its success from the large business segment. Additions would enable users to read service tips, answer queries, and get weather, business information, and technological support papers over the Internet.

Another idea was the virtual account executive that would offer product demonstration via full motion video via Internet. Dell Corporation was also experimenting with auctions and sales of previously leased machines and other schemes to increase sales over the Internet, but these efforts yielded marginal contributions to sales and were not introduced in Sweden.²⁸⁹ In Sweden, Dellware, a limited version of Gigabuys.com, was launched to offer peripherals and software, competing directly with distributors and resellers.²⁹⁰ In addition, Dell Sweden launched the e-value system, which enabled customers to order a computer from a Dell ad or brochure by entering a code associated with a model, which speeded up and simplified the order process significantly.²⁹¹

In order to serve the large business segment better, Dell Corporation acquired Converse Technologies to augment its knowledge and product portfolio in storage equipment. Dell sensed continued strong demand for servers and storage and again considered a reformulation of its business statement. In May 2000 it launched its new mission: to become the Premier Internet Infrastructure Company, again refocusing on large businesses, but with a broader product portfolio.²⁹²

²⁸⁷ Can Michael Dell Escape the Box? Fortune, October 16, 2000. Figures for four quarters, October 1999 to September 2000.

²⁸⁸ What does No. 1 do for an encore? BusinessWeek, November 2, 1998.

²⁸⁹ See www.dell.com

²⁹⁰ Nätjänster ger Dell klirr i kassan, IT-Branschen, Maya Uusitalo, No 5, 2000.

²⁹¹ Dell.se/1999-12-15

²⁹² Can Michael Dell Escape the Box? Betsy Morris, Fortune, October 16, 2000.

Epilogue

In Dell USA, focus was put on the Tennessee facility, which was added as the new major manufacturing centre beside Austin. The facility located in Nashville had been established in 1999 and was dedicated to manufacturing of desktop computers for consumers and small business. By the end of 1999 Dell USA established a new sales operation to support Dell's push into the home and small business segment.²⁹³

The Tennessee facility implied another step in making the manufacturing operations as efficient as possible. The aim was to become competitive in the home and small business segment by devising an efficient production system, tailored for Internet sales. The used term was "frictionless", which implied that customers would order a computer directly from the factory. The order was validated automatically without human interference.

During 2000 Dell EMEA worked hard to follow the Tennessee facility in its Limerick facility. To that end, Dell EMEA implemented GO, which was a new legacy system based on Oracle that used interface modules from GDIS that had been developed previously by Dell EMEA. GO was set to replace Scala and would enable Dell EMEA not to interfere with any particular order. Instead, it could focus on monitoring and adjusting the flow.

Globally Dell Corporation was becoming stronger than ever. In the first quarter of 2001 it became the largest PC manufacturer. Global market share had reached 13 percent and Dell Corporation alone managed to capture almost all profit in the industry.²⁹⁴ Dell Corporation also entered a global strategic alliance with IBM on services, covering 160 countries. In Sweden, Dell could now offer a wide array of services, delivered from over 30 local IBM offices around Sweden.²⁹⁵ The agreement with IBM complemented the component-oriented agreement between the firms and included joint education of staff to facilitate the co-operation. Dell Sweden regarded the alliance as an excellent tool to compete head on with local resellers.²⁹⁶

The key market for Dell Sweden was still the public sector, from which it derived million SEK 2 500 in yearly sales, about half of total sales in Sweden. In early 2001 Dell Sweden started to regularly use e-mail marketing to reach out to its established customers frequently with targeted offers. By mid-2001 Dell Sweden estimated its market share at more than 50 percent in the public segment for desktops and somewhat lower for notebooks. Dell Sweden was also teaming up with a number of local channel partners to adhere to new environmental regulations in Sweden that would force suppliers to take responsibility for the disposal of products sold.²⁹⁷

²⁹³ Dell Expands Tennessee Operations Again, Dell Press Release, December 17, 1999.

²⁹⁴ IDC Q1 2001.

²⁹⁵ Dell E-mail Monthly Newsletter to Public Customers in Sweden, June 5, 2001.

²⁹⁶ Dells partners slåss om affärerna, Anja Edvardsson, IT-Branschen, No 16, 1999.

²⁹⁷ Dell Offentligt, Newsletter to Public Customers in Sweden, No 2, 2001.

During 2000 Dell Corporation's sales growth and financial performance was beginning to deteriorate as demand for PCs was slowing down. The average price of a computer sold by Dell Corporation fell faster than anticipated.²⁹⁸ In response, Dell Corporation for the first time during the 1990s started to reduce its workforce. Furthermore, Dell Corporation was experiencing more difficulty in entering markets like servers, storage and networking. To generate additional profitable growth it needed to capture these markets that others had pioneered in the same manners as with the desktop and the notebook markets.²⁹⁹

Despite these problems, Dell Corporation expressed confidence. Responding to a question posed by Business Week that asked if Dell Corporation would consider acquiring any of the competitors given the soft PC market, Michael Dell said: "we will acquire our competitors one customer a time".³⁰⁰

In Sweden, during late 2000 and early 2001, Dell and Compaq Sweden were matching each other almost exactly in market share, running neck to neck in a series of quarters, together capturing about 40 percent of the total market. Both firms were doing their utmost to remain or become the market leader.³⁰¹

²⁹⁸ According to the Annual Report 2000 of Dell Corporation, average total revenue per unit (in US dollars) fell from 2.850 USD in 1996, to 2.700 USD in 1997, 2.600 USD in 1998, and 2.350 USD in 1999 and 2.250 USD in 2000.

²⁹⁹ Dell, the Conqueror – Now the king of cut-throat pricing is looking beyond PCs, Business Week, Andrew Park and Peter Burrows, September 24, 2001

³⁰⁰ BusinessWeek, April 4th, 2001.

³⁰¹ Är Dell nu störst i Sverige? Peter Widén, IT-Branschen, No 10, 1999.

11. Analysis of the Cases

In this chapter, the cases of Compaq Sweden and Dell Sweden are contrasted with the framework developed in Chapters 4-9, to identify and analyse patterns of capability acquisition. This chapter presents a basic discussion and analysis of the cases, without any explicit reference to the four hypotheses, which are utilised in Chapter 12. This chapter makes extensive use of the appendixes, number 3 in particular. There is a concluding section that presents emerging insights, to be explored in coming chapters.

Identification of Acquired Capabilities

As shown in table 11.1, Compaq Sweden acquired 60 static capabilities. Dell Sweden acquired 67 static capabilities during the period under study. The reason the number of acquired capabilities is larger in the case of Dell Sweden is most likely because of differences in access (with regard to carrying out the empirical investigation) between Compaq Sweden and Dell Sweden. This difference has made it possible to capture the acquisition of more static capabilities in the case of Dell Sweden. This has also affected the ability to identify the means used as discussed in chapter 2.

If capability acquisition related to the two firms on a corporate level is taken into consideration, the actual number could well be ten times bigger. Given the size and speed of capability acquisition pertaining to these two firms, it is likely that capabilities have been omitted. It might well be that Compaq Sweden and Dell Sweden have acquired a number of capabilities, which have been impossible to capture. Given the weak reliability, it cannot be inferred that Dell Sweden has acquired more capabilities than Compaq Sweden.

The identified capabilities should be regarded as a sample of all capability acquisition that has been taking place in the two firm's pertaining to Swedish operations. Furthermore, the actual number of capabilities acquired is considerably higher. In addition, the number of found capabilities is a direct result of how these capabilities have been defined and delimited.

What is striking with the cases is the sheer number of static capabilities acquired over time. The high number of acquired capabilities indicates that acquiring capabilities is a key managerial activity to which the management and the organisation put considerable attention. The extent of the capability acquisition in Sweden, EMEA, and the USA indicates that acquisition of capabilities is a key aspect of what occurs in a firm. The acquisition of static capabilities is related to every new product or process utilised by the two firms. There can be no offering or development without the supporting acquisition of the relevant capabilities.

Delimitation of Acquired Capabilities

Table 11.1 indicates the large number of static capabilities that the two firms have acquired. The capabilities acquired are relevant not only to electronic commerce. The complexity in delimiting capabilities supporting electronic commerce illustrates that capabilities are ingrained within the overall capability portfolio. Part of the difficulty in understanding capability acquisition for electronic commerce is related to accurately delimiting which capabilities that actually are relevant for electronic commerce.

Business Models	Compaq Sweden	Dell Sweden
Reseller Model/ Direct Sales Model	8	15
Indirect Model/ Relationship Model	16	13
Distributor Model/ Hybrid Model	11	11
Optimised Distribution Model/ Customer Segment Model	12	15
Customer Choice Model/ Customer Contact Mix Model	13	13
Total number of static capabilities acquired	60	67

*Table 11.1 Capability Acquisition in Compaq Sweden and Dell Sweden*³⁰²

It is striking that the capabilities acquired become more specific over time. This is partly due to how data has been collected and the difficulty in capturing early capability acquisition in the same detailed manner. Nevertheless, the impression is that the acquired capabilities become more specialised and that they serve to address particular shortcomings in the capability portfolio. As a result, early capability acquisition appears more critical for the very existence of the firm, whereas later capability acquisition appears to be more of a conscious and target effort to remedy a more limited weak spot.

From the cases, it can be inferred that Compaq Sweden possessed a few key capabilities. 1) Ability to produce and assemble computers. 2) Ability to distribute computers efficiently, with advanced logistics and distribution. 3) Ability to manage relations with resellers and other channel members. 4) Ability to rely on external resellers providing CTO and BTO as well as post sale-support and service. 5) Ability to create and uphold industry standards. 6) Ability to cooperate with upstream partners (Intel and Microsoft). 7) Ability to conduct substantial R&D focused on the PC.

³⁰² Including capability acquisition at and from the EMEA and US organisational levels.

In the case of Dell Sweden, it possessed a few key capabilities. 1) Ability to manage many buyer relationships. 2) Ability to introduce and maintain the BTO and CTO principles. 3) Ability to co-ordinate third-party carriers, service providers, support firms, and other informal channel partners. 4) Ability to manage business relationships with large volume advanced and experienced buyers - mostly large businesses. 5) Ability to arrive quickly in the market place with the latest technology devised by others. 6) Ability to minimise the resources used in the company's overall manufacturing and logistics system. 7) Ability to co-operate with key upstream partners (Intel and Microsoft). 8) Ability to attract and engage advanced use of the Internet.

Also in the case of Dell Sweden, these general capabilities dominate, rather than the five proposed specific electronic commerce capabilities. Many of the capabilities, found in both cases, are not specifically connected to electronic commerce, and indicate that capabilities for electronic commerce is a subset of all capabilities needed by the firms. The general capabilities are comparable to the five electronic commerce capabilities in that they are present during virtually the entire stories of both firms and that they appear to evolve with the firms. The general capabilities confer considerable competitive advantage. This point will be developed later in this chapter with regard to the specific electronic commerce capabilities.

In the cases, static capabilities that first appear unrelated form the basis for the acquisition and development of electronic commerce capability. The most striking and funny example is the computer itself. When the customers of Compaq Sweden and Dell Sweden bought computers, they did so for the value of having a computer. This installed base was a basic precondition for electronic commerce. Without computers at customer premises electronic commerce was a meaningless proposition for Compaq Sweden and Dell Sweden. Over time, both firms realised that they would benefit by selling Internet access with the computers. Making sure that customers could engage in electronic commerce.

Some capabilities are clearly related to electronic commerce, some are not, or just partly, or temporarily. The example with the computer illustrates that what role a capability plays is highly contextual, and given that the context varies or is moving, the role will change over time. Within the portfolio of routines and resources, a subset at any given time constitutes capabilities that actively confer a competitive advantage.

A capability of particular interest is that of a personal sales force, which is a part of management of business relationships. The cases suggest that without a personal sales force electronic commerce is difficult to establish successfully. In the case of Dell Sweden there is indication that the personal sales force drove sales over the Internet, since the cases show an increase in Internet sales partly paralleled by an increase in the headcount of the personal sales force.

Capability Acquisition Distributed over Time

Following from Table 11.1 there is no indication that capability acquisition in terms of the number of static capabilities is unevenly distributed over time. It could have been assumed that capability acquisition is most intensive at the early stages or in stages of expansion or crisis. On the contrary, it appears that capability acquisition is always frequent, being a necessary part of the development of the firm.

The frequency exhibited in the two cases is a commonality, which illustrate that the two firms are strong capability acquirers and that this is a key facet of their competitiveness. The frequent and persistent capability acquisition suggests that competitiveness must be regarded as an ongoing accomplishment, which quickly evaporates if it is not continually managed. This impression concur with the argument put forward by March (1981), that change in organisations results from stable routine processes that relate organisations to their environments.

The large number of static capabilities acquired in conjunction with the ongoing capability acquisition processes suggests limited longevity of a static capability. This impression is further substantiated by the anecdotal finding in the cases that capabilities are overlapping and frequently replace each other. For example, Dell Sweden used several contact forms. No one was taken away, and more were gradually added. The large number of static capabilities acquired can be taken as a signal that static capabilities quickly become obsolete, unless they are continuously updated, augmented, refined and combined with other capabilities.

Compaq Sweden gradually added and developed the number and type of channel members. Rarely if ever did it take away or disengage channel members. A static capability can only be sufficiently acquired momentarily - before new capability acquisition is needed. Complicating matters further, resources and routines that at one time were important, suddenly become valuable again.

The short life span of static capabilities suggested by the cases puts focus on the critical problem of separation between “new” and “old” capabilities. Since capabilities are overlapping, complementing, as well as replacing each other often and quickly, the notion of separation between new and old becomes artificial. The cases suggest that capabilities remain in the capability portfolio for short periods of time. However, they remain with the firm beyond their time as capabilities, residing in a broader portfolio of routines and resources, both before and after they constitute capabilities. Hence, capabilities are present well before they become important and just eventually replace other capabilities (as found also by Majumdar, 1982).

The notion of capability acquisition can be questioned since resources and routines need time (and additional capability acquisition), to become versatile. In the case of Dell Sweden, the simple devices that it used to facilitate “customisation by fax” is a clear precursor to the configuration engine used eventually on the Internet. Yet it needed a number of maturing phases before it conferred Dell Sweden with a competitive advantage.

Capability Acquisition for Electronic Commerce

Both firms acquired the five capabilities needed for electronic commerce. Dell Sweden acquired most of the capabilities from the outset, although in an underdeveloped form that needed to be improved upon. Dell Sweden possessed most of the capabilities for electronic commerce by accident, as they were a part of the early business models. At that time, these capabilities were not acquired for electronic commerce, nor were they adjusted for and directed to electronic commerce at that time.

This circumstance shows that there are dormant and/or under-utilised capabilities that become important because of an external or internal change or chance. In this case, the Internet made it possible for Dell Sweden to utilise its dormant capabilities in customer relationship management, applying its direct theory of business in a new arena. Until the early 1990s Dell USA experimented with the direct channel and when this did not work, focused on the phone as the principal vehicle to generate sales. It could not capitalise on the full potential of electronic commerce until the mid-1990s.

Inspired by the success of Dell Sweden, Compaq Sweden wanted to acquire electronic commerce capabilities. Because of the stalled process at Compaq EMEA and USA, Compaq Sweden created local solutions, while it waited for internal development and capability building programs or firm purchasing. Eventually Compaq Corporation not only acquired sufficient electronic commerce capabilities, but also changed its indirect theory of business, from a focus on channel member relationships to direct customer relationships.

The cases show that capabilities can confer different types of competitive advantages over time i.e. the nature of the competitive advantage that a capability confer is not stable. In the case of Compaq Sweden, the distributors over time excelled in logistics, financing, information systems, or management of incentive systems for other channel members. Depending on business levels, the importance of these various aspects shifted and was of less and more importance to the competitiveness of Compaq Sweden.

The cases suggest that there is no single way in which electronic commerce capabilities must or can be acquired by the firm. Regarding the static capabilities on a more aggregated level (addressability, interactivity, etc), both firms have continuously added and extended and augmented those capabilities over time albeit in a different order and with different depth and under different conditions.

The fact that both firms have acquired the same static capabilities is a strong indication that the five proposed electronic commerce capabilities are common for most firms. They can be understood to be key static capabilities for electronic commerce. It can be inferred from the cases that without these capabilities, in some fashion or combination, electronic commerce is not possible.

Towards the end of the studied period, Compaq Sweden and Dell Sweden have delivered similar offerings. The commonalties of the two firms in terms of acquired electronic commerce capabilities may appear “the same”, but the cases suggest that a more correct description should be “similar”.

There are differences in the particular underlying resources and routines that the two firms have acquired for electronic commerce capability, which is captured in the cases. Compaq Sweden eventually implemented CTO and BTO. Although it appeared fairly similar to the customers, the capabilities put in place for bringing CTO and BTO about, are only partially similar as shown in appendix 3. While the five static capabilities for electronic commerce are similar in what they offer the customers, they are less similar in terms of underlying routines and processes.

The Capability Acquisition Process

As shown in table 11.2, the acquisition of capabilities in both firms is similar in some respect and dissimilar in other respects. The similarity can be found in the gradual build-up of capabilities and indicates that it took more than ten years for both firms to acquire electronic commerce capability. At the end of the studied period, both firms still acquired electronic commerce capabilities intensively.

While it is difficult to distinguish when the firms started acquiring a particular capability and when a capability is new, the cases suggest that capability acquisition is a cumbersome process. This process come to contain many instances and sub processes, making it a matter of choice and preference with regard to viewing the process as one or several processes. This issue will be returned to in Chapter 13.

Put differently, the cases suggest that the near contexts in which capabilities resides become increasingly important, and it can be inferred that rich positive contexts, which facilitate combination, strongly support future capability acquisition. With rich positive contexts is meant firm environments that willingly allows the firm to acquire capabilities and where there are extensive opportunities for capability acquisition. A first step towards creating a rich context must be to start acquiring capabilities, developing an ability to acquire capabilities. Related capabilities or similar capabilities should help in acquiring and combining new capabilities into an established context.

Depending on which perspective that is taken, this process can be regarded as slow or quick. While singular routines and resources are quickly acquired, more complex capabilities are more slowly acquired. Taking an aggregate perspective, an accumulation of capabilities over time emerges. It becomes evident that capabilities are nested with each other, build upon each other, and that they are preconditions for each other (Christensen and Rosenbloom, 1995). For accumulation to occur the near context must be rich. The cases suggest that this is a necessary condition for capability acquisition and that most instances of capability acquisition involve the context.

During the course of the studied periods of both firms, there was a gradual shift from capability acquisition to capability combination or recombination, where existing capabilities combined with new capabilities to form other new capabilities. There is a difficulty in separating capability acquisition from combination and recombination. For instance, Dell Sweden acquired interactivity initially by setting up the Uplands Väsby Office with a call centre.

The interactivity capability was gradually developed over time, when the personal sales force and the external support and installation were eventually acquired. The initial capability acquisition that takes place in the cases is materially different from later capability acquisition. The evolution of the interactivity capability in the case of Dell Sweden shows that only when the capability becomes ingrained, assimilated and harnessed in the organisation and that it eventually confer the firm with a competitive advantage. This makes the successful implementation of electronic commerce critically dependent on the overall capability portfolio.

A difference between the cases relates to the order of capability acquisition. Compaq Sweden started out by acquiring the interactivity and customisation capabilities. At that time they were acquired in a weak form, which had a minor operational implication for Compaq Sweden. During the Indirect Sales Model, interactivity was indirectly strengthened via channel members. In the Distributor Model, interactivity, postponement, addressability, and customisation were partially implemented, often via the distributors. During the Optimised Distribution Model Compaq introduced enhanced postponement, customisation, interactivity, and personalisation. This was further expanded upon during the Customer Choice Model when postponement, customisation, addressability, and personalisation were improved.

The early focus on addressability and interactivity in the case of Dell Sweden sets it apart from Compaq Sweden. The possession of customer relationships appears to have conferred Dell Sweden with a materially different capability acquisition process. This process was more fluid and less drastic. In the case of Compaq Sweden, the business model phases are more distinct and managerial action and strategy can be more clearly associated with the various business models. For each business model, Compaq management sought to define a coherent operational blueprint. Paradoxically, Dell Sweden did not define such blueprints, as clearly, yet its operations appear well directed and more harmonious.

A result of the difference in capability acquisition style, Dell Sweden has more persistently augmented acquired capabilities, as indicated by table 11.2. In contrast, Compaq Sweden woke up late and then tried to catch up quickly. An impression is that Dell Sweden has acquired capabilities more gradually and more evenly distributed over time, with regard to electronic commerce. In general, this is also the case, but with notable exceptions. When Dell Sweden lacked notebook capabilities, its searching for capabilities to acquire became intense and more multi-faceted.

Business Model	Compaq Sweden	Dell Sweden
Reseller Model/ Direct Sales Model	Customisation (1)	Addressability (1)
	Postponement (1)	Interactivity (2)
Indirect Sales Model/ Relationship Model	Customisation (4)	Customisation (4)
	Personalisation (5)	Personalisation (5)
	Postponement (3)	Postponement (3)
	Interactivity (2)	Addressability (1)
Distributor Model/ Hybrid Model	Customisation (3)	Interactivity (3)
	Postponement (4)	Customisation (3)
	Addressability (1)	Personalisation (6)
Optimised Distribution Model/ Customer Segment Model	Postponement (3)	Postponement (1)
	Addressability (3)	Interactivity (4)
	Interactivity (7)	Customisation (6)
	Customisation (5)	Personalisation (12)
Customer Choice Model/ Customer Contact Mix Model	Personalisation (2)	Addressability (1)
	Postponement (4)	Interactivity (4)
	Addressability (2)	Customisation (3)
	Interactivity (3)	Personalisation (5)
	Customisation (5)	Postponement (1)
	Personalisation (3)	
	Postponement (2)	

*Table 11.2 Capability Acquisition in Compaq Sweden and Dell Sweden.*³⁰³

³⁰³Including capability acquisition at and from the EMEA and US organisational levels. The numbers presented in the parentheses are generated from appendix 3, showing how many instances of for example addressability to could be found during a particular business model. The number of categories assigned to an acquired capability varies indicating that a capability simultaneously can contribute to several broader capabilities. It should be pointed out that the figures are presented to give some form of indication of the type and sequence of the capability acquisition that occur in the cases. Furthermore, the importance of various acquired capabilities may vary considerably distorting the figures.

Dell Sweden acquired addressability, interactivity, customisation, personalisation and postponement, from the outset in the Direct Sales Model. These capabilities were not always particularly tied to electronic commerce but were involved in various activities of Dell Sweden and Dell Corporation. For instance, during the Direct Sales Model interactivity was added, without particular reference to electronic commerce.

During the Hybrid Model, Dell started to focus on capability acquisition direct towards improving its capabilities in customisation and postponement. In the Customer Segment Model further improvement and extension were made regarding interactivity, customisation and personalisation. During the Customer Contact Mix Model, improvements in addressability, interactivity, customisation, personalisation, and postponement were made.

Compaq Sweden acquired customisation and postponement during the Reseller Model. Compaq Sweden changed those capabilities that related to its industrial system without having addressability or interactivity. During the Indirect Sales Model focus was on interactivity, customisation and postponement. During the Distributor Model postponement was strengthened. During the Optimised Distribution Model and the Customer Choice Model Compaq Sweden acquired capabilities for electronic commerce extensively.

There is a material difference with regard to when the two firms acquired addressability and personalisation. Table 11.2 indicates that Dell Sweden acquired capabilities for electronic commerce earlier and more extensively than Compaq Sweden. Compaq Sweden focused on customisation and postponement during the first business models. Only in the later business models did it acquire capabilities broad enough to contribute to all five electronic commerce capabilities. Dell Sweden had already acquired a large portion of these capabilities at the very outset when it established itself in Sweden.

One interesting aspect following from table 11.2 is that capability acquisition is a continuous and ongoing process. Given that the cases are studied both with regard to acquiring electronic commerce capability in an overall sense, the five static capabilities, and the underlying capabilities, with resources and routines, this emerges clearly. While capability acquisition occurs with a high frequency and intensity. It varies for individual capabilities over time. For instance, the accumulation of addressability capability started late in the case of Compaq Sweden. In the case of Dell Sweden, it during the Hybrid Model focused on customisation and postponement, and allowed other types of capabilities to rest for a while, before it started in earnest once again during the Customer Contact Mix Model.

Finding that the capability acquisition process is an ongoing accomplishment can be interpreted in two ways. Either capability acquisition presents new opportunities, making further capability acquisition necessary for the exploitation of a capability, or capability acquisition falls short of needs, making new capability acquisition necessary to complement or redirect capability acquisition.

The cases suggest that firms continually struggle in both these dimensions, balancing the need to attack and defend. In this respect capabilities can be evaluated for how they contribute to the capability portfolio. From the cases it can be inferred that, further capability acquisition will always be necessary, regardless of whether it has been successful or not. What differs is with what interval, vigour and intensity the next phase of capability acquisition is started.

When the focus is put upon the variety and change in what is being acquired in terms of the integrated sets of dependent external and internal routines and resources, the process appears ad-hoc and fluid, without patterns or structure. The impression is altogether different when an aggregated view is taken. By aggregating the micro-level the impression that Dell Sweden acquired most capabilities early and then elaborated upon them, while Compaq Sweden caught up eventually, is supported.

The Utilisation of Means

There is large variation in terms of what resources and routines that are acquired, and some variation in terms of which five broad electronic commerce capabilities that these capabilities contribute to. In contrast there is considerable stability in terms of which means that are used to acquire these capabilities, and to what proportion, as can be seen in table 11.3.

The possibility that should be considered, taking into account the means of capability acquisition and the frequent and repeated identification of the same means in the cases, is that of a stable capability acquisition process. The notion of stability relates to the utilised means, in contrast with a changing fluid stream, of acquired static routines and resources. These static routines and resources are acquired to gradually deepen and widen the density and distinctiveness of static capabilities.

At the aggregated level, the static capabilities are fairly stable as well and are recognisable over time in various incarnations. The notion of static capabilities, in the understanding of the author, does not imply that capabilities do not change. But the cases indicate that the capacity for change is limited. Furthermore, and as a consequence of the limited ability to change, resources and routines are often replaced, rather than changed, while the broader higher order static capabilities are maintained, developed and augmented.

The stability found in static capabilities underscores that they are important for the firms to acquire competitive advantage. The cases indicate that they must continually be altered and adjusted. The cases also indicate that the substance and content of these capabilities, while stable on the surface, in fact vary constantly and mirror the intensive activity to remain competitive.

When Compaq USA became aware that it lacked customisation capability, it responded by acquiring capabilities by several means. It is not clear from the cases if this was clever way to act, or if its preferable to just use one category of means extensively. The propensity of Compaq USA to use several means simultaneously can be attributed to the lack of time.

Business Model	Compaq Sweden	Dell Sweden
The Reseller Model/ The Direct Sales Model	In-house innovation: 24%	In-house innovation: 25%
	Cloning: 49%	Cloning: 38%
The Indirect Sales Model/ The Relationship Model	Collaboration: 27%	Collaboration: 37%
	Firm purchasing: 0%	Firm purchasing: 0%
The Distributor Model/ The Hybrid Model	In-house innovation: 35%	In-house innovation: 31%
	Cloning: 44%	Cloning: 42%
The Optimised Distribution Model/ The Customer Segment Model	Collaboration: 21%	Collaboration: 27%
	Firm purchasing: 0%	Firm purchasing: 0%
The Customer Choice Model/ The Customer Contact Mix Model	In-house innovation: 28.5%	In-house innovation: 31%
	Cloning: 35.75%	Cloning: 42%
	Collaboration: 33.5%	Collaboration: 27%
	Firm purchasing: 2.25%	Firm purchasing: 0%
	In-house innovation: 38%	In-house innovation: 30%
	Cloning: 28%	Cloning: 47%
	Collaboration: 32%	Collaboration: 23%
	Firm purchasing: 2%	Firm purchasing: 0%
	In-house innovation: 20%	In-house innovation: 27%
	Cloning: 52.5%	Cloning: 51%
	Collaboration: 15%	Collaboration: 20%
	Firm purchasing: 12.5%	Firm purchasing: 2%

Table 11.3 The proportional use of the four means of capability acquisition³⁰⁴.

Compaq Sweden and Dell Sweden are not automatically aware of the capabilities that they have acquired, or if they has acquired them well enough. Capability acquisition is just a subset of the routines and resources that are acquired. Only after some time can they see the result of their efforts. To reduce the risk of having acquired the wrong capabilities or not being able to acquire the right capabilities already acquired; Compaq Sweden and Dell Sweden acquire new capabilities continuously. Furthermore, they pursue several categories of means to allow for eventual combination, or quick improvisation. In these cases, internal capability acquisition is needed to facilitate sudden shifts in focus or needs.

³⁰⁴ This table is presented as an indication of the stability that has been found regarding the utilisation of means and the calculations and figures are presented in appendix 5 It should be noted that the figures are generated through a series of interpretative steps.

While capability acquisition is a cumbersome process that demands continuous acquisition and managerial persistence, the cases suggest that there is scope for acquiring the capabilities in a different order and manner, putting emphasis differently during the acquisition processes. For instance, Compaq Corporation acquired additional instances of postponement and in many minor steps, by several means, in a different manner than Dell Corporation. While the extent and proportion of means appear to be stable, the capability acquisition processes is not that similar with regard to the order and manner, when the capability acquisition processes are studied in more detail in chapter 12.

Business Model	Compaq Sweden	Dell Sweden
The Reseller Model/ The Direct Sales Model	5.13	5.27
The Indirect Sales Model/ The Relationship Model	3.56	4.77
The Distributor Model/ The Hybrid Model	3.82	4.36
The Optimised Distribution Model/ The Customer Segment Model	3.92	3.53
The Customer Choice Model/ The Customer Contact Mix Model	3.08	3.46

Table 11.4 The average number of means used to acquire one static capability.

On an aggregated level, the two firms have utilised the same categories of means to about the same proportions as indicated in tables 11.3 and 11.4. During the studied time period there is no single category of means that is dominantly used in a systematic fashion. From the cases, it cannot be inferred to what extent the proportional utilisation of means can be attributed to the role of these firms in their networks, and if other firms have a higher or lower share of for instance, collaboration or cloning.

When it comes to in-house innovation, this category of means is fairly stable and constitutes a considerable portion of overall capability acquisition. From the gathered material it cannot be inferred that Compaq Sweden or Dell Sweden has been consistently more successful with regard to in-house innovation. The large number of capabilities created in-house shows that both firms have been strong with regard to in-house innovation, and that Compaq Corporation has focused more on product innovation, while Dell Corporation has focused more on process innovation. In Sweden, both firms have focused on process innovation.

Towards the end of the cases both firms use firm purchasing to acquire lacking capabilities. This category of means is used considerably more in the case of Compaq Sweden. The impression derived from the cases is that Compaq Sweden towards the end of the studied period utilised several means simultaneously more often, and that by doing this tried to hedge its efforts, making sure that it would acquire the desired capabilities.

As illustrated and indicated in table 11.2, the number of capability acquisitions is stable, with some increase over time in the case of Compaq Sweden. The number of means used follows the number of static capabilities employed, while the need for new static capabilities has increased. Towards the end of the studied period capabilities are more regularly and more frequently discarded, because the duration of the contribution of individual capabilities is diminished. This shows that both firms encounter increasing complexity in acquiring new capabilities, while discarding old ones simultaneously at a higher rate.

This is partly captured by the shorter time frame assigned to each business model. While the cases contain little information about capability discarding, it can be inferred that capabilities become obsolete more quickly. Capabilities remain with the firm as routines or resources, although they no longer confer a competitive advantage. This suggests that the firms do not consider discarding worthwhile. Instead, the firms move ahead, disregarding the capacity of existing capabilities, thereby complicating future new capability acquisition.

Concluding Remarks

The cases suggest that there is a stable pattern of capability acquisition in terms of what means of capability acquisition are used. Firm purchasing is only moderately used, while in-house innovation, cloning, and collaboration is used consistently. Cloning plays a dominating role, supported by in-house innovation and collaboration to about the same extent.

This chapter has focused on static capabilities and suggested that there is such a thing as a capability acquisition process. This process is understood as continuous and cumbersome. During the course of this process, focus shifts from pure capability acquisition to combination and recombination of capabilities.

It was found that the same set of capabilities could be acquired in a different sequence, and that one capability can be acquired in a different way with regard to which means that are employed. A number of features of the capability acquisition process have been identified: the notion of dormant capabilities, which can reside both internally and externally, the accumulation and harnessing of capabilities, and the apparent stability in combination with change depending on level or angle of analysis.

12. Understanding Capability Acquisition

In Chapter 9, four hypothesised patterns of capability acquisition were presented. They had been constructed, based on the literature and pre-understanding of the author, as possible patterns of capability acquisition. Bringing theoretical fragments together with the empirical preview of the cases generated four hypotheses about how firms acquire capabilities: the supply, resource portfolio, trajectory, and performance pattern hypotheses.

For every hypothesis, an operationalisation has been generated derived from the literature, as discussed and presented previously in Chapter 9. The operationalisations provides a tool by which to identify the capability acquisition in the cases during the various business models. In this chapter the four hypothesis of capability acquisition are contrasted systematically with the cases to unveil patterns in capability acquisition.

The analysis in this chapter is based on several analytical steps presented in the appendixes 3-5. Hence, the analysis and comments relate to the cases presented in Chapter 10, the initial analysis in Chapter 11, and the appendixes 3-5. In the preparatory analysis the various business models were characterised by the number and type of means used during that business model. Followed by an identification of the static capabilities acquired for electronic commerce, and a suggested classification in terms of the operationalised hypotheses. For instance, in the trajectory pattern hypothesis, the business models are categorised as either indirect or direct, as operationalised in Chapter 9.

Compaq Sweden and Dell Sweden are considered separately for all business models. For each hypothesis, and each business model, and each organisational level, a classification is made. The reasoning and underlying elaboration is provided in appendix 5. This classification is highly subjective and focus on what is new or added, compared to previous business models. What is focused upon is what direction that the capability acquisition process takes during a particular business model.

If a business model is put in a single category it is implied that this category is considered dominating, not that the other category is absent in the business model. For instance, if a business model is labelled as direct, what is implied is that capability acquisition during this business model has been dominated by capability acquisition from customers.

In some instances, no simple categorisation can be made and in those cases a mixed categorisation is made. If a business model at a particular organisational level is considered mixed, this is categorised as direct/indirect, rather than just indirect or direct. When things are considered direct/indirect it is not possible to categorise the business model as just direct or indirect.

It should be pointed out that although capability acquisition takes place on all three organisational levels, it is discussed from the perspective of the Swedish firm. The focus is on capability acquisition with implication and relevance for the Swedish subsidiary, its market, and its customers, regardless of geographical place and/or organisational level. A perspective from the periphery of these two organisations is adopted, where what is peripheral to Compaq Corporation and Dell Corporation, is focal to this study and analysis made here. Many capabilities are created beyond the control of local management. This makes the managerial situation of the local management special since they are responsible for the competitiveness of their firms, despite the fact they have a limited influence of their own capability portfolios.

Beyond this systematic exercise, guided by the four hypotheses, the ambition is also to see if there are unexpected patterns that can be identified in the cases, and if so, whether they can be given meaningful interpretation, with the support of the theoretical framework developed and presented in Chapters 4-9.

The Supply Pattern Hypothesis

The supply pattern hypothesis illustrates that management teams will perceive limitations in their present operations as well as opportunities for improvement. Management desires to acquire the static capabilities as fast as possible and at the lowest possible cost. Their ability to do so will be determined by the supply of new static capabilities.

The supply pattern hypothesis posits that there are two sources of capability acquisition for a firm. Supply can come either from internal sources (in-house innovation and cloning-replication) or external sources (collaboration, firm purchasing and cloning-imitation, with cloning-emulation taking a middle form). A summary of the analysis made in appendix 4 of Compaq Sweden and Dell Sweden interpreted as an *internal* or *external* capability acquisition process is presented below.

Business Model	Capability Acquisition Pattern for USA	Capability Acquisition Pattern for EMEA	Capability Acquisition Pattern for Sweden
Compaq: The Reseller Model 1982-89	Internal/External	Internal/External	External
Dell: The Direct Sales Model 1983-1990	Internal/External	Internal/External	Internal/External
Compaq: The Indirect Sales Model 1990-93	Internal	Internal/External	Internal/External
Dell: The Relationship Model 1991-94	Internal/External	Internal	Internal
Compaq: The Distributor Model 1994-96	Internal/External	Internal/External	Internal/External
Dell: The Hybrid Model 1995-96	Internal/External	External	External
Compaq: The Optimised Distribution Model 1997-98	Internal/External	Internal/External	Internal/External
Dell: The Customer Segment Model 1997-98	Internal	Internal	Internal
Compaq: The Customer Choice Model 1999-	Internal/External	Internal/External	Internal/External
Dell: The Customer Contact Mix Model 1998-	Internal/External	External	External

Table 12.1 Summary of capability acquisition patterns interpreted with the supply pattern hypothesis.

Compaq Sweden and Dell Sweden

In most business models both internal and external capability acquisitions occur. There is indication that Dell Sweden has relied somewhat more single-mindedly on external capability acquisition, but this pattern is not strong or clear. In the case of Dell Sweden the focus on external capability acquisition is somewhat more pronounced during the Hybrid Model and the Customer Contact Mix Model, whereas Compaq Sweden has used both internal and external means of capability acquisition more consistently.

The local organisations, Compaq Sweden and Dell Sweden, are close to customers and are responsible for capability acquisition involving customers. During almost every business model, collaboration as means of acquiring new capabilities, comes into play. Both Compaq Sweden and Dell Sweden utilised business relationships, partnerships, and outsourcing to leverage their organisations and sales. In the case of Dell Sweden, local collaboration enabled the improvement of the treatment of large organisations to create global accounts, as well as the development of TCO monitors.

Compaq EMEA and Dell EMEA

The cases suggest that the three organisational levels have assumed different roles. In-house innovation occurs more frequently at the USA level. The EMEA level is focused on cloning: pushing, transferring and spreading capabilities organisationally. Between Sweden, EMEA, and the USA there are clear roles regarding capability acquisition. Compaq USA and Dell USA focused on product and concept development, financial arrangements, licensing, investor relations, alliances, partnerships, and supplier relationships. Compaq Sweden and Dell Sweden focused on local capability acquisition responding to customer demand. Compaq EMEA and Dell EMEA were responsible for assembly and logistics and for transferring capabilities between the USA, Sweden, and various national subsidiaries.

Capability acquisition becomes different depending on assigned organisational tasks and roles. Compaq EMEA and Dell EMEA are important, both because they tie the organisations together, and because they focus on cloning. By using replication, imitation, and emulation in various combinations, capabilities are distributed within and between organisations. The simultaneous use of several means of capability acquisition to acquire a static capability shows that most instances of capability acquisition include several means of capability acquisition, simultaneously or sequentially.

Compaq USA and Dell USA

At the USA level, internal and external capability acquisition is used across both firms and all business models. Presumably, the scope of undertaken capability acquisition is broader and the capacity for capability acquisition at the headquarters level more elaborated compared to local subsidiary level. The consistent use of both external and internal means of capability acquisition can be taken as a sign of the primary importance of the group headquarters in capability acquisition.

A slight difference can be detected between the firms. It can to a degree be attributed to the relatively stronger focus on R&D and product development in Compaq Corporation, which to a larger extent has been carried out internally. There is a clear division of labour in Compaq Corporation, which has used external means for building business relationships with customers and internal means to develop the offering. In the case of Dell Corporation, the case has been the opposite, with Dell Corporation focusing on developing business relationships with customers, while relying partly on others to develop the offering.

Regarding external capability acquisition, both firms have opted to use firm purchasing to a limited extent only. There is a gradual increase towards the later business models in the case of Compaq Corporation, which cannot be found in the case of Dell Corporation. Both firms have favoured and relied on organic growth for as long and as much as possible. Internal supply has been considered important, but the two firms have defined the internal domain differently, with Compaq searching and striving for a more complete internally controlled set of capabilities. The cases suggest that since firm purchasing is so scarcely used, the principal external means of capability acquisition is collaboration.

Side-by-side comparison reveals that Compaq Corporation and Dell Corporation have used collaboration differently. For Compaq Corporation, collaboration has been considered a short-term solution to get access to product technology, while it has relied on long-term supply relationships and channel member relationships. For Dell Corporation, collaboration has been considered a long-term option, which can replace internal supply for product technology. When Dell Corporation has replaced a channel partner, it has searched for a new. When Compaq Corporation has ended a partnership, it has not replaced it with a new partner to the same extent, and as quickly. Instead, Compaq Corporation has tried another means of capability acquisition, in particularly with regard to firm purchasing towards the end of the studied period. Furthermore, Compaq Corporation has more often than Dell Corporation pursued different parallel tracks to ensure supply of a particular capability. The view on what is a key competitive advantage that must be controlled is reflected in how both firms have utilised collaboration.

The Supply Pattern Hypothesis and Electronic Commerce

With a few minor exceptions, both external and internal means of capability acquisition are used at all three organisational levels during all business models. This holds for capability acquisition related to electronic commerce and overall. The cases suggest that electronic commerce capability, especially beyond technology per se, involve a high degree of external capability acquisition. The case of Dell Sweden entails a permanent state of external capability acquisition, but also shows that capabilities initially acquired externally, eventually become internal and vice versa. In particular, Dell Sweden systematically gathered customer feedback and changed operations in response.

While both firms have utilised both internal and external means, Dell Sweden has emphasised collaboration and Compaq Sweden has emphasised firm purchasing. This can be understood to indicate that rarely does capability acquisition involve only external or internal means, regardless of starting position in terms of capability portfolio. While there are singular situations or instances of pure external or internal capability acquisition, in particular with regard to lower level routines and resources. As a general rule, capability acquisition studied at more than one organisational level, or an extended period of time, involve both internal and external means.

When time is added as a part of the analysis it becomes evident that capability acquisition at one organisational level during one period benefit another organisational level, it can be inferred that capability acquisition at several organisational levels, sequentially or in parallel interact to acquire a capability. As indicated by the cases, both firms often use cloning-imitation on corporate level and cloning-replication at the subsidiary firm level. Furthermore, the cases indicate that both firms to a large extent have relied on cloning by replication, relying on capability acquisition taking place at the overall firm level, for acquisition of electronic commerce capability.

Insights and Implications

Interpreting the cases through the supply pattern hypothesis highlights the importance of external means for capability acquisition, in particular collaboration. This can be attributed to the nature of the business of Compaq Sweden and Dell Sweden in terms of complexity in goods and services and rapid technological change. Accordingly, the capability acquisition found in the cases may not be representative for most firms, which still rely largely on internal capability acquisition. It is a striking observation, given that the dynamic capability approach does not consider collaboration in its various forms to be a dynamic capability.

The supply pattern hypothesis builds upon the assumption that firms face no obstacles in using all means at all times. In the cases, this is a common pattern, with notable exceptions. In particular, the cases suggest that both firms have tended to emphasise internal capability acquisition if possible. Both firms during almost all business models acquire capabilities from both internal and external sources.

The fact that both internal and external sources are employed does not invalidate the notion of supply as an important aspect. On the contrary, it can be inferred that firms in general acquire capabilities from internal and external sources. This finding is a result in itself and as such provides criticism to both the markets-as-networks approach and the dynamic capability approach for over-emphasising firm context or firm properties respectively as sources of capabilities, when both have been proven to be important.

The focus on external and internal capability acquisition presumes that the firm is free to use all means of capability acquisition. If the hitherto implicit assumption that all means are always available to the firm is relaxed, the notion of supply comes into a new and re-interpreted play. If there is no supply of capabilities the possible means that can be used are limited. Consequently, from where a capability can be acquired is restricted. Seen in this light, the notion of supply is a source of explanation for capability acquisition that cannot be explained by the other hypotheses. As such, the notion of supply acts as an outer limitation on capability acquisition. This limitation is likely to constrain the firm over time and thereby affect capability acquisition.

This constraint of from where capabilities can be acquired relates both to the firm context and firm properties, and affects what capabilities that can be acquired. For Compaq Sweden, it was not possible to acquire all capabilities that it needed. The limitation was a result both of the context of the firm, with the close relations with distributors and other channel members, and of lacking internal capabilities and the possession of the wrong internal capabilities, hampering new capability acquisition. Accordingly, the constraints of supply cannot be attributed to either or both firm context or firm properties. The markets-as-networks approach and the dynamic capability approach come to the same conclusion regarding the constraints put upon a firm, albeit from different angles.

Depending on whether internal or external capabilities are used predominantly, this can be regarded as a signal that there are constraints in capability acquisition, making the firm rely on the source that is open to the firm. It should be pointed out that this constraint in supply appears as potentially severe, regardless of source. For instance, Dell Sweden has been constrained by its limited product portfolio in notebooks, which took a long time to remedy. In a similar fashion, Compaq Sweden struggled to acquire electronic commerce capability. The constant and intensive usage of both internal and external sources in both cases indicates that both firms have benefited from extensive capability acquisition from both sources. This indicates that combining external and internal capability acquisition is a pre-condition for quick, cost-efficient, and successful capability acquisition.

Furthermore, the cases indicate that internal and external sources of capability acquisition can often constitute both substitutes for, as well as complements to, each other. By focusing on routines, the commonalties between the external and internal context are enhanced, if not made extinct, even to the point of conjecture, and it becomes increasingly difficult to delimit the firm from its context. The same capability can often be acquired both from internal and external sources, making the boundaries of the organisation continually change in reflection of which source of capability acquisition is employed. But how can the capability portfolio of a firm be identified satisfactorily if the capability portfolio constantly changes?

The Resource Portfolio Pattern Hypothesis

The focus in the resource capability pattern hypothesis is on the current static capabilities and less on the capabilities to be acquired as such. The resource portfolio pattern hypothesis proposes that there are two basic types of capability acquisition. A capability or a group of capabilities can be categorised as additive or complementary. With additive is meant the augmentation, development, adjustment and extension of existing capabilities. With complementary is meant the acquisition of new capabilities that have not been previously available or have not been deemed necessary before.

The notion of capabilities as either additive or complementary focuses on the capabilities in relation to an existing capability portfolio. In particular it focuses on the issue of acquiring capabilities that are not related to the existing capability portfolio, in contrast to building on existing ones. The existence of similar capabilities facilitates additive acquisition, while lack of suitable capabilities makes complementary acquisition necessary. A summary of the analysis made in appendix 4 of Compaq Sweden and Dell Sweden interpreted as an *additive* or *complementary* capability acquisition process is presented below.

Business Model	Capability Acquisition Pattern for USA	Capability Acquisition Pattern for EMEA	Capability Acquisition Pattern for Sweden
Compaq: The Reseller Model 1982-89	Complementary	Additive/ Complementary	Complementary
Dell: The Direct Sales Model 1983-1990	Complementary	Additive	Complementary
Compaq: The Indirect Sales Model 1990-93	Additive/ Complementary	Additive	Additive
Dell: The Relationship Model 1991-94	Additive/ Complementary	Additive/ Complementary	Complementary
Compaq: The Distributor Model 1994-96	Complementary	Additive	Complementary
Dell: The Hybrid Model 1995-96	Additive/ Complementary	Additive	Complementary
Compaq: The Optimised Distribution Model 1997-98	Additive/ Complementary	Additive	Additive/ Complementary
Dell: The Customer Segment Model 1997-98	Additive/ Complementary	Additive	Additive
Compaq: The Customer Choice Model 1999-	Complementary	Additive	Complementary
Dell: The Customer Contact Mix Model 1998-	Additive/ Complementary	Additive	Additive

Table 12.2 Summary of capability acquisition patterns analysed with the resource portfolio pattern hypothesis.

Compaq Sweden and Dell Sweden

While there have been different means of capability acquisition employed by the firms over time, they have focused on acquiring the capabilities needed for electronic commerce. Both Compaq Sweden and Dell Sweden have gradually augmented the scope and reach of the acquired capabilities. Addressability, interactivity, customisation, personalisation, and postponement are not capabilities that can be acquired at one point in time. Instead, it is a gradual, step-by-step process that occurs over several business models.

This point is illustrated by the cases. As can be seen in table 11.2 in Chapter 11, capability acquisition for electronic commerce in the case of Compaq Sweden started with postponement and customisation, followed by interactivity, addressability, and then personalisation. In the case of Dell Sweden, addressability and interactivity was acquired from the outset, together with postponement, customisation, and personalisation. In the case of Dell Sweden, it started to acquire electronic commerce capability already during the Direct Sales Model (i.e. 1983-1990).

In both cases the firms continue to acquire capabilities gradually strengthening the capabilities. A capability is not acquired instantly. Capabilities are rarely new. Instead they are gradually acquired and strengthened by additive capability acquisition, suggesting that capabilities continually function as platforms for further capability acquisition in the same vein. For example, Compaq Sweden gradually develops skills to handle various channel member groups. The tools and skills become more elaborated and more advanced over time for instance with regard to education, financing, authorisation and promotion programmes.

Furthermore, capabilities or sets of capabilities function as platforms for further complementary capability acquisition. A particular example is Compaq Sweden acquiring interactivity, believing that this capability would suffice and that addressability was unnecessary. Eventually, Compaq Sweden realised that it needed addressability also since it was impossible to acquire interactivity more fully without addressability.

Consequently, and as illustrated by the cases, it is difficult to identify when a particular static capability is acquired, since this is a prolonged process, spanning across organisational and temporal dimensions. In addition, the cases suggest that there is no single way in which electronic commerce capabilities must or can be acquired by the firm.

The case of Compaq Sweden shows that if there is no foundation or basis from which to acquire a capability, complementary capability acquisition is likely to preclude additive capability acquisition. In the end both firms have acquired similar capabilities, which indicates that postponement, addressability, interactivity customisation, personalisation and postponement and are static capabilities that should be acquired for electronic commerce.

Given the extensive capability acquisition activity found in the cases, the conclusion must be that the five proposed capabilities are insufficient for electronic commerce, taken on their own. They are necessary, but not sufficient, components for establishing electronic commerce.

In addition, drawing the line between what capabilities are acquired just for electronic commerce cannot be done without a high degree of simplification. The cases suggest that electronic commerce capabilities are highly integrated and cannot be separated from the overall capability portfolio. Electronic commerce involves the entire organisation and becomes embedded as implementation progresses.

While there is capability acquisition with relevance for the whole firms taking place in Sweden, this is of a limited scope. In many cases, like for instance with the TCO monitors, this capability was generated from the local customers, indicating the unique potential of local capability acquisition, but also the focused specialisation of both Compaq Sweden and Dell Sweden in selling computers to Swedish customers.

In contrast, the cases offer several examples of local capability acquisition aimed at adapting to capability acquisition undertaken at other organisational levels. For example, Compaq Sweden during the Distributor Model adjusted its capabilities to Ingram Micro and the other distributors by complementary capability acquisition. During the Customer Choice Model, Compaq Sweden acquired capabilities to facilitate customer contact and bypassed channel members to obtain expanded direct customer contact, thereby acquiring capabilities additively. Local customers and market conditions forced both firms to develop locally adjusted capability portfolios to fit to the local context, and complement capability acquisition at other organisational levels. The cases and table 12.2 shows that complementary capability acquisition is the critical task performed by the local subsidiaries.

Compaq EMEA and Dell EMEA

In the case of Compaq Sweden none of the capabilities directed to handle the customer were present from the outset (i.e. addressability and interactivity), but were acquired over time with great difficulty. One of the reasons for this difficulty was the successful acquisition of EDI capabilities. They enabled Compaq EMEA to use EDI towards its suppliers and eventually towards its partners, making Compaq EMEA a cost efficient producer of PCs. The EDI capabilities tied together Compaq EMEA Sweden with its channel members in a manner that made a reorientation and utilisation of the Internet and Extranets difficult.

The cases suggest that capability acquisition varies across the organisation levels in terms of the number, width, and depth of capabilities acquired. The EMEA and Swedish capability portfolios are more limited and narrow with a specialised purpose. This difference can be attributed to the distribution of corporate activity.

While the EMEA and local Swedish organisations have more singular tasks with more specialised capability portfolios, the USA level has a broader capability portfolio in correspondence with a broader set of task. From table 12.2 it can be inferred that the EMEA level mainly is focused on additive capability acquisition.

A point following from the observation of specialisation between the various organisational levels is that cloning in its various forms is pivotal to internal capability acquisition between organisational levels and units. Most additive capability acquisition involves cloning. In addition, the cases suggest that various organisational levels utilise various forms of cloning to a different extent.

At the EMEA and Swedish level, replication is widely used to exploit and implement capabilities acquired at the USA level. At the local Swedish level, cloning by emulation is widely used by Compaq Sweden. One reason that emulation is used can be that Compaq Sweden sought ways to compete with Dell Sweden. By trying to match product and service features of Dell Sweden by emulation, Compaq Sweden could avoid being limited by its own capabilities. The extensive additive capability acquisition at the EMEA level act to support the local competitive situation between the two firms.

For EMEA, the focus of the two firms is similar regarding assembly, logistics and supplier relationships. For Sweden the focus is on customer relationship management directly or via channel members. For EMEA, the task is to clone capabilities between the local Swedish units and the USA, acting as a filter, modifier, amplifier and transmitter of capabilities created in the USA, EMEA, and Sweden and subsequently transferred to another level.

Compaq USA and Dell USA

Looking at the capability acquisition processes across the business models, Dell Corporation has been able to rely on additive capability acquisition for electronic commerce to a greater extent, while Compaq Corporation has been using complementary capability acquisition. Compaq Corporation for long time tried to acquire electronic commerce capabilities additively, but with little success. This difficulty can be attributed to the lack of suitable initial capabilities for electronic commerce. In addition, the possession of irrelevant or previously valuable capabilities has hampered the acquisition of new capabilities, causing organisational inertia (Hannan and Freeman, 1989; Levinthal, 1992).

Regarding product technology Dell Corporation has relied on complementary capability acquisition to a greater extent than Compaq Corporation, which has relied more on additive capability acquisition in this respect. This difference indicates the strengths and weaknesses of the capability portfolios of the respective firms.

While Compaq Corporation has utilised both additive and complementary capability acquisitions for product technology with great success, the focus on complementary capability acquisition for electronic commerce suggests that it has suffered from its dependence on channel members. The capability portfolios of the two firms have affected the ways in which Compaq Corporation and Dell Corporation have acquired electronic commerce capability.

The USA organisations are more complete, both in terms of what capabilities they possess, as well as which means they use. They utilise both additive and complementary capability acquisitions. As Compaq USA and Dell USA focused on product development, supplier relations, assembly, logistics, service, customer support, and customer relationships it naturally engaged in more instances of capability acquisition, in both fashions. Interestingly, both firms in the USA used cloning by imitation. Compaq Corporation and Dell Corporation inspired each other repeatedly and extensively in terms of marketing, products, organisation, and international expansion.

Since each organisational level focuses on tasks with overall value for the firm, the notion of capability portfolio must be thought of in terms of a complex hierarchy of nested capability portfolios (i.e. not only a hierarchy of nested capabilities as proposed by Christensen and Rosenbloom (1995)). Each portfolio is a reflection of the task at hand and the position in the hierarchy. For every portfolio, capabilities are acquired additively and complementarily, internally at the organisational level as well as externally. A specialised portfolio with a local narrow focus is unlikely to facilitate acquisition of new capabilities beyond that speciality. In contrast, the broad capability portfolio at the USA organisational level offers numerous dormant or under-utilised capabilities that by themselves, or in combination with newly acquired capabilities, can provide the firm with sustained or renewed competitiveness.

In fact, the variation between capability portfolios is an indication that capability acquisition cannot be understood without the inclusion of firm context. If were not for the influence of firm context, capability portfolios would be the same, regardless of organisational level and national markets. Furthermore, if there were no difference between local firm contexts, capability acquisition would tend to be uniform and could be centralised to one organisational level or unit. Since the cases show that capability portfolios as well as capability acquisition processes are different across organisational levels, the only reasonable interpretation is that local firm context influence capability acquisition. In the cases of Compaq Sweden and Dell Sweden, channel members and channel partners and customers constitute the key sources of local capability acquisition, complementing Compaq Corporation and Dell Corporation.

The Resource Portfolio Pattern Hypothesis and Electronic Commerce

The cases suggest that there are swings or interdependencies in how the firm acquires capabilities. Additive capability acquisition at the USA level is often accompanied by complementary capability acquisition at the local Swedish level, and vice versa, with the EMEA level taking a middle ground. The swing between additive and complementary capability acquisition suggests that managers find it easier to acquire capabilities additively or complementary, rather than in all possible fashions simultaneously.

One possible explanation is that it is less costly to focus on either complementary or additive capability acquisition. Another possibility is that the firm exhausts the ability to acquire new capabilities by way of complementary or additive means and therefore alternates between the two modes (in the same fashion as the farmer changes crops to maximise the yield). During some businesses models both additive and complementary capabilities were acquired. These instances appear when time is scarce and/or a crisis is looming. There are variations in absorptive capacity between firms and between different time periods of the development and situation of the firms (Cohen and Levinthal, 1989 and 1990).

An impression from the cases is that strong central additive capability acquisition is reflected in aggressive local complementary capability acquisition. In particular, new products or services and product lines generate intensive local activity to find channel member, channel partners and customers, demanding strong local complementary capability acquisition. The opposite combination can also be found, with strong local additive capability acquisition being reflected in aggressive central complementary capability acquisition. In particular this combination can be found in instances where local customers demand new services or offerings that cannot be locally fulfilled. One example is the customer demand for one-stop shopping which forced Dell Sweden to engage Dell EMEA in complementary capability acquisition.

The pattern of capability acquisition found above, with local and central capability acquisition assuming different and opposite roles can be complemented by an alternative interpretation. There are instances where several organisational levels acquire capabilities in the same fashion. These occur frequently and a possible explanation that fits with the overall notion of swings is that additive capability acquisition centrally is reflected in local additive capability acquisition and vice versa. But this pattern can be accounted for as being sometimes simultaneous, sometimes sequential, because of time lags.

The proposition advanced above regarding swings between organisational levels, fits with the understanding of Hayek (1945) and Barney (1986) that capabilities are distributed among actors. By using capabilities developed across the globe and transferring them across markets, both Compaq Corporation and Dell Corporation are able to benefit from a relentless pace of capability acquisition. This capability acquisition takes place and is transferred across the organisation, making the two firms highly competitive.

The essence of the capability portfolios of both firms is that they are rapidly replenished and changed. In this regard, the gradual strengthening of the EMEA organisational level in both organisations indicates the critical role that cloning plays both within national European subsidiaries and between the USA and EMEA.

Insights and Implications

The understanding presented above builds upon the assumption that firms face no obstacles to using all means at all times. In the cases this is also the most common pattern; both firms acquire capabilities both additively and complementary during almost all business models. The cases offer weak indication that additive capability acquisition at the centre is mirrored by complementary capability acquisition at the periphery, and vice versa. In the cases, additive capability acquisition at Compaq USA and Dell USA often is mirrored by complementary capability acquisition at Compaq Sweden and Dell Sweden.

Analysing capability acquisition for Compaq Sweden and Dell Sweden at three organisational levels indicates that the firms rely extensively on capability acquisition at all three levels. A related conclusion is that new capabilities can and are generated in the periphery. The analysis indicates that there is long-term specialisation across the three organisational levels as to what capabilities are acquired and maintained. In general, the local subsidiaries are highly dependent on capability acquisition undertaken at the USA and EMEA levels. For instance, in the cases, logistics, production, products, services are mostly acquired at the USA and EMEA levels.

The local and regional organisational levels gradually become more able to acquire capabilities. And so over time, the importance of locally acquired capabilities increase. It is first when numerous customer relationships have been established and when the local sales volume has become sufficiently large, that it becomes interesting for the EMEA and USA level to acquire capabilities from a local small subsidiary. Hence, amplification of capabilities goes both ways, but it is initially dominated by cloning-replication from the centre to the periphery.

The amplification of capabilities between organisational levels, as suggested by the analysis performed with the resource portfolio perspective, bears resemblance with the knowledge spiral proposed by Nonaka and Takeuchi (1995). The notion of a spiral highlights the gradual augmentation of capabilities, which is likely to cause convergence in capability portfolios across organisational levels. As indicated by the cases, if a routine is identified as a capability somewhere in the organisation, it is possible to transfer and exploit it elsewhere in the organisation. Hence by cloning, the internal organisation performs a task with regard to capability acquisition beyond in-house innovation. This task is facilitated and enriched by a widespread geographical presence.

While the supply pattern hypothesis highlights the importance of both internal and external capability acquisition and the underestimated contribution that collaboration can play, the resource portfolio pattern hypothesis indicates the role of cloning in capability acquisition. Applying the resource portfolio pattern hypothesis informs the analysis with regard to the mechanisms for transferring capabilities by amplification in a spiral process. While external capability acquisition occur at all three organisational levels, the analysis indicates that capability acquisition by cloning-replication (Winter and Szulanski, 1999) is an important means to transfer capabilities and supports specialisation between the organisational levels within the firm.

In this regard, the large distributors are an interesting case, since they grew up alongside Compaq Corporation across the world, replicating this particular business relationship across many markets. In the case of Dell Sweden, a similar process can be found with regard to the global alliances with Unisys and Wang in the Hybrid Model, which allowed Dell Sweden to augment and strengthen its capabilities in service and installation. Accordingly, collaboration and cloning can be an important means across several organisational levels, and between organisations, simultaneously.

The cases and the resource portfolio hypothesis suggest that there are links between capabilities and that they constitute complete or partial preconditions for each other. Sometimes these links appear occasional; sometimes they appear to be critical, influencing to what degree additive and complementary capability acquisition is utilised. To what degree additive and complementary capability acquisition dominates can be explained by two conflicting and alternative understandings.

Following from the dynamic capability approach it can be inferred that it is not so important what capabilities have been acquired from the outset, but instead what capabilities that can be acquired. Yet the difficulties of Compaq Sweden in acquiring electronic commerce and the straightforwardness of Dell Sweden in this regard, shows that it certainly matters what initial capabilities that the firm possess. And that the initial resource portfolio affects which capabilities that can be acquired.

The existing resource portfolio offers a platform for further capability acquisition. Capability acquisition can be understood as a process where additive and complementary capability acquisition occur jointly or replace each other in sequences, gradually augmenting the capability portfolio of the firm. The direction this process takes is influenced not only by the resource portfolio thought of in limited internal terms, but also with regard to the firm context.

The Trajectory Pattern Hypothesis

The trajectory pattern hypothesis suggests a capability acquisition pattern that is not linked directly with the business models, but where different phases span across several business models, putting emphasis on the theory of business level. The trajectory pattern hypothesis proposes the expectation that firms follow a largely deterministic trajectory, with only some scope for digression. As told in Chapter 9, this trajectory has been operationalised in terms of direct and indirect capability acquisition. A summary of the analysis made in appendix 4 of Compaq Sweden and Dell Sweden interpreted as an *indirect* or *direct* capability acquisition process is presented below.

Business Model	Capability Acquisition Pattern for USA	Capability Acquisition Pattern for EMEA	Capability Acquisition Pattern for Sweden
Compaq: The Reseller Model 1982-89	Indirect	Indirect	Indirect
Dell: The Direct Sales Model 1983-1990	Direct	Direct	Direct
Compaq: The Indirect Sales Model 1990-93	Indirect/Direct	Indirect	Indirect
Dell: The Relationship Model 1991-94	Direct	Direct	Direct
Compaq: The Distributor Model 1994-96	Indirect/Direct	Indirect	Indirect/Direct
Dell: The Hybrid Model 1995-96	Indirect/Direct	Indirect/Direct	Indirect/Direct
Compaq: The Optimised Distribution Model 1997-98	Indirect	Indirect	Indirect/Direct
Dell: The Customer Segment Model 1997-98	Direct	Direct	Direct
Compaq: The Customer Choice Model 1999-	Direct	Direct	Direct
Dell: The Customer Contact Mix Model 1998-	Indirect	Indirect	Direct

Table 12.3 Summary of capability acquisition patterns analysed with the trajectory pattern hypothesis.

Compaq Sweden and Dell Sweden

Interpreting the cases with the trajectory pattern hypothesis shows that there is a clear capability pattern in both firms. Compaq Sweden has relied relatively more on indirect capability acquisition, while Dell Sweden has relied relatively more on direct capability acquisition. Towards the end of the period studied, both local subsidiaries focused on direct capability acquisition.

During several business models the notion of indirect was accentuated in the case of Compaq Sweden. The entry of the distributors in Sweden, forced Compaq Sweden to allow other actors to handle many of its channel relationships partly or wholly. This separated Compaq Sweden from the direct contact with many of its channel members and made Compaq Sweden focus on the transfer of education, information and support to its channel members, but made it permanently reliant on the distributors to manage a large chunk of physical logistics. As a result, Compaq Sweden changed the design and content of its subsequent business models and became even more indirect when acquiring new capabilities.

The trajectory pattern hypothesis is also different, since it provides insights into the establishment of new business models as well as the establishment of the underlying theories of business. The theories of business introduced by Compaq Corporation and Dell Corporation in Sweden represented new theories and business models at the time. Both theories were imported from the USA and adjusted to the Swedish market place. The trajectory pattern hypothesis highlights the processes taking place on both the theory of business level and on the business model level.

Compaq EMEA and Dell EMEA

The trajectory pattern hypothesis highlights the amount and type of resources to devote to distribution channels and sales offices across global product markets. In this respect, Compaq EMEA and Dell EMEA have, practised similar approaches. But Dell EMEA has focused more on relative customer maturity, and tried to invest in those EMEA markets where the likelihood of its theory of business was expected to be high. Compaq EMEA has focused more on general market size. Both Compaq EMEA and Dell EMEA have systematically tried utilising synergies that have existed across distribution channels and national subsidiaries in various countries.

An interesting circumstance is that for Compaq EMEA a used concept is the product life cycle. In the case of Dell EMEA, the product life cycle was familiar, but so was the notion of firm life cycle, customer life cycle and purchasing cycles. In the case of Dell Sweden, the product life cycle has been more of a tactical short term pricing consideration than a device for developing strategic decision making. Dell EMEA sought to devise the business models differently depending on the differences in the maturity and adoption of computers in various markets, rather than to the product life-cycle which to a large extent was taken as a given from Intel and Microsoft. In general, Compaq EMEA has been focused on the product life cycle and on devising competitive strategy in reflection of the product life cycles. Only in the Optimised Distribution Model and the Customer Choice Model did Compaq Sweden start to acknowledge variation of adoption and needs regarding the customer experience.

The explicit usage and reference to the life cycle found in the cases puts the trajectory pattern hypothesis in a somewhat different position compared to the other hypotheses on capability acquisition, since it implies that management of two firms think and relate to the trajectory, when taking decisions.

The interplay between several organisational levels, as depicted in discussion on the capability portfolio, confuses the analysis further. Following from the identification of several capability portfolios (in the discussion on the resource pattern hypothesis) there are several organisational trajectories existing in parallel, locally, regionally and globally.

Accordingly, there are global and local theories of business, reflected in local variations of business models and local partly different capability portfolios. In both cases, Compaq Sweden and Dell Sweden have been used internally as laboratories for policies and practices, which when successful have been adopted in other parts of Europe. The relative maturity of the Swedish market, with a large number of large business firms, has been a contributing factor to this role played by the Swedish subsidiary.

In addition, the trajectory of competitors as well as members of the local, regional and USA focal networks affect and redirect capability acquisition, making the trajectory an elusive source for explaining capability acquisition processes. A subsidiary with a first-mover advantage perceives that it has the time needed to build its own sales force capabilities, whereas the firm at the corporate level may perceive itself as a late-mover, causing tension between the various organisational levels.

Compaq USA and Dell USA

Somewhat to a surprise, the analysis of the cases shows that Dell Corporation has eventually become more indirect and Compaq Corporation has become more direct, in terms of capability acquisition (as indicated in table 12.3). A possible explanation to this shift is the value of acquiring capabilities from as many sources as possible. Direct capability acquisition is not a substitute for indirect capability acquisition. Instead, they are complements. This shift in capability acquisition can be explained as a search by both firms to complement their capabilities, in dimensions where they are weak, thereby converging in terms of capability portfolios.

To improve competitiveness, the reformulation of the theory of the business in combination with new business models is a regular, recurrent pattern. The reformulation can be driven by outside events or forces as shown in the cases, causing strategic redirection. One interesting example of forced reformulation is the case of Dell Corporation being closed out of the retail channel, forcing it to focus on direct customer contact. Until this event, Dell Corporation was pessimistic about the direct customer contact although it subsequently tried to downplay this. Afterwards, the direct customer contact became a cornerstone of the theory of business and subsequent business models of Dell Corporation.

Accordingly, the cases suggest that the pattern of capability acquisition cannot be reduced to a matter of trajectory only. The firm digresses from the trajectory in different directions, suggesting that determinism co-exist with true managerial opportunity for change. The trajectory pattern hypothesis is particularly unclear regarding capability acquisition during the birth of the firm and the renewal or near-death periods.

The increasing use of firm purchasing as means to acquire means for direct capability acquisition towards the end of the studied time period in the case of Compaq Corporation, indicates that different means come to dominate various phases of the trajectory, with regard to the degree of utilisation. The firm purchasing undertaken coincide with lacking capabilities and inability to acquire those capabilities, and so mark a distinct shift in capability acquisition regime.

The acquisition of Digital, undertaken by Compaq Corporation, serves to illustrate the need for a solution to the lack of a sales force quickly. During the last business model, the Customer Contact Mix Model, Dell Corporation acquired a small USA firm to become stronger quickly in storage technology. This is an indication that Dell Corporation suffers from a lack of product technology, which will force it to acquire more similar firms eventually. Accordingly, the nature and maturity of the theory of the business is likely to affect future capability acquisition. In particular with regard to the propensity to utilise firm purchasing.

The Trajectory Pattern Hypothesis and Electronic Commerce

With regard to capability acquisition of electronic commerce capability, the trajectory hypothesis points in the same direction as the resource portfolio hypothesis. Firms are both facilitated and restricted because of where they are and what they know. What is different is that the trajectory perspective offers a better way to understand the limitations to capability acquisition.

There are instances in the cases where the theory of business is being rewritten without being properly implemented or only partially implemented, or eventually implemented, or not implemented at all. These instances can be attributed to inertia (Hannan and Freeman, 1983 and 1989), where existing strong operational imprints were difficult for the firms to change. There is in this regard no indication that electronic commerce is materially different from other capabilities.

The clearest example is that of Compaq Sweden's reliance on, and partnership with, its channel members. Repeatedly Compaq Sweden has had to refrain from changing its business models despite a growing insight that direct customer contact would be desirable. Another example is Dell Sweden's dependence on large business customers and its inability to redesign its business models to fit other customer segments. This inability co-existed despite an emerging understanding on the theory of the business level that change was necessary in order to be able to cater successfully to the small business and private segments. The move of the home and small business unit from Stockholm to Copenhagen can be interpreted as an attempt to achieve this needed reorientation.

Insights and Implications

The cases suggest that when the theory of business cannot be rewritten and reformulated by business model experimentation, the firm will eventually go out of business. In this ongoing process several theories of business and business models coexist within the firm, competing for supremacy on different operational levels. A further complication with the trajectory pattern hypothesis is that there are several types of trajectories affecting the capability acquisition on product, organisational, or technological levels.

An interesting aspect is that both theories of business for Compaq Sweden and Dell Sweden appear simple in terms of particular technology and skills. For both theories, direct for Dell Sweden and indirect for Compaq Sweden, there is a whiff of simplicity and straightforwardness. Yet both theories of business provided a new, profound understanding of how computers could be distributed and how the business models should be designed to support those theories. Furthermore, these theories of business have proven surprisingly resilient in supporting the competitiveness of the two firms.

This robustness in quality, compared with competitors that went out of business over the years, means that not all theories of business are equal. Some are more profound than others are and some are more resilient than others are. In particular for their potential for further development and capability acquisition. This is attributed to the nature and maturity of the theory of business, but also to the capabilities acquired by the firm. The trajectory hypothesis shows that the way firms move from one business model to another, not only as a reflection of the underlying capabilities, but also as a reflection of the theory of business.

Both cases suggest that the initial endowment of capabilities lay a foundation for the development of the firm. If the initial endowment of capabilities is rich and fit well together, the basis for survival is better ensured. In the case of Compaq Sweden, acquiring electronic commerce capability challenged and demanded a dramatic reformulation of the theory of business, which Compaq Sweden had severe difficulty in handling. Furthermore, if the initial capabilities offer rich scope for acquisition of new capabilities in a certain direction, for example with regard to electronic commerce, then the ability to rewrite the theory of business as well as to formulate new business models is greatly enhanced.

A weakness with the trajectory pattern hypothesis is that there are many possible trajectories, cycles or paths that can be identified. In particular, this is the case between different levels of the Compaq and Dell organisations. The USA business of Compaq and Dell matured earlier than the Swedish ones. But this problem also applies to singular national or regional markets, with different customer segments maturing at different speeds. For instance, Dell EMEA set up its own operations in Italy, a major market in the centre of Europe only by 1998. An analysis based on the trajectory pattern hypothesis is complicated by the time lags between the US, EMEA, and Sweden. This problem is most severe during the 1980s: the lags narrowed down considerably during the second half of the 1990s.

This problem reduces the clarity of the trajectory pattern hypothesis, but can also explain why different units within both firms use different dominant means of capability acquisition simultaneously. For instance, combining direct capability acquisition at the USA level with indirect capability acquisition at the local Swedish level.

Following on the difficulty in identifying one trajectory, it is noted that there are several business models present simultaneously. Both Compaq EMEA and Dell EMEA focused on the relative maturity of various European markets and devised local market strategies in response. Various local business models reflect one theory of business, but they are implemented in reflection of the local market conditions.

Local variations in the implementation of the theory of business can also be understood as several theories of business simultaneously competing for primacy. For instance, in the early 1990s there was a debate about whether Dell USA should utilise resellers or not, which challenged a basic assumption governing the theory of business. Accidentally, it rewrote its theory of business at that time, making it conducive for electronic commerce.

Furthermore, the emerging understanding is in partial contrast to the description of the innovation literature reported in Chapter 8, as being mainly linear and cumulative, and focusing on successful innovation. There are a number of instances where it is most unclear which trajectory that the firms follow. For instance, in 1994, Dell Sweden might have taken a path focusing on channel members. In 1997 Compaq Sweden might have benefited from the purchasing of Gateway2000. The results of capability acquisition processes only appear linear in retrospective. In practice, as they evolve, these processes include many detours, with the opportunity to acquire capabilities affecting the direction and shape of the trajectory.

As indicated in table 12.5 Compaq Sweden has relied relatively more on firm purchasing, and it started to use firm purchasing earlier. It should however be pointed out that Dell Sweden towards the end started to utilise firm purchasing as well. Furthermore, the trajectory of Compaq Sweden had matured further. This suggests that firm purchasing can be taken to indicate managerial search for a new trajectory.

The Performance Pattern Hypothesis

Contrasting the cases with the performance pattern hypothesis suggests that both firms compete by acquiring capabilities for improving efficiency and effectiveness over time. By reducing costs and/or creating value to their customers Compaq Sweden and Dell Sweden have enhanced the performance and so ensured survival, growth and competitiveness. There is no indication that the firms themselves use the term efficiency and effectiveness in their formulation and implementation of strategy. But in the performance pattern hypothesis, the actions and behaviours are directed over time towards acquiring capabilities to support and improve both efficiency and effectiveness. A summary of the analysis made in appendix 4 of Compaq Sweden and Dell Sweden interpreted as an *efficient* or *effective* capability acquisition process is presented below.

Business Model	Capability Acquisition Pattern for USA	Capability Acquisition Pattern for EMEA	Capability Acquisition Pattern for Sweden
Compaq: The Reseller Model 1982-89	Efficiency/ Effectiveness	Efficiency/ Effectiveness	Effectiveness
Dell: The Direct Sales Model 1983-1990	Efficiency/ Effectiveness	Efficiency	Effectiveness
Compaq: The Indirect Sales Model 1990-93	Efficiency/ Effectiveness	Efficiency	Effectiveness
Dell: The Relationship Model 1991-94	Efficiency/ Effectiveness	Effectiveness	Efficiency
Compaq: The Distributor Model 1994-96	Effectiveness	Efficiency	Effectiveness
Dell: The Hybrid Model 1995-96	Efficiency/ Effectiveness	Effectiveness	Effectiveness
Compaq: The Optimised Distribution Model 1997-98	Efficiency	Efficiency/ Effectiveness	Effectiveness
Dell: The Customer Segment Model 1997-98	Effectiveness	Efficiency	Efficiency
Compaq: The Customer Choice Model 1999-	Effectiveness	Efficiency/ Effectiveness	Effectiveness
Dell: The Customer Contact Mix Model 1998-	Effectiveness	Efficiency	Effectiveness

Table 12.4 Summary of capability acquisition patterns analysed with the performance pattern hypothesis.

Compaq Sweden and Dell Sweden

During the period studied both firms made significant improvements in terms of both efficiency and effectiveness. While there are few figures available that describe this process conclusively over time, the stories provide evidence that both firms have become dramatically more efficient and effective. Furthermore, the figures on the overall corporate level support the understanding that efficiency and effectiveness has increased dramatically also in the local subsidiaries.³⁰⁵

The identified pattern indicates that it is difficult for a firm to improve itself in both efficiency and effectiveness simultaneously or to the same degree. As can be seen in table 12.4, at the local Swedish level, both firms have focused on effectiveness. This focus can be explained by the task assigned to the local subsidiaries. Their focus has been to win and maintain local business. They have focused on developing offerings suitable for local customers. Compaq Sweden and Dell Sweden have not in particular focused on assembly or logistics, but at managing business and customer relationships.

An interesting aspect is that Dell Sweden, during the Relationship Model and the Customer Segment Model, in response to growing demand which it could not support adequately, it made choices about which customers to serve and on how to serve them. This can be attributed to the acquisition of capabilities for managing customer relationships while containing the costs of doing so, indicating the importance not only of creating value for customers by offering effectiveness, but also of doing so at a low cost.

Compaq EMEA and Dell EMEA

Compaq and Dell EMEA have focused on efficiency. Being responsible for the establishment and management of the infrastructure for EMEA markets, much activity has come to centre on restraining and directing the local national subsidiaries, while achieving economies of scale in production and logistics. Furthermore, the EMEA levels have been responsible for quality and supplier management.

There is indication that both firms have changed themselves unevenly over time, focusing during one business model on improving efficiency and in another period on improving effectiveness. This pattern is not always evident, but the analysis of the cases as reported in table 12.4 shows that the capability acquisition at the EMEA organisational level has been swinging quite regularly between efficiency and effectiveness.

In this regard there is a difference between Compaq EMEA and Dell EMEA. While Dell EMEA more clearly focused on acquiring capabilities to enhance efficiency, Compaq EMEA more regularly mix capability acquisition for efficiency and effectiveness. This can be taken to suggest that the division of task between the two organisational levels has been clearer in the case of Dell EMEA, which has focused more on supporting the local organisation.

³⁰⁵ See appendix 1 for figures on Compaq and Dell Corporation.

Furthermore, Compaq EMEA has tended to engage in more complex capability acquisition trying to simultaneously make improvements in both efficiency and effectiveness. A closer look at the cases suggests that this can be attributed to the division of labour implemented between Compaq EMEA and its subsidiaries. Compaq Sweden's business models have consistently provided more pre- and post-sale customisation, and a broader product portfolio than Dell Sweden. This has implied a less lean organisation, with several storage points and complicated co-ordination internally between the organisational levels as well as between Compaq Sweden and local channel members.

Compaq EMEA has used efficiency oriented capability acquisition as a principal tool to regain competitiveness a number of times during the studied period. For instance, during the Indirect Sales Model and Optimised Distribution Model, Compaq EMEA focused on bringing down costs per unit. This was achieved by reducing prices and increasing output to achieve economies of scale, ahead of actual demand – stimulating customers to buy more computers.

Compaq USA and Dell USA

In general, capability acquisition at the USA level is more focused on effectiveness, whereas capability acquisition at the EMEA level is more focused on efficiency enhancement. This can be attributed to the roles of the three organisational levels, where for instance Compaq USA focused on designing and creating new products and services, Compaq EMEA focused on production and logistics in Europe, and Compaq Sweden focused on acquiring capabilities to come closer to customers in Sweden. Both firms have utilised both efficiency and effectiveness capability acquisition over time to enhance both performance dimensions. But the extent has varied across the organisational levels.

The new business models have not always led to improvement in both efficiency and effectiveness. For instance, during the Relationship Model, Dell Sweden chooses to focus on large business customers. This move increased overall efficiency, but reduced effectiveness for other marginal customer segments. Over time both firms successfully increased the number of products and customer segments that they served.

There is anecdotal evidence that strong improvements in efficiency are followed by strong improvements in effectiveness, and vice versa, making the firm acquire capabilities in the performance dimension in which it is weak. The pattern found in the cases suggests that the relative shortcoming in current performance of a business model affect the emergence of the new business model. The cases indicate that the new business model will address the shortcoming of the previous model. It can be inferred that capability acquisition will reflect this need and performance will improve relatively more in the dimension in which the previous business model was relatively weak.

Throughout the cases the business models have emerged in response to limitations and shortcomings in previous business models. The emerging business models have come into use because they could offer relatively better economic performance for customers in terms of efficiency and effectiveness than previous business models.

The Performance Pattern Hypothesis and Electronic Commerce

The cases indicate that theories of business establish themselves permanently if they offer a new combination of efficiency and effectiveness. At their starting points both firms are different and have proposed different combinations of efficiency and effectiveness. Both of these theories of business have been successful fitting well with the possibilities available at the time of their initial implementation.

Yet, the cases suggest that both firms have become more similar over time regarding what capabilities they have acquired and what strategies they have practised. Expressed in terms of efficiency and effectiveness, the cases indicate that the theories of business as well as the capability portfolios are influenced by the competitive dynamics between the firms. There is no clear pattern on a business model level, at least that can be identified in the cases and discussed in terms of efficiency and effectiveness, of how the two firms influence each other.

Regarding electronic commerce, Compaq Sweden has tried to emulate and imitate Dell Sweden by acquiring and improving addressability, interactivity, customisation, postponement, and personalisation. This is reflected in the strong emphasis on effectiveness found in both cases towards the end of the studied period. Striving to be competitive, the two firms have eventually come to mimic the performance of each other's business models. Arguably, electronic commerce has stimulated both firms to focus more on effectiveness, than efficiency.

The cases indicate that as the firms grow, their ability to utilise all means of capability acquisition increases. Both firms use firm purchasing only at the later stages of their development. Furthermore, the overall capacity to acquire new capabilities increases. This capacity is shown clearly with regard to electronic commerce, but also in terms of new products, services, markets, customer groups, indicating that both firms have become gradually more adept at acquiring new capabilities.

Insights and Implications

The cases suggest that the performance pattern hypothesis touches upon two major sources for capability acquisition that have been neglected in the literature. The first one are customers who by demanding constantly improved products and services stimulate capability acquisition geared for enhancing effectiveness. The second category is competitors who by competing, and thereby inspiring the competing firm, stimulate capability acquisition geared for efficiency.

While there is indication that Compaq Sweden has resorted to efficiency enhancement to avert crises and drive sales, this emphasis has been shifting towards the end of the period studied. Performance seems to be improved relatively more in terms of efficiency and effectiveness in the dimension where the firm is relatively weak and the room for improvements is larger. Hence, of late, during the Optimised Distribution Model and the Customer Choice Model, Compaq Sweden has tried to improve itself in terms of effectiveness.

Accordingly, the firm over time comes to balance the need for offering customers a high level of efficiency with the need for matching the cost levels of competitors. Perceived weaknesses in either efficiency or effectiveness influence in which capacity capabilities for electronic commerce or otherwise are acquired. When firms try to improve their performance, the balancing act implies constant changes and repositioning in the performance landscape (Siggelkow, 1999) which in turn demand new capability acquisition to enhance performance and sustain competitiveness.

The analysis shows that Compaq Sweden and Dell Sweden have shifted position in the performance landscape in a somewhat different fashion. While Compaq Sweden often has attempted to make radical and dramatic performance improvements, Dell Sweden in contrast has made many small performance improvements. The business models are clearer and more distinct in the case of Compaq Sweden, indicating its approach to strategy and performance. Put in terms of Orlikowski (1996) the capability acquisition process of Dell Sweden can be characterised as being more of a situated change process: always ongoing, and more continuous than the capability acquisition process of Compaq Sweden.

Summary of Findings Generated by the Four Hypotheses

The analysis carried out above shows that the capability acquisition patterns are different in the two cases, and indicate that the two firms have undergone different capability acquisition processes. In this respect all four hypotheses contribute different facets for understanding and explanation of capability acquisition processes.

The supply pattern hypothesis emphasises that capability acquisition is a managerial activity, which spans both the internal and external sphere of the firm. From the cases and the analysis it can be inferred that the notion of supply is an important aspect of capability acquisition, offering understanding of capability acquisition processes. A key insight is that capability acquisition frequently occurs between firms and that collaboration is used to such a large extent.

The resource portfolio pattern hypothesis emphasises that capability acquisition is an accumulative process of capabilities. From the cases, the discussion and the analysis, it can be inferred that the quality and composition of the current capability portfolio is an important aspect of capability acquisition, offering understanding of capability acquisition processes. A key insight is that capability acquisition is present at all organisational levels, is transferred within and across organisations and that cloning is used to such a large extent.

The performance pattern hypothesis shows that there is interplay between competitors, customers, and the focal firms. A key insight is that the constant search for performance makes it imperative to position the firm vis-à-vis customers and competitors alike, offering understanding of capability acquisition processes. Furthermore, the performance pattern hypothesis put emphasis on capability acquisition as a process which involves several means and counterparts simultaneously, where the firm dynamically shifts focus of capability acquisition over time to survive in the performance landscape.

The trajectory pattern hypothesis emphasises the theory of business and the development of the firm over a longer period of time, than a singular business model. In contrast to the supply, resource and performance pattern hypothesis, it has been possible to find the trajectory pattern hypothesis distinctly confirmed in the cases. Furthermore, this pattern is distinctly different in the two cases. Compaq Sweden has relied on indirect capability acquisition to a large extent, while Dell Sweden has relied on direct capability acquisition to a large extent.

Based on the trajectory pattern hypothesis, it is proposed that there is a material difference in how the two firms have acquired capabilities. From the cases and the analysis, it can be inferred that the nature and maturity of the trajectory affect capability acquisition, offering understanding and a degree of explanation of capability acquisition processes, which will be developed in Chapters 13-15.

Cloning and Collaboration Revisited

The analysis above underscores the importance of cloning and transferring capabilities within and between organisations. With regard to cloning as presented in Chapter 8, cloning-imitation and cloning-emulation are scarcely used. Given that cloning-replication is an internal transfer process of capabilities, the extent of cloning-imitation and cloning-emulation, both externally oriented, is noticeable.

In addition, the analysis underscores the importance and prevalence of collaboration, both with customers and other businesses. With regard to collaboration, the overall proportion of used means is quite stable within the individual firms and compared between the two firms. There are considerable differences in terms of how much collaboration-business and collaboration-customers that is utilised during a single business model.

During the studied period of the two firms, both firms utilised more collaboration and cloning than on in-house innovation and firm purchasing. This finding should be contrasted with the long established view in the literature on dynamic capabilities presented and commented upon in Chapter 4-9, that capability acquisition is an internal phenomenon that relies on in-house innovation.

When taking a closer look at the capability acquisition processes for each of the firms across the business models and focusing on collaboration and cloning, the suggested pattern of the trajectory pattern hypothesis: indirect and direct is further substantiated. The cases suggest that the relative difference in capability acquisition patterns found (in particular with regard to collaboration and cloning) can be attributed to the theory of business of the two firms respectively.

Compaq Sweden mainly acquired capabilities from businesses (collaboration-business) and competitors (cloning-imitation and cloning-emulation), and Dell Sweden acquired capabilities mainly from customers (collaboration-customers) and by internal transfer (cloning-replication). This pattern is confirmed across all business models, but is a matter of relative magnitude, rather than of a binary character. Both firms utilise capability acquisition both from customers and competitors, but to a different degree.

This pattern has not been suggested or captured by the four hypotheses, but is based upon the utilisation and analysis of the hypothesised patterns. By separating the categories of collaboration and cloning into sub-categories, further support can be found for the different capability acquisition patterns of the two firms.

The trajectory pattern hypothesis shows that the processes have been different, indicating that the theory of business rather than business models offers guidance in understanding the capability acquisition processes. Furthermore, the supply, resource and performance pattern hypothesis suggests that the capability acquisition processes of the two firms are different and similar in some other interesting respects.

Business Model	Compaq Sweden	Dell Sweden
The Reseller Model/ The Direct Sales Model	In-house innovation: 24%	In-house innovation: 25%
	Cloning-replication: 39%	Cloning-replication: 35.5%
The Indirect Sales Model/ The Relationship Model	Cloning-imitation: 7.5%	Cloning-imitation: 1.25%
	Cloning-emulation: 2.5%	Cloning-emulation: 1.25%
The Distributor Model/ The Hybrid Model	Collaboration-business: 27%	Collaboration-business: 19%
	Collaboration-customers: 0%	Collaboration-customers: 18%
The Optimised Distribution. Model/ The Customer Segment Model	Firm purchasing: 0%	Firm purchasing: 0%
	In-house innovation: 35%	In-house innovation: 31%
The Customer Choice Model/ The Customer Contact Mix Model	Cloning-replication: 35%	Cloning-replication: 42%
	Cloning-imitation: 5.5%	Cloning-imitation: 0%
	Cloning-emulation: 3.5%	Cloning-emulation: 0%
	Collaboration-business: 21%	Collaboration-business: 0%
	Collaboration-customers: 0%	Collaboration-customers: 27%
	Firm purchasing: 0%	Firm purchasing: 0%
	In-house innovation: 28.5%	In-house innovation: 31%
	Cloning-replication: 33.5%	Cloning-replication: 33.5%
	Cloning-imitation: 0%	Cloning-imitation: 6.5%
	Cloning-emulation: 2.25%	Cloning-emulation: 2%
	Collaboration-business: 33.5%	Collaboration-business: 27%
	Collaboration-customers: 0%	Collaboration-customers: 0%
	Firm purchasing: 2.25%	Firm purchasing: 0%
	In-house innovation: 38%	In-house innovation: 30%
	Cloning-replication: 26%	Cloning-replication: 47%
	Cloning-imitation: 0%	Cloning-imitation: 0%
	Cloning-emulation: 2%	Cloning-emulation: 0%
	Collaboration-business: 32%	Collaboration-business: 11.5%
	Collaboration-customers: 0%	Collaboration-customers: 11.5%
	Firm purchasing: 2%	Firm purchasing: 0%
	In-house innovation: 20%	In-house innovation: 27%
	Cloning-replication: 47.5%	Cloning-replication: 51%
	Cloning-imitation: 0%	Cloning-imitation: 0%
	Cloning-emulation: 5%	Cloning-emulation: 0%
	Collaboration-business: 15%	Collaboration-business: 20%
	Collaboration-customers: 0%	Collaboration-customers: 0%
	Firm purchasing: 12.5%	Firm purchasing: 2%

Table 12.5 Proportional use of the four means of capability acquisition with a special focus on cloning and collaboration³⁰⁶.

³⁰⁶ This table is presented as an indication of the stability that has been found regarding the utilisation of means. It should be noted that the figures are generated through a series of interpretative steps.

Bringing the cases and the analysis of the four hypotheses together, the capability acquisition process of Compaq Sweden can be characterised as relying more on internal supply for capabilities, additive capability acquisition and on efficiency, i.e. low costs to the benefit of customers. In contrast, the capability acquisition process of Dell Sweden can be characterised as relying more on external supply of capabilities, complementary capability acquisition and on effectiveness.

From Patterns to Processes

Expressed in terms of the trajectory pattern hypothesis, Compaq Sweden has utilised an indirect theory of business, while Dell Sweden has utilised a direct theory of business, following different trajectories over time. Compaq Sweden has acquired capabilities predominantly from its channel members and the competition, while Dell Sweden has acquired capabilities predominantly from its customers and by spreading successful capability acquisition around in the organisation.

Furthermore, when the supply, resource portfolio and performance hypothesis are considered at the theory of business level, they contribute to the understanding of the indirect and direct theories of business that the two firms have practised. Consideration of the four hypotheses has produced indications that suggest interdependence between the supply of capabilities, the resource portfolio and the performance of the firm. These aspects exert influence on the capability acquisition process, notwithstanding that they cannot be found as clearly as patterns in the cases.

So far the focus has been on the patterns of capability acquisition. The search for patterns has been a way to direct and systemise the search for insight with regard to capability acquisition processes. In reflection of the preference hereby assigned to the trajectory hypothesis and the emerging insights about capability acquisition, attention will now be shifted to the processes as such. What are the theoretical implications of these capability acquisition patterns? How can the capability acquisition processes be explained?

13. Explaining Capability Acquisition Processes

Chapter 13 builds and expands on Chapters 11 and 12. This chapter offers a more detailed discussion on a number of aspects of the capability acquisition process. This chapter generates a model that integrates the findings made so far, to facilitate enhanced understanding of capability acquisition processes in distribution systems. The perspective is that of the focal firm.

Capability Acquisition Sub Processes

Given the findings of chapter 11 and 12, it is proposed that capability acquisition can be understood in terms of a number of sub processes. Each of these sub-processes is an important aspect of capability acquisition in distribution systems. These sub processes are considered to be omnipresent, concurrent and interwoven. They can be delineated in terms of where in the distribution system they occur and in terms of which actors that are involved.

The capability acquisition process is composed of five interdependent sub-processes, which in turn is a subset of all capability acquisition that takes place within and in the context of the firm. For instance capability acquisition that takes place by interaction with unions, governmental bodies or financial institutions are left out.

Capability acquisition sub processes	Characterisation
Capability acquisition within firms	Capability acquisition which takes place within the organisation
Capability acquisition from customers	Capability acquisition from and between customers
Capability acquisition from competitors	Capability acquisition from and between competitors
Capability acquisition from channel members and partners	Capability acquisition from and between actors that assist in managing customer relationships
Capability acquisition from suppliers	Capability acquisition from and between suppliers

Table 13.1 Capability acquisition sub processes and characterisation of them

Taken together each of these five sub-processes offers a new and complete view of capability acquisition. This view is new because it suggests that capability acquisition within firms can be related to capability acquisition from and between firms, from and between firms and customers, from and between customers, from and between competing firms, from and between suppliers, from and between channel members/partners. It is coherent, capturing the ways in which capability acquisition occurs in distribution systems.

By characterising capability acquisition both in terms of “from” and “between”, those means that are mainly internally governed and constituted, like in-house innovation and cloning, as well as those means that are mainly externally governed and constituted, like collaboration and firm purchasing, are acknowledged and integrated.

Furthermore, the “from” and “between” are meant to capture that for instance customers acquire capabilities from each other and that this capability acquisition can constitute a part of the capability acquisition of the focal firm. Capability acquisition from and between customers indicates that there is a range of activities which are considered as capability acquisition, and that there is capability acquisition both “between” customers as such, as well as “between” the focal firm and customers, which accordingly acquire capabilities “from” its customers. Some of these capabilities reside at customers or “between” the focal and firm and its customers, and hence the term “from” indicate the direction of capability acquisition. Accordingly, if customers were the focal actors they would acquire capabilities “from” and “between” the focal firm.

The degree of interdependence between these types of capability acquisition is in focus in Chapter 13. First the sub processes will be considered one at a time. Thereafter they will be discussed with regard to their interdependence.

Capability Acquisition within Firms

The cases of Compaq Sweden and Dell Sweden integrate functions in production, logistics, marketing, and sales. By acquiring and combining capabilities across functions in new ways they have achieved competitiveness. The notion of a distribution or a production system as something that confers a competitive advantage becomes obsolete. Distribution, marketing, sales, or electronic commerce are not detached from production and vice versa.

Taken one capability at a time, the operations of Dell Sweden appear simple, with little unique competitive edge. On balance, Compaq Sweden possesses more proprietary capabilities in logistics, product, and production technology. Yet, the difficulty of Compaq Sweden to match Dell Sweden, despite its strong general ability to acquire capabilities, shows that Dell Sweden has enjoyed a sustainable competitive advantage. This competitive advantage has been process oriented and has rested on a strong ability to acquire new capabilities that has enforced this competitive advantage. This suggests that the difference in competitiveness cannot be explained by only looking at capabilities or capability acquisition processes.

Building a competitive advantage based on excellence in only production or distribution or design is not sufficient. Instead, for both firms capabilities must be integrated across several functions, including several organisations. The key capabilities possessed by the firms other than being good at acquiring capabilities, are to co-ordinate and develop an extended network of firms that acquire capabilities on behalf of the focal firms. This ability cannot be outsourced. It is the essential task of the focal firms and it resides within the firms.

Capability Acquisition from and between Customers

Comparing the two capability acquisition processes shows that Compaq Sweden and Dell Sweden possessed diametrically different means to align firm properties and firm context with each other. The ability of Dell Sweden to evolve and prosper can be attributed to its ability to adapt its organisational logic with the market logic faster and with less effort compared to Compaq Sweden (Goshal and Moran, 1996).

Compaq Sweden had severe difficulties in acquiring addressability and interactivity, suggesting that this is a reason why Compaq Sweden struggled to introduce electronic commerce. Without addressability and interactivity, it was practically impossible to implement electronic commerce successfully. This understanding is in line with the argument advanced by Wikstrom et al (1998), who argue that interactivity puts the customer in power of the exchange relationship and makes the customer the single most important resource (and it is here argued: capability) of the firm.

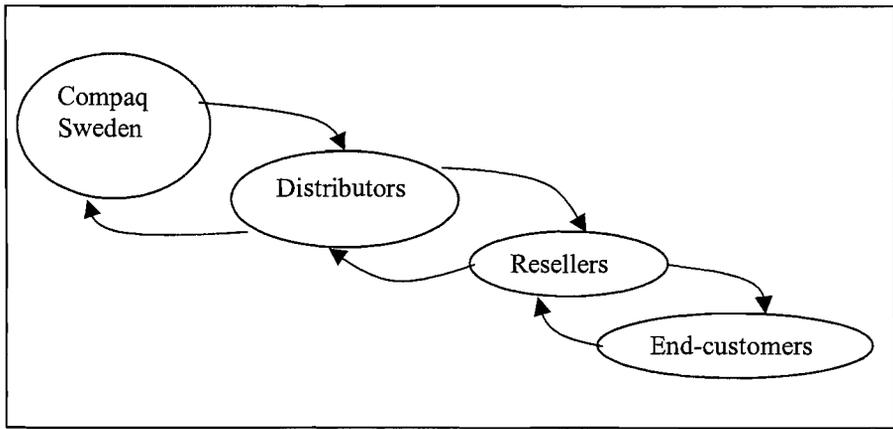


Figure 13.1 Capability acquisition process of Compaq Sweden³⁰⁷

³⁰⁷ The drawing is simplified to illustrate some of the difficulty in obtaining capabilities.

In contrast, the direct contact with customers makes it possible to follow and learn from the customers in a different way compared to a seller who is working indirectly. In the case of Compaq Sweden, the information it got was filtered, came later, and was confusing. Hence the feedback loop (Argyris and Schon, 1978) is weaker and distorted.

The relentlessness of customer contact in the case of Dell Sweden made shortcomings and failure more evident. The frequency and intensity in customer contact facilitated a higher degree of repetition and experimentation, enhancing the ability to identify new opportunities (Levitt and March, 1988).

By acquiring capabilities continuously and frequently, rather than intensively in large shifts as Compaq Sweden did, Dell Sweden obtained a momentum that gradually widened the difference with Compaq Sweden. Paradoxically, this enabled Dell Sweden to follow its trajectory without altering its business models to the same extent as Compaq Sweden did. This made it possible for Dell Sweden to rely on acquiring capabilities additively, living well on its existing capabilities, and to avoid the extensive need for discarding exhibited by Compaq Sweden.

The time advantage that Dell Sweden enjoyed because of direct customer contact compared to Compaq Sweden also provided a buffering mechanism (Miner et al, 1990) that enabled Dell Sweden to correct itself, with only marginal loss of customers or sales. The adaptation process per se was sometimes as long as those of a comparable process at Compaq Sweden, or sometimes even longer. But since Dell Sweden could start earlier, it was able to arrive quicker at a solution that its competitors. This helped Dell Sweden to achieve and maintain its competitive advantage.

Compaq Sweden tried to come closer to the customers to reduce the problem of not having direct customer contact. In the process, Compaq Sweden gathered customer signals directly and indirectly in parallel, trying to take all sources into account. While this improved the situation for Compaq Sweden, for instance during the Optimised Distribution Model, it did not solve the problem of lacking customer contact, and in some cases appears to have complicated it further. During the Optimised Distribution Model and the Customer Choice Model, the complexity and high level of ambition made it virtually impossible to make the system work seamlessly. The need for co-ordination between members of the Compaq Sweden distribution system increased as several actors tried to co-operate and compete for business from customers simultaneously.

In the cases, partly as a result of the blurring of roles, many large buying organisations grew tired of dealing with a large number of different vendors for acquiring computers, installation, maintenance, repair, and overhaul items. Buyers were demanding "one-stop shopping" and Compaq Sweden tried to assign one actor in the distribution system to assume a "lead" for each customer. This set up was inadequate as buyers tried to consolidate buying to reap economies of scale, since there was no central node of information that could gather and forward information needed in the system to make co-ordination work.

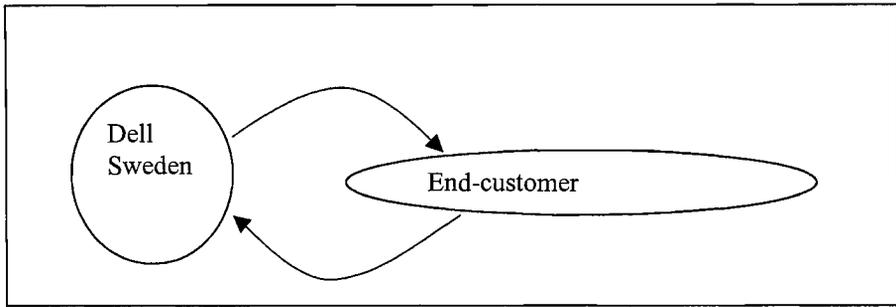


Figure 13.2 Capability acquisition process of Dell Sweden.

The effects of direct contact are richly illustrated in the cases. By possessing direct contact with the headquarters, Dell Sweden was able to respond quicker to changing purchasing behaviour. Dell Sweden could, albeit with great internal co-ordination effort, supply the customers with the computers in demand across a large geographical area. Compaq Sweden had to assume the role of information co-ordinator, and in some cases even take on the customer relationship to make fulfilment work. When a buyer communicated its needs through a single purchase order to a central information node, which then co-ordinated activities with the other actors in the network, Compaq Sweden was forced to transform the supply chains across national, organisational and subsidiary levels.

The cases also illustrate the difficulties involved in selling to private and home businesses, suggesting that the skills involved are different. Dell Sweden has been remarkably weak in the consumer market, indicating the importance of the personal sales force to shift sales to the Internet, but also the general difficulty of establishing electronic commerce sales in consumer markets. The failure of Dell Sweden in this respect illustrates that the needed capability sets are different because customers can signal needs differently. In particular, private consumers appear less able to make their preferences explicit as suggested by Polanyi and Keegan (1966).

Furthermore, the cases indicate that the existing customer base is more easily transferable to an electronic commerce setting, compared with winning new customers directly on the Internet. It could also be said that, transferring customers from an indirect setting to a direct, as in the case of Compaq Sweden, appears almost as difficult. Most of the sales over the Internet at Dell Sweden were established customers as a part of a negotiated agreement. This can be attributed to the reduced need for capability acquisition for the customer, since the customer is familiar with the offering, and more knowledge is already explicit, and the buyer "only" has to contend with capability acquisition about the new tools for buying (Nonaka and Takeuchi, 1995).

The capabilities of interactivity and addressability provide not only basic conditions for the ability of the firm to offer customers electronic commerce, but they also act in the dual capacity as means of capability acquisition. In this respect, customisation, personalisation, and postponement are more of classical static capabilities, in that they confer relatively little scope for capability acquisition for the selling organisation. The discussion on addressability and interactivity indicates the dual role that firm capabilities often possess, acting as both static and dynamic capabilities. A critical aspect contributing to the dual capacity of capabilities, it that customers interact with each other to formulate and solve problems, relying on the capabilities of other customers.

In the case of Dell Sweden there are numerous instances where it acts as a facilitator, stimulating customers to convince themselves of the benefits of Dell Sweden. By arranging electronic and other forums where customers can meet and interact, customers have been able to acquire capabilities from each other. By stimulating customers to buy computers professionally, they are also stimulated to buy the same brand for their home, relying on capabilities acquired by the employer. Customers are not just co-producers, they are acquiring capabilities about installation, maintenance, upgrading, and repair, to facilitate and enable co-production.

Accordingly, the knowledge conversion spiral works differently and better with direct customer contact (Nonaka and Takeuchi, 1995). This suggests that it is better to hook up firmly with customers rather than choosing half-hearted solutions, because capability acquisition derived from direct customer contact is inherently superior. Customers and their demands are different, which makes capability acquisition from intermediaries a weak substitute. In fact, the cases suggest that electronic commerce increase the benefits of direct contact, since it facilitates intensified and augmented capability acquisition from and between customers.

In terms of Hayek (1945), the cases suggest that is better to collect capabilities directly from customers because customers possess knowledge that is unique and valuable to the seller. Electronic commerce only makes this more pronounced since it becomes technically and economically viable to maintain this capability acquisition process. The acquisition of Digital by Compaq Corporation indicates that when Compaq realised this, it saw no other way to act than to acquire meaningful person-to-person business relationships, as a first step towards establishing and strengthen this capability acquisition process. The attempt to buy Gateway2000 points in the same direction.

Capability Acquisition from and between Competitors

As argued above, in the case of Dell Sweden, the benefits derived from using and leveraging business relationships with customers (i.e. collaboration) is a source of supply for electronic commerce capabilities. In particular regarding the continuous real-time experimentation with new features and services. In contrast, Compaq Sweden has relied on collaboration with other businesses, and imitation and emulation of Dell Sweden. The cases show that Compaq Sweden has been acquiring capabilities from Dell's customers via Dell Sweden. This surprising capability acquisition pattern reveals that customers and competitors assist the firm in acquiring capabilities.

Acquiring a capability from one source is not comparable to acquiring a similar capability from another source, because of the context in which various actors reside. Customers have often been beyond the reach of Compaq Sweden. It has been acquiring capabilities indirectly in two ways. Firstly, via its channel members, with solution providers and large distributors being particularly important. Solution providers have stretched the application and usability of the offering, while distributors have augmented the logistical capabilities. In many cases, the channel members have saved the benefits of addressability and interactivity for themselves, spreading capabilities among themselves rather than to Compaq Sweden. This source of capabilities is still important, but is filtered.

The second source has been by looking at Dell Sweden and other competitors. This process has been more or less open. Standardisation of EDI is an example of open capability acquisition between competitors. Furthermore, through consultants and other vendors of information, practices and methods have been spread. In addition, various industry councils and committees have supported Compaq Corporation and Dell Corporation to exchange capabilities. In this sense, the cases confirm Baum and Korn (1999) and Gimeno and Woo (1996), who have pointed out that competitors became interdependent on each other, often without knowing or thinking about it.

Regarding electronic commerce, numerous key features created and implemented by Dell Sweden migrated to Compaq Sweden. The Munich War Room devoted to following Dell EMEA is the clearest indication that Compaq EMEA has continuously practised cloning-imitation and emulation. The design and approach utilised by Compaq Sweden are similar and follow Dell Sweden in time closely. There is no reasonable conclusion other than that Compaq Sweden has cloned Dell Sweden with regard to process capabilities. This second source of capability acquisition has gone in the other direction as well. Dell Sweden has cloned Compaq Sweden with regard to product capabilities. In particular, this regards the type of product lines, products, configurations, and services, where Compaq Sweden has often been stronger and more innovative.

The clearest example is provided at the corporate level regarding PC servers, a product line invented by Compaq Corporation and where Dell Corporation followed suit. For most part, Dell Corporation has acquired capabilities with regard to product innovation from Compaq Corporation, while Compaq Corporation has acquired capabilities with regard to process innovation from Dell Corporation.

There are examples to the contrary that dilute this pattern. For instance, both firms in Sweden eventually offered TCO monitors, although Dell Sweden adopted this grading system earlier. Focusing on electronic commerce, which is a process capability, Compaq Sweden has utilised cloning more than imitation and emulation relative to Dell Sweden.

In this respect, the cases indicate that the Internet has stimulated more capability acquisition directly between Compaq Sweden and Dell Sweden, since it has become easier to keep track of the actions of the competitor and respond more quickly. For instance, the launch of the Prosignia by Compaq Sweden was a clear response to the higher growth rate of Dell Sweden. The look and feel of the Internet site, closely resembling that of Dell.com, clearly suggest that there is a dynamic interplay involving not just inspiration, stimulation and shallow instances of cloning, but also of outright capability acquisition of critical capabilities. The transparency of the Internet serves to intensify capability acquisition, and has speeded up the pace of imitation and emulation, making this form of capability acquisition more important.

Capability Acquisition from and between Channel Members and Partners

It can be inferred that capability acquisition for Compaq Sweden in many instances is simpler and faster, with regard to devising an offering and acquiring capabilities, without having to include customer contact. Converting customers to wanting and appreciating the offering becomes more difficult, since Compaq Sweden has weaker means for collaborating with customers. To offset this weakness, Compaq Sweden has been forced to and successful in listening and responding to its channel members, trying to support them via financing, education, promotion, advertising, and certifying, in many cases making them an extended part of Compaq Sweden.

A pivotal issue is if capabilities that reside externally can be considered capabilities in the fullest sense, despite the fact that they are not fully under the control of the focal firm. The degree, dependence, and intensity in the collaboration between Compaq Sweden and its channel members illustrates that capabilities can not only be acquired externally as suggested with cloning. The same can also be said about the capability acquisition undertaken by Dell Sweden in its contacts with its channel partners and customers. The cases show that capabilities can permanently reside externally and yet constitute a capability of the focal firm. In these instances, capability acquisition is better described as capability mobilisation.

There is a qualitative difference between Compaq Sweden and Dell Sweden with regard to capability acquisition from channel members or channel partners. For Dell Sweden, the capability acquisition process is slow, but accurate. Dell Sweden is absorbed by the feedback during the critical capability acquisition period where it adjusts and trims the offering to suit the customers.

A typical example is the slow introduction of new products, with a gradually increasing momentum when quality and business processes work well enough. The business models change in terms of roles and functions, not only in response to power, conflict, dependence, prices, inertia, and other concepts that traditionally have been used to explain dynamics in distribution systems, but in reflection of where capabilities reside and how they are conceived, transferred, and exploited.

The cases show, that regardless of whether the focal firm possess direct or indirect customer contact, the actors close by, either customers or channel members or channel partners, will exert strong influence over the capability acquisition process. Having contact with channel members has particular implications.

Compaq Corporation is the product innovator with a broader product portfolio. Its ability to design and device PCs and other gadgets like the PDA is strong. Without this product portfolio there is no reason for channel members to sell Compaq gear. The channel members demand that Compaq Sweden confer the channel members with numerous capabilities in order to work with Compaq Sweden. Having channel member forces Compaq Sweden to make sure that its channel members have the opportunity to acquire the capabilities they need in order to be competitive. In the case of Dell Sweden, this requirement is smaller, because Dell Sweden provided co-ordination and specified specialised tasks that it also monitored closely. This additional burden for Compaq Sweden can be thought of capability acquisition not only "from" and "between", but also as "to".

To deliver on this demand from channel members, Compaq Corporation makes educated guesses about what customers might want in the long-term future, but is relatively less interested in anticipating demand short-term. In contrast, Dell Corporation focuses on the more immediate future and on actual demand. In contrast, Dell Sweden treats its channel partners with reluctance, mistrust and downplays or hides their importance. Dell Sweden does not believe or does not let on to admit that its channel partners confer it with a competitive advantage. Instead, Dell Sweden keep everything which is considered important in-house, and feel no particular loyalty to its channel partners (refusing even to consider them as channel members). This suggests that Dell Sweden was unimpressed or alternatively disregarded a potentially important source of new capabilities.

Strikingly, the same capability can constitute a competitive advantage for two firms simultaneously. Take the case of resellers for Compaq Sweden. The integration of these semi-independent actors was a necessity for Compaq Sweden and provided it with a competitive advantage. While the operational integration between Compaq Sweden and its resellers was large, the comprehensive set of routines and resources possessed by the resellers conferred both the resellers, as well as Compaq Sweden, and other indirect selling computer firms, with critical capabilities, and a competitive advantage. The clearest example of shared capabilities is the rise of distributors which enabled the consolidation of stocks, resulting in huge savings for channel members and the focal indirect selling firms.

Compaq Sweden benefited from stimulating channel members to develop and share capabilities. By fostering a sense of community and loyalty among the channel members, making them co-operate with regard to how to divide the market, and to support each other with computers and support, making the channel members stronger overall. The educational programmes that Compaq Sweden held and the authorisation of channel members performed by Compaq Sweden also supported the channel members in their work to become and work similarly, working the market in concert.

The cases suggest that the close context of the firm, i.e. customers, channel members or channel partners for that matter, lead the firm into a trap. A critical question is if there is any fundamental difference between these traps, or if there is just a question of relative performance. Since the case of Dell Sweden does not include a prolonged period of crisis, the cases offer no conclusive answer, but there are clues.

There are indications that possessing addressability and interactivity with the customers supports the pursuing of new options beyond those signalled from customers. Dell Sweden achieves this by studying customers that leave Dell for competitors. By knowing why customers are defecting, Dell Sweden can adjust its offering better to customer demand. This adjustment in offering demands that Dell Sweden can acquire the right capabilities, which it so far successfully has been able to do, despite quick technological change, albeit still only with regard to the PC. Presumably, there are limitations to this ability even for Dell Sweden. In particular, individual customers can distort the overall picture and confer the wrong capabilities.

Capability Acquisition from and between Suppliers

One capability acquisition process that has been excluded in the discussion so far is that involving the key suppliers, i.e. Microsoft and Intel. Both firms have had access to about the same suppliers, although they have used this access and managed this relationship differently. Compaq Corporation has at times been in conflict with both Microsoft and Intel.

A key issue has been the struggle of involved parties to capture the value added created in the industry. In this respect, Dell Corporation has been a tool for Microsoft and Intel. By challenging the channel members and Compaq Corporation, Dell Corporation created an alternative and obedient channel with direct access to customers, which helped Microsoft and Intel to capture more of the value added in the PC industry. Without Dell, Compaq Corporation together with the channel members could have controlled the access to customers better, and so captured a larger portion of value added.

The distribution of value added does not only relate to Microsoft and Intel. Both firms have made extensive use of contract manufacturers in Taiwan. In addition, they have shared or alternated between suppliers of hard discs, memory, monitors, and other components. Many of these firms have exchanged and shared the same local capability portfolios.

The utilisation of Quanta in Taiwan is an example of how capabilities have been shared and transferred between the two firms, with regard to the critical capabilities pertaining to assembly of notebook computers. Another intriguing example of capability acquisition via components is the deal that Dell Corporation has made with IBM Corporation. As a result of the far-reaching deal, IBM extracts a significant share of value added from the sales of a Dell computer.³⁰⁸

The success of both Compaq Corporation and Dell Corporation is built on the many strong component firms, and their capabilities, in the PC industry. The sharing of suppliers explains a large portion of the success of the PC platform. Both Compaq Sweden and Dell Sweden have derived most of their competitiveness from the proprietary technology developed by other firms in microprocessors, software, harddrives, etc, transforming both firms to assemblers and distributors, rather than inventors and product developers in their own right. This has enabled Compaq Sweden and Dell Sweden to benefit from economies of scale unmatched by other computer firms offering competing standards or systems. A side product of shared resources (Morgan and Hunt, 1999) is a high degree of homogeneity in inputs, shifting the focus of competition to distribution.

Interdependence between Capability Acquisition Processes

Analysing the sub processes of capability indicates numerous connections between the sub capability acquisition processes. For instance, Dell Corporation would hardly be so successful if not for the development work carried out by Compaq Corporation. While Dell Corporation relies on imitation with regard to product innovation, Compaq Corporation relies more on emulation for process innovation. In addition, capability acquisition between customers' act as complements to the direct capability acquisition process between Compaq Corporation and Dell Corporation, providing more detailed and more accurate information than is possible to derive from competitor oriented direct capability acquisition.

The same or similar patterns can be found within various parts of the firm, from and between customers, from and between competitors, from and between channel members and channel partners, from and between suppliers. Indeed, these five sub processes are interdependent. For instance, acquiring capabilities from suppliers is a way of acquiring capabilities from a competitor. Acquiring capabilities from a channel member or a channel partner or customer is likewise a way of acquiring capabilities created by a competitor.

³⁰⁸ There are no available figures, but the components that Dell Corporation obtain from IBM Corporation are so many per machine, and the sums stated so huge, so that it is possible to make some guesses based on the cases. Hence, given that Dell Corporation has a gross margin of around 15-25 percent it can be guessed that Dell Corporation passes 20-25 percent of the total revenue per machine, directly to IBM Corporation. This is on par with Intel Corporation who capture between 20-30 percent and not much more than Microsoft Corporation that capture 10-15 percent.

This notion of interdependence builds upon the premise that the capability portfolio is a result of a complex interplay with the environment, which the firm itself can control and direct only to some extent. Introducing new knowledge in the form of capabilities acquired in a certain fashion make it easier or more difficult to utilise another source of capability acquisition. By here proposing a number of principal sources of capability acquisition, it follows that firms are likely to make trade-offs and devise strategies for acquiring capabilities from and between these sources. This insight is similar regardless on which actor and process that is focused upon.

By mapping out and identifying the interdependence between these capability acquisition sub processes, not only understanding, but also explanation of a capability acquisition process can be found. Putting the sub processes back together provide additional indication that capability acquisition has worked differently in the two cases of Compaq Sweden and Dell Sweden. The argument is that this difference in capability acquisition pattern is a result of the underlying theory of business.

A key issue is how the focal firm has related itself to its customers. Compaq Sweden and Dell Sweden differ in this regard, and this difference also carries lot of explanatory power for understanding the capability acquisition processes of the two firms, and the implication for competitiveness. In the case of Compaq Sweden focus has been on the competition and on positioning vis-à-vis competitors. In the case of Dell Sweden, focus has been on customers and on differentiation vis-à-vis customers. The different focus has contributed decisively to the capability acquisition processes of the two firms.

This understanding conforms with Womack et al (1990), who have argued that process capabilities often display high levels of coherence and interdependence. The need to establish coherence reflects itself both at the business model level, which need to be coherent to work. Mutual orientation processes (Johanson and Mattsson, 1987) that occur between firms as well as between different parts of firms, and customers, achieve coherence.

The cases of Compaq Sweden and Dell Sweden can be viewed as examples of competition between two coherent theories of business. For analytical purposes, it is possible and worthwhile to regard these two theories of business as being anchored in the dynamic capability approach and the markets-as-networks approach respectively. Compaq Sweden has managed its business in a manner that is suggested by the dynamic capability approach. For Compaq Sweden, the basic assumption has been that competition between competitors is what determines success. For Compaq Sweden, the competitive position relative to the competitors and in particular the focus on price and cost efficiency has been paramount.

This has also influenced the capability acquisition process, making it focus on the internal capabilities and on using imitation and emulation and collaboration with channel members. Collaboration with customers and cloning has been of secondary importance, regarded as something that is a necessity in order to derive profits from the product and service offerings produced by Compaq Sweden.

Dell Sweden has managed its business in a manner suggested by the markets-as-networks approach. For Dell Sweden, the focus has been on collaboration, on the direct exchange relationships with its customers. Collaboration with other businesses, cloning, and particularly in-house innovation have been geared to answer to demands put upon Dell Sweden by its customers. The ability to listen to customers, rather than watch competitors became more pronounced when Dell Corporation decided to leave the indirect channel during 1994 (and started to whole-heartedly focus on customers).

This is not to suggest that Dell Sweden has acquired capabilities from its customers only, or that Compaq Sweden has only acquired capabilities from its competitors. The cases suggest that both firms acquire capabilities from both sources. The theories of business as practised correspond far from perfectly to the two theoretical research traditions. The direction and relative weight attached to various sub processes of capability acquisition (i.e. direct vs. indirect) should be interpreted as variations of relative magnitude.

Both firms have acquired capabilities, both from customers and competitors, as well as from suppliers, partners, and from internal in-house innovation. The cases suggest that an indirect or direct theory of business cause two typical capability acquisition processes. The capability acquisition patterns of the two firms emanate from the configuration of actors, activities and resources, and in particular the direct or indirect link with customers. Based on this configuration actors participate in capability acquisition. This activity is continuous and incremental regardless of type, but it is different in terms of how the sub processes are linked to each other and how interdependence is specified. The participation in these processes is conditioned by the context and in particular the position and actions of the various actors in the network and the distribution of capabilities, and knowledge, among actors.

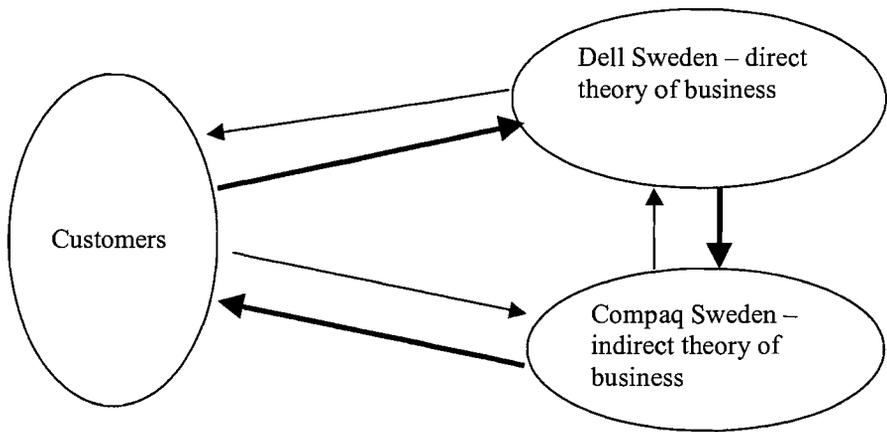
Hence, it matters which position in the network that a firm assume or occupy with regard to its ability and capacity to acquire new capabilities, since direct or indirect customer contact imply reliance on slightly different governance structures. Governance is different in the two cases with regard to what influence and affect actors. Firms rely on both their internal governance structures as well as the larger governance structure involving near contexts. Other actors and their actions particularly influence them. Customers dominating the near context is a different context compared to having channel members close by. This difference in governance structure may appear subtle, but it is not.

The cases and analysis shows that having customers is not some general condition, which is stable or changing but nevertheless remain universal in character. This was long the understanding of customers possessed by Compaq Sweden, at least at the customer segment level. On the contrary, the influence of customers is more specific in nature, originating from specific counterparts and channelled through specific relationships. This influence can imply an emphasis on catering to either channel members or customers. Where emphasis is put carry profound implications for capability acquisition because it decides which part of the near context, which the firm will adjust to. It is because this near context is moving (Andersson, 1996) that it matters so much where emphasis is put. Proximity to customers or channel members will shift and direct capability acquisition in two different directions, as richly illustrated by the cases.

These implications are not limited to what capabilities that can be acquired from customers or channel members, but affects how the firm approaches capability acquisition from suppliers, channel partners, and competitors. For instance, as the cases show, ordering components from suppliers is different depending on whether the firm is working with BTO or BTS and imply a different scope for capability acquisition between the parties. Utilising BTO makes the supplier interested in the strength and success of sales of the focal firm to a higher degree compared to the firm working with BTS.

Furthermore, the cases show how these sub processes interact with each other. For instance, the intensity in cloning between the two firms affected what capabilities that were acquired from suppliers, channel members and channel partners, and when those capabilities where acquired. In many cases, the firms complemented cloning from each other with firm purchasing or collaboration to acquire lacking capabilities. The rivalry and the proximity of the two firms in terms of products, customers, and geography influenced capability acquisition. It can even be questioned if any one of these two firms would have become as successful as they have, without the other one.

A key message is that capability acquisition to a large extent is explained by capability acquisition from customers and between competitors. The critical role and importance of customer contact and competitor proximity is well indicated by the cases and the subsequent analysis. There is a dynamic quality to this customer-competitor context which both illustrate that they are not that overly stable and forever given. This dynamic quality follows directly from the notion of capability acquisition and how firms augment their capability portfolios over time. Towards the last business models, the trajectory and performance pattern hypothesises reveal that Compaq Sweden has gradually become better at acquiring capabilities via customers, while Dell Sweden has gradually become better at acquiring capabilities from competitors.



*Figure 13.3 The capability acquisition patterns of Compaq and Dell Sweden.*³⁰⁹

This finding concurs with an intensified struggle between the firms, with lower profits, commodisation, consolidation, more advanced and informed customer demand, and increasingly similar capability portfolios. The identification of the two different patterns of capability acquisition implies that there is such a thing as “customer driven capability acquisition”, and that this sub-process is part of the capability acquisition in both direct and indirect theories of business. Furthermore, it becomes possible to think of customer orientation (in contrast not to product or production orientation which are obsolete, but to competitor orientation), as having distinct and profound implications for capability acquisition.

To acquire the right capabilities, Compaq Sweden relied on imitation and emulation of Dell Sweden beside collaboration with other firms. Dell Sweden acquired the relevant capabilities mainly by interacting with its customers and suppliers. Many customers of Compaq Sweden and Dell Sweden bought both brands. Accordingly, Compaq Sweden acquired capabilities indirectly from its customers via Dell Sweden. The capability acquisition by customers supports the capability acquisition of Compaq Sweden and Dell Sweden, directly and indirectly. The difference in governance structure and capability acquisition becomes smaller over time, with Compaq Sweden changing track partially eventually.

³⁰⁹ The arrows indicate the relative magnitudes of capability acquisition. For instance, Compaq Sweden obtains a relatively important share of its capabilities via Dell Sweden. Customers acquire capabilities from each other and so indirectly acquire capabilities on behalf of Dell and Compaq Sweden.

The case of Compaq Sweden illustrates the difficulty involved with changing track from competitor orientation to customer orientation. Despite considerable resources, its brand, goods products, and skills in manufacturing and logistics, as well as insight that Dell Sweden was gaining, Compaq Sweden was unable to change quickly enough. The business models serve as step-wise illustrations of this struggle. While there is a gradual convergence in terms of efficiency and effectiveness of the two firms, it remains somewhat of a mystery that Compaq Sweden has had so much difficulty in acquiring the capabilities for electronic commerce needed to compete with Dell Sweden. Since most capabilities were present in the distribution system of Compaq Sweden, but were not used, the cases offer a wonderful illustration of the distinction between knowledge creation and knowledge use, and the role of capability acquisition.

14. Conclusions

In Chapter 1, four specific questions were developed in response to the empirical preview and the initial discussion presented in the problem area. The empirical preview indicated that when learning about electronic commerce, Compaq Sweden and Dell Sweden acquired capabilities to support and sustain their strategies and competitive advantages. This focused the research effort on gaining insight into the capability acquisition process of the two firms. The research questions were:

- 1) What capabilities did Compaq Sweden and Dell Sweden use in order to engage in electronic commerce?
- 2) What means did Compaq Sweden and Dell Sweden use to acquire the capabilities they needed for electronic commerce?
- 3) Did the capability acquisition processes of Compaq Sweden and Dell Sweden change over time? And if so, how?
- 4) If the capability acquisition processes changed, why did they do so?

As indicated, the four research questions are highly interrelated. The first question focuses upon the demand put on firms to be able to engage themselves in electronic commerce. The second issue focuses upon how these capabilities were acquired in terms of what means were needed to acquire the capabilities sought after in question 1. In questions 3 and 4, time, context and process aspects are introduced, which also shed additional light on questions 1 and 2. The third question relates to how and when the means were used, i.e. the process of capability acquisition. Question 4 focuses on understanding and explaining the patterns that can be found in answering question 3.

In Chapters 11 and 12, alternative interpretations and ways of understanding have been utilised. In Chapter 13 the capability acquisition processes as it is understood here has been presented. This chapter takes the results of these chapters as a starting point in the formulation of answers to the research questions. Focus has been put on those insights and implications deemed most interesting by the author.

Research Question 1

What Capabilities did Compaq Sweden and Dell Sweden use in order to engage in electronic commerce? Many of the capabilities that eventually became important for Compaq Sweden and Dell Sweden were developed before the advent of electronic commerce. The theory of business employed by Dell Sweden is a blueprint of a theory of business that appears new. But there are similar theories of business that have existed for a long time. These theories of business have been using telephone and mail order as essential contact tools, accumulating the necessary capabilities like addressability, interactivity, postponement, personalisation, and customisation over a long time. The acquisition of these capabilities was underway well before the advent of electronic commerce in both cases.

In the case of Dell Sweden, is key factor for explaining electronic commerce success is that it started more early to acquire electronic commerce capabilities, and did so in a more focused and more determined fashion. Compaq Sweden's search for these capabilities and its inability to provide electronic commerce without them are illustrative in so far that it confirms that the five electronic commerce are necessary for electronic commerce. The two cases indicate that not all capabilities must be present from the outset. Both firms acquired the capabilities over time. In addition, the capabilities were gradually improved over time by experimenting, testing, and harnessing the capabilities to work and fit the context of the two firms. The notion of what constitutes electronic commerce is constantly augmented as the firms learn to master more advanced forms of electronic commerce.

Furthermore, the capabilities for electronic commerce can be acquired in different sequences. Dell Sweden started with addressability, postponement, customisation, and interactivity in basic forms from the outset, eventually adding personalisation. Compaq Sweden started with postponement and customisation, followed by interactivity, addressability, and personalisation. While all capabilities were eventually acquired, they were acquired to a different degree and were used differently by the two firms, further complicating the tracing of the evolution of these capabilities.

The cases propose numerous other capabilities that are more general, but still appear pivotal for electronic commerce success. Both Compaq Sweden and Dell Sweden eventually came to rely on a strong brand name to attract customers to their sites to offset the distance between them and the customer. The personal sales force was critical in transferring sales from the telephone and resellers to the Internet. Strong BTO and CTO capabilities indicates that the logistic and assembly system largely decide what the firm can offer in terms of postponement, customisation, and interactivity.

Hence, the five proposed electronic commerce capabilities are of limited value on their own. Since they are present in the cases in some form or another it can be inferred that they are important for electronic commerce. They are best regarded as necessary, but not sufficient capabilities for electronic commerce.

The electronic commerce oriented capabilities become useful when the firm has something valuable to offer beyond the electronic commerce interface, i.e. lower and transparent prices, well-designed and attractive products and skilled support staff. Electronic commerce is not a substitute for a good offering. Instead it is more of an additional channel or support leg for the operations as a whole. Consequently, those capabilities that appear most important in terms of distinctiveness and importance for competitive advantage are only partly or remotely related to electronic commerce.

As identified in chapter 11, Compaq Sweden built its business models around a few key static capabilities. With the exception of EDI, none of these capabilities can be classified as related directly to electronic commerce. Yet they carry considerable explanatory power for understanding the success of Compaq Sweden. The five proposed specific electronic commerce capabilities were hardly present in the case of Compaq Sweden and only late came in focus for new capability acquisition at Compaq Sweden. In particular, Compaq Sweden was skilled at logistics and distribution, via resellers. This system was not suited to electronic commerce involving direct customer contact. But it supported the operations of Compaq Sweden well at the time.

In the case of Dell Sweden, the business models were built on a few key static capabilities as identified in chapter 11. Also in the case of Dell Sweden general capabilities rather than the five proposed specific electronic commerce capabilities can well explain the competitiveness and success of Dell Sweden. Accordingly, it can be inferred that acquiring electronic commerce capability is only partially dependent on acquiring the five specific capabilities for electronic commerce proposed here.

The capabilities of Dell Sweden were easier to adapt and adjust to electronic commerce. Dell Sweden did not have to manage reliance on EDI, which hampered the reorientation in Compaq Sweden. The circumstances in which the two firms set out to acquire electronic commerce capability were different, as was the capability portfolios, and the ability to acquire new capabilities. Accordingly, the ability to use the means, the choice of means, the combination of means, and the change in usage of means should provide additional insight into the capability acquisition processes.

Research Question 2

What means did Compaq Sweden and Dell Sweden use to acquire the capabilities they needed for electronic commerce? The used means are in-house innovation, cloning, collaboration and firm purchasing. The means are used to a different degree, and in different combinations, during the evolution of the firms. The means were used for adding to the five electronic commerce capabilities continuously. Numerous routines and resources were acquired that in a broad sense belonged to these five capabilities.

The means are ever present, being utilised time after time. In contrast, static capabilities or smaller sets of static capabilities are replaced, combined, augmented or complemented more often at a quicker pace. The means, i.e. in-house innovation, cloning, collaboration, and firm purchasing are more robustly and consistently used, compared to the stream of various static capabilities that are added to the capability portfolio. The cases indicate stability in terms of utilisation of means, as a necessary condition for capability acquisition. The cases suggest that while there is an infinite mass to master and to know, the means to acquire this knowledge is relatively limited.

Both firms are highly skilled at acquiring new capabilities and do so regularly and speedily. In the cases, there is no indication that Compaq Sweden and Dell Sweden possessed an inherent disadvantage with regard to their ability to acquire new capabilities. The strong ability to acquire new capabilities is a commonality of the two firms, which explains why they have survived consolidation and competitive market conditions. The means rather than the static capabilities have been the isolating mechanisms (Michalisin et al, 1997) of the two firms.

The similarity in capability acquisition proficiency is a reason as to why the two firms have developed and implemented so distinctly different business models over the years, becoming best in their respective "class". Given the trajectory that Compaq Sweden was set in, changing the theory of business became increasingly more difficult and costly, since it had accumulated such a strong capability portfolio for and by acquiring capabilities indirectly.

There is indication that Dell Sweden has been aware of the risks of getting stuck in old ways of doing things. For instance, the choice of Dell Corporation not to implement SAP because it was too rigid, confirms the impression, that Dell Sweden lived more ad-hoc with less permanent solutions, which were easier to discard and replace. The habit of fixing things temporarily and sufficiently enough, rather than build expensive and comprehensive solutions, has reduced the effort, time and cost for Dell Sweden to acquire new capabilities.

In this regard, the resource portfolio pattern hypothesis offer additional insight into how dependent both firms were on existing capabilities and how attractive they found additive capability acquisition. Seen in this context, Dell Sweden found electronic commerce to be a natural extension of its existing theory of business, and so could acquire electronic commerce capability by extending its capability portfolio. Compaq Sweden in contrast, had to engage in extensive complementary capability acquisition to offer and master electronic commerce.

Research Question 3

Did the capability acquisition processes of Compaq Sweden and Dell Sweden change over time? And if so, how? Compaq Sweden emerged during the late 1980s as a most successful computer hardware firm, and in the early 1990s it came to dominate the Swedish market. Towards this end it relied on its simple theory of business, proclaiming that distribution was not a capability which needed to be performed in-house. Instead distribution could be outsourced to resellers and other channel members, enabling Compaq Sweden to grow rapidly and leverage scarce resources maximally. Dell Sweden followed a similar trajectory a few years later, with a similar evolution, challenging Compaq Sweden for the top market position in Sweden.

Arguably, both firms have been successful by taking different paths as long as they have remained true to their respective theories of business. Both Compaq Sweden and Dell Sweden from the outset and early starting period acquired a basic underlying rationale for the existence in terms of needs, customers, and presentation of the offering. Over time these business models have been changed, adjusted, and refined. The theory of business of the two firms has been surprisingly resilient and is carried forward from business model to business model. With the original theory of business, a number of capabilities followed the firms over time in a capability portfolio.

While Compaq Corporation focused somewhat more on product innovation and created an early lead in portable computers, both firms entered the industry at a time when IBM had developed the basic product technology. The rise of both firms is consistent with arguments made by Abernathy and Utterback (1978), who stated that product innovation precedes process innovation. By finding new ways of combining production and distribution, both firms created two new distinct theories of business, radical innovations that transformed the computer hardware industry.

The stories of Compaq Corporation and Dell Corporation illustrate that process innovation is a powerful basis upon which to build competitive advantage (Keen, 1997; Pisano, 1997). Furthermore, it can be inferred from the cases and discussion that the rise of electronic commerce has shifted the potential even further towards process innovation as suggested by Keen (1997).

While it can be argued that Compaq Corporation focused on product innovation, and Dell Corporation focused on process innovation, an alternative understanding is that both firms have mainly been innovators in processes, including assembly, logistics, and transportation. In fact, both firms have been innovators in customer relationship management, indicating the importance of capabilities linked with distribution as proposed by Chandler (1990). For instance, it should be pointed out that Compaq Corporation was an early adopter of electronic commerce in the form of EDI and was one of the leading and driving forces for standardisation, utilising EDI well before Dell Corporation started to invest in electronic commerce capability.

Both cases highlight the strategic value that can be derived from focusing on a narrower set of capabilities fully controlled in-house, while relying extensively on externally acquired and maintained capabilities to drive and leverage the businesses (Treacy and Wiersema, 1997). These capabilities and its manifestations, which is hereby named “thin business models”, evolve and are reflected by the more specialised capability portfolios that are designed to utilise dormant internal and external capabilities to grow rapidly.

As Compaq Sweden and Dell Sweden evolved they increasingly came to share capabilities. The Quanta notebook supplier is an example of this development. This concurred with a gradual convergence in performance. By acquiring capabilities from each other, sharing capabilities with other actors in the industry, catering to the same customers, and acquiring capabilities by utilising several means simultaneously, the two firms gradually became more similar in term of efficiency and effectiveness, as delivered to customers.

Research Question 4

If the capability acquisition processes changed, why did they do so? Compaq Sweden and Dell Sweden represent two different theories of business. Compaq Sweden has been as stringent about being indirect, as Dell Sweden has been about being direct. Accordingly, they have developed distinctly different ways to integrate and co-ordinate and develop their business models. The business models and their capabilities reflect this difference, as well as the capability acquisition processes. But both firms share the same mechanics in terms of how the capability acquisition process involve capabilities, the business model and the theory in business, as the three levels are aligned with each other.

The business models manifest particular combinations of capabilities captured at a particular moment in an ongoing process. The firm acquires the capabilities that it needs (and can acquire) to support the business model. The business model encounters success and/or immediate or eventual limitation, or even worse failures, forcing management to reconsider the existing business model by consulting the theory of the business and contrasting it with the experience and implementation of the business model. This process results in a slightly rewritten formulation of the theory of the business and a new business model following the rewritten theory of the business. A new business model is the manifestation of a theory of business that is stretched, changed, and altered.

The source of competitiveness and its distinctiveness can be found in the business models, rather than in the capabilities or in the theory of business. The business models show how the theory of business is formulated and reformulated yet possesses continuity because of the trajectory. The business model links the theory of business with the underlying capabilities, and incorporates both firm context and properties. It is through the writing and translation from capabilities to the theory of business, and from the theory of business to the capabilities, which take place via the business models, that the firm evolves.

The cases and the confirmation of the trajectory hypothesis, as found and reported in Chapter 12, suggests that theories of business become obsolete in the same way as short-term business models do, making it imperative to eventually shift or change to another theory of business. The cases and the analysis show that major changes in the theory of business occur infrequently. The understanding advanced here is that business model change is mainly linked to change in static capabilities, and theory of business change is linked to change in both static and dynamic capabilities. Put differently, when major change is needed, both what the firms knows as well as how the firms gets to know it, changes.

The case of Compaq Sweden provide example showing that it is tremendously difficult to create a new viable, distinctive theory of business, and move the firm in that direction by acquiring the required capabilities. Compaq Sweden and Dell Sweden appear to have fallen or will fall into a trap of constant reconfiguration and reformulation; unable to find a similar strong trajectory that once again will make the firms grow rapidly and profitably. This can be attributed to the difficulty of both changing what capabilities that are acquired, as well as how they are acquired.

The cases, theory or analysis do not propose any recipe or cure that will enable the firm to escape this finding. The introduction of context as a source of capabilities implies that the firm can be constrained both by its context and its properties, making it virtually impossible to engage in radical transformations. Instead, the cases suggest that relentless incremental capability acquisition is a more successful strategy. Furthermore, the cases and analysis illustrate that it also is a more accurate description of how capability acquisition processes occur.

It has not been possible in the current study to uncover if capability acquisition processes change materially in response to searches for a new trajectory. The studied periods are simply too short. But it can be inferred from the cases and the analysis, and in particular the case of Compaq Sweden, that while capabilities, business models and theories of business change, the capability acquisition process stays much the same. The utilisation of firm purchasing increase, but this category complement the other categories of means, and is used extensively together with the other means.

The trajectories as found here put in question the notion of radical change in capability acquisition processes. During the trajectory of the two firms the capability acquisition processes are stable and the cases suggest that radical change in the capability acquisition process, if they at all occur, should be associated with changes in the theory of business, rather than in the business models. Nevertheless, to survive, firms must transform themselves, finding a new trajectory and a new theory of business, building new business models that mobilise internal and external capabilities, and convincing the network of its new theory of business.

This would suggest that for long-time survival it is imperative to build business models with deeper and broader capability portfolios, as found and argued by Majumdar (2000). In addition, it implies the successful acquisition of new capabilities that are required, and the abolishment of the present competitive advantage and extensive discarding of existing capabilities. At the least, it can be inferred that if capability acquisition processes change materially, which remains to be investigated and established they do so because firms struggle to find new workable theories of business and a new trajectory, not because they change business models.

The problem with thinner business models is that they might imply greater operational risk, because of the dependence of process advantages that might easily be imitated (Klevorick et al, 1993). To offset this risk, a firm can broaden itself in terms of product and services lines and customer groups in the way Compaq Sweden has done. The need exhibited by Compaq Sweden to create more complex business models is in conflict with the notion of thinner business models, upon which both firms have built their success.

While Compaq Sweden has suffered severe problems of digestion, it has managed to relieve itself partially from its dependence on the PC and the resellers. To co-ordinate multiple products and multiple customer segments, and to serve them, is a demanding task for managers, putting severe demands on the ability to acquire and combine firm capabilities. The weak operational performance of Compaq Sweden during the Optimised Distribution Model and the Customer Choice Model can be attributed to the complexity involved in these new business models, which try to integrate conflicting theories of business within one business model.

While Compaq Sweden suffers temporarily, it might have established a firmer foundation for the firm to survive and prosper in the long term, given that it has embarked on an ambitious programme to transform itself fundamentally by acquiring a broad and deep capability portfolio. In the later stages, with the acquisition of Tandem and Digital, Compaq Sweden also sets out to capture customer relationships, changing its capacity with regard to addressability and interactivity. In this regard, firm purchasing has been used by Compaq Sweden to kick-start the search for a new theory of business, indicating the special role that this category of means can play.

A question for Dell Sweden to contemplate is whether having and managing direct customer relationships is sufficient for building a long-term sustainable competitive advantage. Actually, the cases suggest that dependence on any singly source of capabilities could be dangerous.

A key reason explaining the success of Dell Corporation is the partnership with IBM, both in terms of services and components. The degree of dependence on IBM suggests that Dell Corporation can be fatally struck if its partnerships should fall apart or if there should be a sudden and profound technological shift that invalidates the existing theory of business.

By turning IBM, a competitor, into a partner, Dell Corporation has utilised capability acquisition from competitors and suppliers to an unprecedented degree. The intensified indirect capability acquisition exhibited by Dell Corporation is an indication of the extensive need of Dell Corporation to complement the capability portfolio.

The notion of thinner business models illustrates the managerial paradox of the large modern corporation. Narrow capability focus and a thin business model is the recipe for growing rapidly and profitably proposed by the cases of both Compaq Corporation and Dell Corporation. Developing relatively few, but efficient and effective capabilities, is at odds with long term survival, prosperity, and growth, since the firm risks becoming too dependent on external capabilities needed to build thin business models.

15. Contribution to the Business Administration Literature

The aim of this chapter is establish how this work contributes to the literature on business administration and the dynamic capability approach in particular. Since this thesis transcends established research approaches it is also important to spell out the nature of the contribution in more general terms. The starting point is the themes developed in Chapter 6 in the section on integration of the dynamic capability approach and the markets-as-networks approach.

The themes were structure and elements of capabilities, firm property and context, competition and co-operation, specialisation and diversification, and firm and network. But first comments about capability acquisition, capability acquisition in distribution systems, and capability acquisition of electronic commerce capability.

Emphasis on Capability Acquisition

Capability acquisition emphasises a particular facet of knowledge creation and knowledge use. It does not focus on capability creation, nor does it focus on capability use. The focus is on the process whereby created knowledge is put to use. While most of the literature has focused upon knowledge use, as related in chapter 5, neglecting knowledge creation, this thesis adds to the literature by shedding light on the intersection between knowledge creation and use.

By claiming that there is a difference between organisational learning and capability acquisition, it follows that a firm may have acquired the right capabilities, but is unable to use put them into any meaningful use. This inability is attributed to lack of other capabilities, or that managers or firms are unaware of its own capabilities. Capability acquisition should be understood as a process of activation, combination and mobilisation of knowledge. This process spans aspects of both creation and use, and it includes both internal and external capabilities. Capability acquisition is not knowledge creation or use, per se; instead it is a process whereby knowledge becomes available and accessible for use.

This focus on capability acquisition is motivated by a lack of literature on the subject as reported in Chapter 4, and an interest in uncovering more about this sub process of organisational learning. A first step in understanding capability acquisition was to create a vocabulary that is presented in Chapter 4. This vocabulary is based on previous research, and allows for the inclusion and introduction of alternative theoretical perspectives. This vocabulary also acts as a set of assumptions about how key concepts are related and constructed, and can be integrated.

The emphasis on capability acquisition has created a new perspective not only on learning, but also on strategy making. As discussed in Chapter 5, further assumptions are that capabilities are distributed among firms, and that firms will engage in exchange relationships to access the capabilities of other firms. The argument is that neither creation nor usage of capabilities is as important as acquiring capabilities. In addition, the ability to acquire capabilities is facilitated and constrained for various reasons. This process is considered an essential aspect of strategy, and is a child of the adaptive perspective on strategy: finding a sort of harmony, consistence or fit between what the customers desire and what the firm can deliver, given its capacity to acquire capabilities.

Capability Acquisition within Distribution Systems

This work focuses on capability acquisition within distribution systems, i.e. the actors, activities and resources that assist in bridging the gap between production and consumption. As noted in Chapter 6, Gadde (2000) argues that the classical model of distribution systems is inadequate to describe and understand distribution of today because of advances in manufacturing and distribution technology. He argues that satisfying the needs of various customers will call for the services of a network of actors with complementary capabilities.

The results that have been derived suggest that the concept of distribution and distribution systems still is useful, and should be applied to firms that occupy the same or similar position in the networks, in which they are active. The various actors can still be classified as retailers, distributors and customers, and the labelling of various actors supports the description and informs the analysis, despite that the tasks in the systems change. As discussed in Chapter 6 the literature on distribution channels and systems has neglected or disregarded innovation, learning and capability acquisition.

As argued in Chapter 4 and 6 and as shown in Chapter 9, the dynamic capability approach has addressed innovation, learning and capability acquisition in general, but not in particular with regard to distribution systems. As discussed in Chapter 6, the markets-as-networks approach has addressed distribution systems, but not in particular with regard to capability acquisition. Accordingly, it has been proposed that the integration of the markets-as-networks approach and the dynamic capability approach will provide a firmer foundation for analysing distribution systems. This thesis cannot be categorised as belonging only to the markets-as-networks approach or the dynamic capability approach. A key ambition has been to focus on addressing the research questions, with as few preconceptions as possible, instead of becoming bogged down in the inherent differences and assumptions of the research approaches.

Capability Acquisition and Electronic Commerce

This thesis identifies what is needed for electronic commerce. As presented in Chapters 1, 3 and 7, electronic commerce is the capability to be acquired. This capability is new and difficult to acquire and is constituted by several capabilities that includes addressability, interactivity, customisation, personalisation and postponement.

Furthermore, mainly with the support of the cases a rich longitudinal description of the capability acquisition processes of the two firms has been provided. This process, which is studied with regard to Compaq Sweden and Dell Sweden, occurs in the distribution system: within and between firms. As discussed in Chapter 11-13, and shown in terms of frequencies as presented in the appendix 5, extensive capability acquisition for electronic commerce takes place within the distribution system.

This description illustrates how the firms use in-house innovation, cloning, collaboration and firm purchasing as means for capability acquisition. This process is cumbersome and complex and shows how persistent firms must be in order to acquire new capabilities truly. In addition, ample insight into how these capabilities are and can be acquired is offered, and stresses how integrated a particular capability is with the broader capability portfolio.

Furthermore, the benefits that can be obtained from acquiring electronic commerce capability are shown. In particular, the various electronic commerce capabilities offer specific competitive advantages and possess properties that make them valuable and worthwhile to acquire.

In particular they confer the firm with an opportunity to acquire yet new capabilities from customers. Focusing on downstream capability acquisition, it has in Chapter 12 been shown that customers and competitors are important sources of new capabilities, and that there is a pattern in how capabilities are acquired over time, with Compaq Sweden acquiring capabilities mainly from competitors and Dell Sweden mainly from customers.

Structure and Elements

The adaptive view on strategy making and on capability acquisition advocated here entails certain properties in terms of elements and structure of capabilities. By considering the particular activity of acquiring what has already been created a new dimension to the notions of element and structure is added, which suggests a dynamic activation and deactivation process that takes place over time.

The cases illustrate how capabilities can be dormant and suddenly become activated or fade away for good or for a while, as the firm continually searches for a better portfolio of capabilities. The empirical investigation continually catches the rise and fall of capabilities. The notion of dormant capabilities serve to bring attention to that capabilities can be difficult to identify and uncover or can be hidden at channel members, channel partners or suppliers, because of this activation and deactivation process.

Having found dormant capabilities, the distinction between static and dynamic capabilities is blurred. Existing static capabilities form the base for the acquisition of new capabilities. Dormant static capabilities become pivotal in combination with a newly acquired capability. Furthermore, successful acquisition of new capabilities is dependent on already existing capabilities, and thus static capabilities become means, i.e. tools of capability acquisition. Since static capabilities are constantly integrated with new capabilities, static and dynamic, the distinction between what capabilities that are dynamic and what capabilities that are static becomes blurred.

For example, in the case of Dell Sweden: if a business relationship is considered a static capability, then the ability to obtain a new business relationship should be considered a dynamic capability. But what if an existing customer confer Dell Sweden with a referral which contribute a new customer to Dell Sweden? Then the supposedly static capability has contributed in a dual capacity with regard to the capability acquisition process of Dell Sweden.

Furthermore, it can be argued that the means of capability acquisition can be considered static as they become ingrained and institutionalised. For example, a special department was created to obtain new business relationships with customers. This department soon gained the prominence and duration of a static capability, i.e. by conferring Dell Sweden with product market competitiveness on a regular basis. What initially was a dynamic capability, i.e. to acquire new customer relationships, arguably, eventually became a part of the static capability portfolio.

While the distinction between static and dynamic is questionable, it is purposeful in one respect, since it offers a conceptual map in which to categorise firm capabilities. If a capability mainly supports the existing offer it is a static capability, and if a capability mainly contributes to the development of new knowledge supporting the production of coming offers, then the capability is dynamic. Accordingly, what has here been considered a static or dynamic capability can in another context obtain the opposite classification and role, depending on the nature of that business, products, services and the position of the firm in the network

There are firms that specialises in research and development, collaboration, cloning or firm purchasing. For example, investment banks offer the service of supporting or conducting firm purchasing, a capability that here has been considered dynamic. If these capabilities are provided on a regular basis, these capabilities should be classified as static in that particular context, even though they by other firms are considered dynamic capabilities.

In the cases, it is more difficult in many instances to delimit a static capability from another static capability compared to delimiting a static capability from a dynamic capability. The difficulty in establishing the distinction between static and dynamic capabilities is taken to suggest that all means can be used to acquire all capabilities, both static and dynamic, and that static capabilities can be used to acquire dynamic capabilities as well.

Although capabilities assume multiple roles in a certain context, the cases and the subsequent analysis propose that capabilities tend to assume either static or dynamic roles, and rarely assume multiple roles in a given context, in particular not during the same time period. As the examples from the case of Dell Sweden above illustrates, capabilities can assume static or dynamic roles in a given situation, and migrate from static to a dynamic role and vice versa or occasionally provide both a static and dynamic capability to the firm.

An aspect stemming from this insight is that capabilities should not a priori be divided into static or dynamic capabilities. Instead they should be evaluated for their particular contribution in a given context. Singular capabilities indicate that a capability confers a static or dynamic capability in a given context, whereas dual capabilities confer both static and dynamic capability in a given context. This understanding of capabilities is, to the knowledge of the author new, and introduces a dynamic dimension to all capabilities, where they momentarily can constitute both static and dynamic capabilities or just static or just dynamic capabilities.

The addressability and interactivity capabilities, especially when enhanced by electronic commerce are in this regard particular since they frequently have provided the firm with dual capabilities. These capabilities to a large extent reside in the context of the firm and so constitute capabilities themselves, as well as enable further additional capability acquisition. The case of Dell Sweden illustrates the long and cumbersome process of acquiring these capabilities. It has here been found that it is relatively easy to replace single resources or routines.

The findings suggest that stability mostly can be found at the higher order levels of learning and aggregation. Capabilities (or smaller sets of capabilities for that matter) can be replaced with less effort compared to the replacement of larger more complete set of capabilities, i.e. the business models. Accordingly, individual routines are less stable than previously argued. It is here suggested that the understanding of the literature proposed and inferred from Nelson and Winter (1982) should be turned around in this regard.

Stability implies that there are additional constraints to change than previously thought. In the cases, the utilisation of means is stable in comparison to the utilisation of individual static capabilities. A key reason could be the focus on knowledge as the key competitive advantage. While the dynamic capability approach regularly has pointed out the importance of knowledge it has not, in the view of the author, taken into consideration that capabilities are distributed and dispersed among actors. This observation in combination with the reconsideration of the structure and element of capabilities makes it necessary to reconsider firm property and context.

Firm Property and Context

This study downplays the importance of internal sources of competitive advantage and launch the proposition that only by acquiring capabilities from a broader set of sources, can the firm survive and prosper. By reconsidering the resource portfolio, not as an internal property of the firm, but as a portfolio of both internal and external capabilities linked to each other, a new understanding of capability acquisition, to the knowledge of the author, is facilitated.

A key assumption of the dynamic capability approach is that some capabilities cannot be acquired. The implicit or explicit argument has been that markets for all types of assets do not exist. For instance, Kogut and Zander (1996) argue that this is an important characteristic of capabilities. Furthermore, Dierickx and Cool (1989) argue that loyalty, credibility and a reputation for quality are impossible to acquire, and must be acquired and harnessed internally over a long time. Strikingly, loyalty, credibility and reputation are capabilities that are constructed as a result of interaction with the buyer and illustrate the external nature of many capabilities.

The proposition that capabilities reside internally is challenged in two ways. Firstly, it is argued that most capabilities in fact are possible to acquire from both internal and external sources, especially through combinations of in-house innovation, cloning and collaboration. Secondly, other firms may possess desirable capabilities that a firm lacks. Instead of engaging in in-house innovation, a firm can engage in cloning or collaboration or can purchase another firm with the desired capabilities. A precondition is that there is a market for capabilities, so that the means of capability acquisition can truly be utilised.

By considering the four means of capability acquisition, a market for capabilities has been created. In particular, by suggesting firm purchasing as a principal means of capability acquisition, a market for all types of assets has been introduced. While the market may not always be functioning the cases show that firms utilise these four means in various combinations, albeit with certain types of limitations. The limitations are different depending on the type of means, but together offer the firm a rich arena for capability acquisition. Being able to find and utilise the opportunities offered is a key facet of competitiveness.

The interesting thing is that changing the perspective from the singular firm to the focal network does not alter the insights derived from the dynamic capability approach significantly. Capability acquisition is still a long-term phenomenon that demands consistent accumulation and harnessing. Substantial parts of the capability acquisition that occur takes place between businesses or between firms and customers, rather than within the firm.

While means of capability acquisition transcends the borders of an organisation, the conditions for successful capability acquisition are much the same, with contexts becoming domesticated; i.e. come to seem like firms internally (Arndt, 1979). In this respect, these networks become semi-closed systems that rely on trust, shared norms and common behaviours, to make capability acquisition to this extent possible.

Dell Sweden and Compaq Sweden illustrates that this process is accentuated because of outsourcing and thinner business models, that also imply greater specialisation, and increases the need for more capability acquisition by external means. It cannot be inferred that capability acquisition generated internally is different from capability acquisition generated externally, or vice versa. On the contrary, the cases illustrate that internal and external sources of capabilities can be both substitutes and complements to each other.

By adding capabilities over time the capability portfolio is augmented. As a result of capability acquisition, capabilities are nested with each other into hierarchies across functional, national and organisational boundaries (Christensen and Rosenbloom, 1995). Thus the capability portfolio of large organisations are highly complex organisms which cannot be easily delimited or pictured. Firms accumulate capabilities internally and externally, and also have certain ways of linking these capabilities to each other as business models. Furthermore, firms consist of nested hierarchies of capability portfolios that pertain to various organisational levels, as found in the cases.

At the business model and the theory of business levels resides a mechanism whereby created capabilities are put to use. This mechanism account for how change and stability interact, as the firm evolves, gradually stretching the capacity and performance of the firm. This mechanism is explained by the relationship proposed between the theory of business and the business model (as suggested in Chapter 4 and further developed in Chapter 14).

By anchoring the business model in the theory of business, a new contribution, to the knowledge of the author, of how capabilities are acquired, is presented. This understanding suggests that there is an additional layer of constraints and facilitators present, which are not related to firm property, but is related to how capabilities are integrated as business models, and are conceptualised as theories of business. The capacity to change is not constrained primarily on the level of routines, resources or even capabilities, but to a larger extent at the business model level and at the theory of business level.

The cases and the description of the business models conform with the suggested relationships between these concepts, and inform the dynamic capability approach with regard to how knowledge creation is transformed into knowledge use, in particular in settings where capabilities are distributed among actors. But the distribution of knowledge affects how firms approach each other. The next theme to be reconsidered is that of competition and co-operation.

Competition and Co-operation

Focusing on how production is linked to consumption has indicated that capability acquisition involves a number of capability acquisition sub processes. While many writers, within and beyond the dynamic capability approach have explicitly or implicitly discussed these various forms of capability acquisition, this work offers novelty in that it studies capability acquisition as a process. Because it brings the capability acquisition processes together into one coherent setting, the focal firm within the network, it produces new insights. In particular, the various interdependencies between the capability acquisition processes are explored.

The investigation has shown that capability acquisition involves a high degree of cloning and collaboration. Furthermore, Compaq Sweden emphasised cloning and capability acquisition from competitors, while Dell Sweden emphasised collaboration and capability acquisition from customers. More specifically, the presented view on capability acquisition captures the implications of competition. It accounts for how competition by itself constitutes a part of capability acquisition and how it transfers capabilities between competitors by cloning-imitation and –emulation and by indirect capability acquisition via customers, suppliers and channel members.

This process is not covered in the literature to the knowledge of the author, and suggests that the way a firm is linked to its context affect the relative importance and degree of utilisation of various sources of capabilities. The capability acquisition process as understood here relies on the notion of a governance structure beyond that of the firm, as proposed by the markets-as-networks approach, which enable the firm set in its network to acquire capabilities in a certain fashion.

This governance structure is critically influenced by how the firm is related to its near context. Furthermore, it relies on complex interwoven combinations of co-operation and competition for capability acquisition across firms. There is a pattern to how the capability portfolio is augmented over time, as a result of how the firm is related to its context. As found in Chapter 12, direct or indirect customer contact influences the capability acquisition process with regard to which source of capabilities that is used most intensively. The combination of co-operation and competition in capability acquisition has implications for the evolution of capability portfolio. The next theme to be reconsidered is how firms specialise and diversify their capability portfolios in reflection of the nature of their capability acquisition processes.

Specialisation and Diversification

The argument being made here is that Compaq Sweden has practised a theory of business that has emphasised competition for capability acquisition. Compaq Sweden has focused on the actions of the competitors and on obtaining a relative competitive advantage. The collaboration with channel members has not generated enough valuable capabilities for Compaq Sweden. Compaq Sweden has had to provide and make ample capabilities accessible for its channel members to make it attractive for them to remain with Compaq Sweden. As a result, Compaq Sweden has specialised in products and product technology and focused on the market for capabilities.

In contrast the Dell Sweden theory of business has emphasised collaboration for capability acquisition. Dell Sweden has focused on the actions of customers and obtaining customer satisfaction. As a result, Dell Sweden has specialised in customer relationship management and focused on the demands of the product market. Having customer relationships have made it attractive for suppliers and channel partners to join Dell Sweden, thereby supporting and strengthening its offering. Gradually the quality of suppliers and channel partners has increased.

Accordingly, there is a principal difference with regard to how these two firms perceive the competitive arena – the product markets or the market for capabilities – as discussed in Chapter 6. While Compaq Sweden has focused on the market for capabilities and on acquiring capabilities that aid it in competing in the product market, Dell Sweden has practised the opposite mindset. Dell Sweden has focused on the customers and on the needs manifested in the product market, treating the market for capabilities with less worry and vigour, expecting it to come around and adjust to Dell Sweden eventually.

This difference between the firms opens up an interesting perspective on competition and offers criticism on the dynamic capability approach that assumes competitiveness to be decided in the market for capabilities. The dynamic capability approach has continued, in the view of the author and as discussed in Chapter 4 and 6, to think, often sub consciously, of capabilities as natural resources, internal knowledge, internal innovation and stable product market positions that can be upheld and defended.

The cases indicate that having the right set of relationships with customers is a critical capability. Furthermore, the case of Compaq Sweden illustrate that lacking customer relationships is difficult to replace or emulate in any other fashion. Compaq Sweden's struggle suggests that this lack is more severe and dangerous than lack of other capabilities. Paradoxically the cases and the subsequent discussion suggest that firms that focus on finding and satisfying customers will also compete more successfully in the market for capabilities, since they become interesting vehicles for other firms that want to reach the same customers.

The theory of business practised by Compaq Sweden has rested on two critical assumptions: that of homogeneity in demand (i.e. customers are the same and want the same), and of heterogeneity in the market for capabilities (input is and can be differentiated, because capabilities are immobile and difficult to acquire). Dell Sweden, on the other hand, has assumed that demand is heterogeneous (customers are different and want different things), while the markets for capabilities are homogenous (i.e. input cannot be differentiated, since capabilities are mobile and possible to acquire).

By virtue of their practice, the strengths and weaknesses of these two theories of business have been tested. While the theory of business practised by Compaq Sweden has failed relative to Dell Sweden, it remains to be seen if the theory of business as practised by Dell Sweden is more sustainable. Actually, it can be inferred from the cases and the subsequent analysis, as related in Chapter 14, that theories of business are only temporary competitive. In the long run it is suggested that any firm need a new theory of business and that this is difficult to devise. But that at least some firms, manage to find new theories of business.

It should be noted the markets-as-networks approach, in the understanding of the author, argues that all markets (both the markets for capabilities as well as product market) are heterogeneous and business models should reflect this circumstance. The cases, analysis and discussion suggest that successful theories of business be replaced by other theories of business that assume and handle higher degrees of heterogeneity both in the market for capabilities and the product market.

To summarise, it is proposed that by focusing on capability acquisition in the product market, i.e. by acquiring capabilities while selling the product or service, can the firm acquire the right capabilities at the right time at a low cost. Success in the market for capabilities is not sufficient for building a competitive advantage in the product market. The cases and discussion actually suggests that it is the other way around. The understanding of capability acquisition as a process which is confined to the market for capabilities must be completed by an augmented understanding of how the product market interact and influence the market for capabilities, and vice versa. This insight brings us to the last theme, that of firm and network.

Firm and Network

The cases suggest that success in the product market will be followed by success in the market for capabilities. By acquiring capabilities from customers in a manner that conforms to the situated change perspective proposed by Orlikowski (1996) Dell Sweden obtained valuable capabilities. Dell Sweden gained insight into what it needed to know and set out to acquire these capabilities in a tight ever-lasting feedback loop.

As the case of Compaq Sweden illustrate, once old loyalties were challenged in the distribution system, virtually all actors started to strive and search for customer contact. Furthermore, eventually Compaq Sweden spent considerable effort to obtain customer relationships. This shows that being an actor, which has customer relationships is distinctively beneficial and a key facet of competitiveness.

Accordingly the position in the network matters, and not all positions in the network are equally valuable or profitable for a firm at a given point in time. For Compaq Corporation this position was proximity to technology, products and suppliers and was a reflection of in what aspect it initially choose to focus and become strong. In contrast, Dell Corporation largely because it was a weak player without access to technology or a distribution system, made customer contact the central aspect. Over time, because of the rise of Dell Sweden, the value of the position of Compaq Sweden was eroded. Dell Sweden managed to change the governance structure and so altered the value of the various positions in the network. The cases suggest that the firms can find and sustain a valuable position in the network by taking strategic action with regard to preserving or altering the position in the network (Mattsson, 1987).

Two distinct ways of organising and achieving this valuable position in the network has been illustrated. Dell Sweden has achieved its position by starting with customer demand, rather than ability to supply a product or service. In contrast, Compaq Sweden has utilised a more classical way to do it, starting with the capabilities needed to provide the offering. Following from the examples above, there is no network position that by necessity is better than another one. This is something that changes over time in response to technology, existence of other actors in the network and customer preferences. The value of a position in the network is redefined over time in terms of density, centrality, structural autonomy and structural equivalence, forcing firms to reposition themselves in order to remain relevant in the network.

The high degree of interconnection between Dell Sweden and its customers, obtained partly by electronic commerce, confers special benefits that are beyond the reach of Compaq Sweden. In particular, Dell Sweden shares routines and resources for capability acquisition with its customers. This constitutes a different governance structure from that of Compaq Sweden, which manifests itself in a different trajectory as found in Chapter 12.

Having direct contact with customers, like those found in the case of Dell Sweden facilitate faster, more accurate continuously updated and more efficient capability acquisition. Changes and particularly stagnation in demand, dissatisfaction with the existing offering, the emergence of new explicit and latent needs, the launch and implication of new offerings made by competitors, the differences between the needs of customers, are capabilities that better can be acquired via contact with customers.

The relentless feedback from customers found in the case of Dell Sweden, forces continued reassessment and change of the organisation to support customer demands. For instance, Dell Sweden was embarrassed by customer reactions to its HomePC offerings and decided to remedy these shortcomings quickly. The cases indicate that conflict is more quickly silenced and resolved in networks containing direct contact with customers. With direct contact the organisation takes a battering and is insulted often enough to stay alert.

As a result of direct customer contact less internal rigidities are allowed to emerge and become embedded in the organisation. Furthermore, the threat of customer defection instils the organisation of Dell Sweden with a realisation that services and products are never finished and must be constantly revamped and improved upon. In such an environment, investment in rapid responses with minor new solutions, services and products, and organisational units become the norm, with a constant search for "good enough solutions" - found by experimentation and improvisation.

Having channel members can be fruitful and rewarding. The cases of Compaq Sweden indicates that only with great difficulty can firms working indirectly reach and establish meaningful customer relationships. The indirect relationship is filtered, distorted and confused because of channel members that have agendas of their own.

The capability acquisition process is set in motion, as in the direct case. But the capability acquisition is less valuable for both seller and buyer. This process is less efficient and effective since it relies more on co-ordination of several capability acquisition efforts. Furthermore, the various needs are more clearly stated, when the parties can be identified, as the seller or the buyer, with clear responsibilities, making capability acquisition less convoluted and more straightforward.

As touched upon above, the case of Dell Sweden illustrates that direct customer contact also helped in responding to actions of competitors, since Dell Sweden was early in obtaining information about possible dissatisfaction and defection among its customers. The firms possess several indirect ties, links and relationships that are of critical importance. Both firms acquire capabilities from each other via customers, suppliers, channel members and channel partners, and by cloning each other. The indirect ties have allowed the firms to become similar. Given that the two firms started off from different assumptions about what should be in focus, products or customers, and how a strong position in the network could be achieved, this gradual convergence is striking.

Concluding Remarks

This thesis contributes to the literature on business administration in several ways. Firstly, this thesis addresses capability acquisition that is a theoretically underdeveloped area. Secondly, this thesis addresses capability acquisition within distribution systems with a focus on electronic commerce capability. In these respects, this thesis breaks new ground by augmenting and deepening the existing literature with regard to how knowledge about electronic commerce can be put to use for the benefit of achieving a competitive advantage.

By reconsidering the five themes presented in Chapter 6 a number of specific contributions have been identified. With regard to the structure and elements of capabilities a new contextual way of describing and understanding them has been proposed in terms of singular and dual capabilities. With regard to firm property and context it has been established that the capabilities pertaining to a firm reside both internally and externally. With regard to competition and co-operation it has been shown that capability acquisition entail in-house innovation, but also include extensive cloning and collaboration from a wide range of actors, including suppliers, channel members and channel partners, customers and competitors, as well as firm purchasing, albeit to less extent. With regard to specialisation and diversification it is shown that firms that acquires capabilities mainly from customers specialise in acquiring capabilities to serve this customer relationship, while firm which acquire capabilities mainly from competitors and channel members specialise in acquiring capabilities to fend of competitors and serve channel members. Finally, with regard to firm and network, it is shown that it matter which trajectory and position in the network that a firm assumes or occupy. Direct or indirect customer contact implies a reliance on different governance structures that affect the ability and capacity of the firm to acquire new capabilities.

16. Issues for further Research

The focus of this chapter is on issues for further research. In the proposed understanding of capability acquisition numerous factors or aspects have not been considered or have been downplayed. Yet they have presented themselves somehow or another in the thesis. For instance, what effect does the degree of competition or regulation, or type of industry have on capability acquisition patterns? There is no way of telling based on the present thesis since these aspects have been held as steady as possible. Below a number of opportunities for further research will be briefly touched upon.

Differences between Firms and Industries

Pavitt (1984) and Napolitano (1991) both argue that innovations are contextually determined, and that it varies across industries etc. This thesis has argued that capability acquisition is influenced by the context. Admittedly, potentially firms in moderately dynamic markets and industries adhere to other capability acquisition patterns. For instance, difference in the choice of means or in the utilisation of means can be found. In particular, other industries may exhibit different capability acquisition patterns, making it worthwhile to compare, for instance, the computer hardware industry with the steel industry. There may also be other industries, which presumably are even more dynamic and fluid, making it worthwhile to compare the computer hardware industry with the software industry for instance.

Naturally, it would be interesting to study a firm like Cisco Systems, which has made firm purchasing a centrepiece of its capability acquisition strategy (Christensen, 1997). Cisco Systems indicate that firms devise capability acquisition strategies considerably different from those of Compaq Sweden and Dell Sweden. In the same spirit, it is interesting to find firms that tend to utilise mostly either collaboration or cloning to see if and how their capability acquisition patterns are different.

Furthermore, the understanding of capability acquisition presented here presupposes buffering (Miner et al, 1990), so that a firm has time to acquire new capabilities and avoid being selected for failure. In settings even more dynamic than the computer hardware industry, patterns of capability acquisition probably look different, with more focus on firm purchasing of firms that are failing, rather than internal capability acquisition.

It is argued that the differences in organisation, focus, and product of the two firms are reasonably manageable and enrich rather than invalidate the empirical comparison and also facilitate the analytical chapters of the thesis. It is acknowledged that the geographical location of the two studied firms reduces insight into the capability acquisition processes and that firm culture limits the scope for generalisation. In particular, it is difficult to grasp the capability acquisition processes at the headquarters of the two firms.

Furthermore, the cases relate the stories of two firms that may or may not be representative in terms of capability acquisition. The firms in question were chosen because both firms are highly dynamic and have overall been highly successful. For instance, one aspect that set them apart is their high revenue growth rate, which sometimes has topped 50 or 100 percent per year (see appendix 1). Their capability acquisition processes and patterns may accordingly be special.

The varying size of the firms over time limits the scope for comparing the two firms. Compaq Sweden is generally a step ahead in its overall trajectory, while Dell Sweden is generally a step ahead with regard to acquisition of electronic commerce capability.

Furthermore, both firms are studied as going concerns with large operations. In subsequent studies, the size of the firms studied can be changed, offering an interesting area to micro study start-ups, or small firms, to see how they acquire capabilities compared to large organisations. This would shed further light on the creation of new theories of business, and how theories of business mature and change over time as the size and growth rate of the firm changes.

Alternative Conceptualisations and Operationalisations

The cases show that in-house innovation is ever present and a sub-categorisation could possibly have been made of in-house innovation, for instance in terms of product or process innovation. Further studies should try to distinguish between various forms of in-house innovation and relate them to the other means of capability acquisition. One might well surmise this would show a high degree of integration between internal and external capability acquisition, supporting the proposition advanced that capability acquisition is not particularly an in-house phenomenon.

In the cases, it would seem that Dell Corporation has relied more on organic (i.e. internal) capability acquisition, while Compaq Corporation has relied less on organic capability acquisition, in particular during the Optimised Distribution Model and the Customer Choice Model. Utilising “organic” and “firm purchasing” as operationalisations of capability acquisition inform the analysis in ways not uncovered in the thesis. There may be more fundamental and radical differences between firms in terms of capability acquisition by in-house innovation than can be inferred from the current study (whose findings are related to the distribution system and the bridging of the gap between production and consumption).

The stability found in the broad static capabilities can be attributed to the special circumstances of the distribution system. The cases indicate that the substance and content of these capabilities, which on the surface is stable, in fact varies constantly, mirroring the intensive activity to remain competitive. Naturally, it should be worthwhile to investigate further in what circumstances and in what fashion capabilities change over time.

For instance, Compaq USA is aware that it lacks customisation capability. Compaq USA acquires new capabilities pertaining to customisation to remedy this weakness. The focus has not been on how the substance and content of a capability are gained. A narrow study of the evolution of one capability in this as well as other settings over an extended period of time is beneficial to further deepen the understanding of the nature of a capability.

The author has claimed that capability acquisition is no different for electronic commerce than for any other capability acquisition process. This may prove itself wrong since the nature of static capabilities themselves is of course different. How different can be of great importance. The electronic commerce capability once it has become enough developed and ingrained confers the firm with a different set of means. A possibility that cannot be excluded is that capability acquisition facilitated by electronic commerce is different because many capabilities for electronic commerce are dual.

The cases centre on only a small portion of all capabilities acquired and should be considered a sample of capability acquisitions taking place. Further research has the opportunity of aiming for a more thorough classification. This could in particular be performed with regard to other applied technologies. The capability acquisition for electronic commerce and other capabilities related to distribution technologies might be different, in comparison with for example product development, production or design. An interesting issue to investigate is if the balance and degree of utilisation of the various means of capability acquisition vary between various firms because of differences in what is to be acquired.

Further study of Capability Acquisition Processes

The main drawback in using the four categories of means proposed (in-house innovation, cloning, collaboration and firm purchasing) is that they by themselves contain numerous variations that could at times render them too broad, too narrow, or simply not valid. This is particularly so in regard to cloning and collaboration, which occur frequently in the cases.

The categorisation of means utilised does not imply that there is a singular relationship between static and a dynamic capability. Instead, several dynamic capabilities can and are involved in the acquisition of one static capability. This is particularly evident when taking a long-term perspective, studying how capabilities are built up over time via numerous instances of capability acquisition.

A supposition, which would be interesting to explore further, is that for critical capabilities the number of means increases. For capability acquisition to go quickly and smoothly, several means of capability acquisition would be employed simultaneously to increase the likelihood of success. This is indicated in the case of Compaq Sweden and its efforts to acquire electronic commerce capability, since it tried a number of means to acquire the needed capabilities.

The linkage between one or several means with one or several static capabilities is a point of entry into more studies pointing to a more careful analysis of the accumulation and harnessing aspects of capability acquisition. These aspects have not been fully developed.

Furthermore, how capabilities migrate and belong to several sets of capabilities simultaneously could be further investigated. It must be stated that this study fails to sufficiently capture empirically the fact that capabilities are not just acquired, but also change. A challenge would be to clearly identify these change processes and investigate how they are related to each other and to capability acquisition overall.

The cases have generated a view of capability acquisition, indicating that organisational or geographical distribution of capability acquisition can constitute an axis in which to discuss capability acquisition further. An important dimension is the centre and periphery within the organisation and the roles that they play for innovation (Birkinshaw and Hood, 2001).

The cases indicate that all three organisational levels participate in capability acquisition, and that all means, with the possible exception of firm purchasing, are used at all three levels, albeit to a different extent. The notion of organisational level, as used in the cases, can be introduced as an additional analytical tool with more importance assigned to it. Capability acquisition studied from a central USA or EMEA perspective probably alter or shift the interpretation and produce an understanding that emphasises in-house innovation or firm purchasing more than collaboration and cloning, which have been found to be important in the present writing on distribution systems.

The importance found in the cases of cloning-replication suggests that with hindsight it might have been productive to separate cloning-replication from cloning-imitation and cloning-emulation, considering them two separate categories of means. Alternatively, a more thorough categorisation of cloning might have revealed further insights. For instance, cloning-imitation at the Swedish level can be materially different from cloning-imitation at the USA level. Future research on capability acquisition might well find it fruitful to concentrate more on cloning since the results of this thesis shows that the importance and impact of cloning is underestimated.

A key result of the thesis is that firms acquire capabilities differently depending on whether they are linked directly or indirectly to their customers. By adding a contextual dimension it has been found out that direct capability acquisition is preferable. This proposition deserves further attention and investigation. It is certainly possible to imagine instances, when acquiring capabilities indirectly is preferable.

In fact, the success of Compaq Sweden during the late 1980s can be attributed to the circumstance that it had the best means for capability acquisition available at that time, although it was indirect. Electronic commerce changed this. But it is conceivable that Compaq Sweden eventually creates an alternative organisation, not particularly relying on electronic commerce and customer contact, which would render greater possibilities for meaningful and worthwhile capability acquisition.

It would be interesting to investigate further if capability acquisition works differently depending on the position in the industrial network, and how this affects the capability acquisition process. In many cases, acquiring capabilities from customers can be assumed to be wrong and misdirected. When and why should be investigated. Suppliers or customers probably acquire capabilities differently, in particular because of differences in size and technology. The key should be to find out which combinations of actors that the firm should focus on for capability acquisition, and in what proportion.

A related issue is if it is important to be linked directly to the customers in terms of who is paying or if it is more important to be linked to the users. In addition, the integration with channel partners specialising in logistic and service and the effects on capability acquisition should be further studied, to see how these actors can support or constrain both direct and indirect capability acquisition. Hence, the notion of indirect and direct customer contact can and should be problematised and investigated in subsequent studies.

Qualifying Capability Acquisition

An assumption underpinning this work has been that capability acquisition is by nature good for the firm. Thinking about capability acquisition in terms of both negative and positive influences opens up new possibilities. For instance, a certain theory of business may utilise firm purchasing as a principal means of capability acquisition, with particular positive and negative implications for competitiveness.

As discussed in chapter 11, the cases indicate that capabilities can lie dormant or under-utilised before they gain importance as competitive tools. Especially the later business models with their broadness indicate that firms can have difficulty in realising the potential value of their capabilities. Capabilities may be created for one purpose (which changes) or the implication of the capability may not become evident immediately.

The results suggest that it is first when the needed subset of capabilities is sufficiently complete that the subset of capabilities can be activated and useful for the firm. In the case of Dell Sweden, the technical infrastructure for electronic commerce was developed in steps starting early in the 1990s and was gradually augmented. This indicates the time it took for Dell Sweden to develop its capabilities before they started to confer a competitive advantage. The process by which process dormant or semi-dormant capabilities became active and pivotal deserves further attention.

A difficult question for any firm instituting capability acquisition is at what point has an “satisfactory” level of capability acquisition been reached. In other words, when does the cost of acquiring new knowledge exceed the value of the knowledge potentially acquired? Because capability acquisition and its benefits can often be separated in time, assessing the true cost or benefits of capability acquisition efforts will never be easy. It seems reasonable to assume a positive relationship between the strategic value of capability acquisition and its cost. This assumption remains to be investigated.

A firm is unlikely to acquire knowledge without a substantial capability acquisition effort. Ignoring the cost of capability acquisition entirely may lead to excessive capability acquisition. Assuming the cost is prohibitive may mean no new capabilities are acquired. Complicating matters further, Coff (1999) has pointed out that competitive advantage, i.e. the possession of the right capabilities at the right time, may not lead to a strong performance, because stakeholders, including other channel members or channel partners or customers, can capture the benefits of the competitive advantage.

In the case of Compaq Sweden, during the rise of the Distributor Model, there were instances of “forced” capability acquisition (the rise of the distributors complemented the capability portfolio of Compaq Sweden, without the consent of Compaq Sweden). Forced capability acquisition has not been studied sufficiently here, and should receive further attention. The issue of forced capability acquisition touches upon to what degree competitive advantage is created or conferred upon the firm from the outside and illustrates that the firm may be unable to capture the potential benefit of its capabilities, because it is made a capability of someone else.

As organisations engage in capability acquisition, neither reliability nor validity in these efforts can be ensured. The focus on those static capabilities chosen here implies a single-minded focus on successful capability acquisition. Nor has it been possible to distinguish between very successful or just moderately successful capability acquisition. It can be assumed that capability acquisition involves numerous instances of failed capability acquisition attempts.

Furthermore, the right capability might have been acquired, without yielding the desired effect, because of changing circumstances. Alternatively, there are cases of wrongful capability acquisition that eventually becomes right, because of contextual circumstance or change. Accordingly, an extension is to identify processes involving previously failed capability acquisition.

From Capability Acquisition to Capability Management

Focus has been put on the understanding of the capability acquisition process. As indicated above, this focus opens up a rich arena for asking further questions. Most, if not all questions posed above can be reformulated once more when the focus on capability acquisition is shifted to a focus on capability management.

The analysis of the cases in Chapter 12 highlights the importance of the construction of the categories of means. Apart from the four means of capability acquisition there may be other means not identified or some group of means identified, which would have benefited from further categorisation or separation. There may be overlap or confusion between the four categories of means, in particular when several means are used simultaneously or are mixed.

This distorts the interpretation and contribute to the understanding presented here of capability acquisition as a stable process with regard to the means employed. These problems with the means can be avoided if the perspective is changed from capability acquisition to capability combination. The many forms that capabilities can take, raises the contention that focusing on capability acquisition is a too narrow focus.

Schumpeter (1934) noted that not only was acquisition of new capabilities important, but also the combination of capabilities, as well as improvement of existing capabilities, while Hamel and Prahalad (1994) have indicated the importance not only of acquiring new capabilities, but also of discarding capabilities that have become obsolete. Further research could broaden the scope, from capability acquisition to capability management.

It has not been possible to distinguish the relative importance of capability acquisition in relation to capability combination. Nor to be able to understand how the means are related in a particular situation with regard to capability combination. Nor has it been possible, by studying the cases, to identify if the various means are complements to, or substitutes for, each other in any systematic manner.

Changing focus from capability acquisition towards capability management might reveal new insights. Adopting this view, the ability of management to acquire, combine, mobilise, maintain, and discard capabilities provides a key explanation of competitiveness. By starting in capability management, an improved understanding of the setting and the trade-offs that managers must engage in to acquire capabilities, may emerge.

Concluding Remarks

Further research efforts could utilise the capability acquisition processes as understood here, applied across industries, firm types, national contexts and time periods. These efforts should extend the focus from capability acquisition to capability management. Such an effort would presumably provide additional understanding of capability acquisition. Eventually a more robust understanding of structure and elements of capabilities emerge. One result of such an exercise is to further substantiate or refute the existence of patterns, and in particular trajectories, in capability acquisition processes.

17. Managerial Implications

This chapter on managerial implications of the research efforts and results discusses the relevance of the proposed understanding of capability acquisition for practitioners. The focus in this section is on electronic commerce. The ambition is to enhance understanding of how firms can improve capability acquisition of electronic commerce capability. There is a normative ambition to provide firms with ideas, examples, and methods of how electronic commerce can be introduced into their operations. Towards this aim this chapter illustrates and discusses a number of operational differences between Compaq Sweden and Dell Sweden regarding the five capabilities identified for electronic commerce.

Addressability

The case of Dell Sweden shows the value of being able to address customers directly, especially when those customers become increasingly experienced. Without addressability, the case of Compaq Sweden indicates that electronic commerce becomes impossible. Dell Sweden is able to keep track of every single customer, and gets to know the end buyer and end user by name. By searching for and finding demanding customers Dell Sweden manages to reach and understand the source of current and future demand. In addition, the addressability capability allows Dell Sweden to know who the decision-makers are and how decisions are taken with regard to the purchasing of computers.

In the case of Dell Sweden, addressability is first acquired during the Direct Sales Model at an early point in the trajectory of the firm, and was later elaborated upon. At this early stage, it is not directly related to electronic commerce, but to the very establishment of the firm. For Dell Sweden the addressability capability was an integral part of the implementation of the Scala business system. Collecting customer records and logging customer activity was a part of the information gathering at Dell Sweden. When Dell Sweden became proficient enough in understanding who its customers were, it started to grow rapidly.

Addressability enabled Dell Sweden to respond directly to quality problems and other complaints. It was for instance critical for fixing the defunct Intel processor. Without addressability, Compaq Sweden had to rely on its channel members whom safeguarded and filtered information coming from customers, giving Compaq Sweden the “channel member view” of what customers needed and wanted. Compaq Sweden was skilled at forecasting and could thereby generally anticipate demand fairly well, but it could not identify its customers.

While Compaq channel members had acquired addressability during the Reseller Model, this capability was not accessible to Compaq Sweden until it started to build up its own customer records during the Customer Choice Model. When Compaq Sweden put up its website it focused on directing the customer relationships via channel members, prolonging the time it took for it to start gathering customer information records.

While Compaq Sweden ultimately became able to reach customers and provide and gather customer information, it has not been able to utilise its customers as capabilities to the same degree. This is because the lack of customer contact makes it practically impossible to mobilise customer activity, and to transfer tasks to customers. Customers who are not engaged as co-producers are less informed, knowledgeable and skilled, and hence less valuable to acquire capabilities from.

A key point is that Dell Sweden has managed to transform its static addressability capability into a means of capability acquisition. This dual utilisation of addressability, i.e. both to deliver the offering and to learn about what to offer, greatly improved the overall ability of Dell Sweden to acquire new capabilities that would support customer demand. The ability to identify and address customers facilitates interactivity, customisation, and personalisation, since they become possible because of addressability. This point will be developed below.

Interactivity

Another example of double utilisation of capabilities is the interactivity capability, which allows Dell Sweden to analyse purchasing cycles, based not on forecasting, but on recent past behaviour. This focus on actual behaviour is complemented with focus groups, informal high-level meetings with customers, feedback from the sales force, feedback from the media, and studies of the services and products of the competitors with a strong emphasis on cloning other competitors. This small-stepwise capability acquisition process can be characterised as incremental (March, 1981) or sustaining (Christensen, 1997).

While the interactivity capability is elusive to identify and study because of this incremental property, it was present from the outset in both firms to some extent. Having customers makes interactivity unavoidable. The cases show that the nature and quality of interactivity can vary substantially. With regard to interactivity, capability acquisition is markedly incremental and continuous, and can be thought of in terms of type, frequency and intensity in customer contact.

The interactivity capability illustrates differences between capability acquisition from customers compared to channel members. While it would seem possible to acquire capabilities successfully from customers via channel members, the cases illustrate that this is difficult. Channel members do not themselves benefit from the services and products, and they therefore provide and need other capabilities, compared to customers.

Several of these capabilities, like financing, inventory management, and the management of customer complaints becomes drastically reformulated when direct customer contact is established. Many routines that constituted capabilities become unnecessary to possess and access.

Furthermore, while channel members focus on price and on cutting costs, customers focus on how the computer and services they buy can confer them with value. Since customers reside within the context of use, channel members cannot confer the same experience-based feedback of the products and services that are delivered. Having one or several layers of intermediaries weakens the ability to read the customers properly. In addition it adds complexity, increases demand for co-ordination and filters the feedback loop.

As both firms grew, customers became dissimilar placing increasing needs on both firms to differentiate their communications, channels, contact patterns and services. Going from a transactional to a relational contact pattern as both firms did (although later and to a lesser extent in the case of Compaq Sweden) puts increased demands on the interface for customer contact.

The interactivity capability is highly integrated and dependent upon the addressability capability. Both Compaq Sweden and Dell Sweden had severe trouble serving small businesses and private individuals at a reasonable cost, and these customers could not utilise the Internet unless they were supported by phone, physical premises, and sales people that could facilitate enough interactivity. Indicating that it is difficult to form tightly linked relationships with many customers electronically.

The advent of electronic commerce changed the mix of tools for customer contact, allowing both Compaq Sweden and Dell Sweden to acquire several new service-oriented capabilities. Dell Sweden did not stop using any of its traditional contact forms like the phone, mail, and advertising. On the contrary, it has continued to use and for some segments even increased the usage of these contact forms. The advent of electronic commerce increases the number of customer contact forms used by the seller and buyer. This can be expected in situations where a business model is adapted to electronic commerce, and the potential for capability acquisition from customers via interactivity is materially affected.

Furthermore, the case of Dell Sweden indicates that as a result of the increased number of forms of customer contact, the relationship between seller and buyer is augmented. Dell Sweden relied on both top-down and bottom-up selling processes as it entered new organisations. With the advent of electronic commerce, Dell Sweden generated even more interaction with its customers in terms of both frequency and content. This make Dell Sweden more exposed to customer demands. But as the relationship becomes deeper and richer in terms of information flows, learning experiences, and mutual experimentation and communication of needs, Dell Sweden is enabled to more closely align its capabilities with customer demands and thus improve customer satisfaction.

It is not only the number of forms of contact as well as the intensity in those relations that increases. New customers were also attracted by the virtue of the new electronic contact forms in themselves. In the case of Dell Sweden, it suddenly found itself with customers that it was not used to, or prepared to, handle. These customers had found Dell Sweden, rather than the other way around, suggesting that as the seller offers more customers contact forms, it will also acquire new customers. These are likely to differ from the traditional customers in terms of geographical location, needs, language, and category. The heterogeneity of the customer stock increases as the firm offers more contact forms.

As indicated by the case of Dell Sweden, buyers belonging to different segments respond differently to the introduction of electronic customer contact forms. While the seller can expect new customers, it should not automatically expect existing customers to follow suit. This is illustrated in the case where the adoption of electronic contact forms varies substantially within and between customer segments. This variation is influenced by the varying histories, behaviour and needs of the different customers and their own capability portfolios.

In those segments where Dell Sweden's own ability to utilise interactivity matched the needs of its customers it become successful. In the other segments its achievements have been mixed. Looking beyond customer segments, the case of Dell Sweden indicates that an issue is not in which segment a customer can be classified, but how well the interactivity with the customers generates mutual capability acquisition, both at the seller and the buyer.

As a result of varying maturity with respect both to customers as well as what Dell Sweden has been able to offer via electronic commerce, customers have sought out new and individual customer contact combinations. Some customers use electronic commerce contact only for support, others just for buying, other just to retrieve information, using the phone as a complement. The customer contact pattern becomes more tailored at both the segment and individual level. This pattern can only be expected to become clearer over time, as Compaq Sweden and Dell Sweden augment what they are able to do via electronic commerce, introducing more interactivity and inducing customers to take on more tasks.

In the case of Compaq Sweden, the ambition to give customers as much choice and flexibility as possible governed the creation of the Customer Choice Model. The focus of Compaq management on customer choice and personalisation was a clear break with earlier business models. By allowing customers to experiment and decide for themselves, Compaq Sweden was in fact admitting that it could no longer control customer contact and that it was better to hand over the decision and control of interaction to the customers themselves.

With control surrendered customers could interact in infinite combinations, allowing Compaq Sweden to manage a large variety of customers. A side effect of this surrender was the free-for-all that emerged, as actors in the distribution channel started to compete with each other in trying to establish customer relationships.

When Dell Sweden in 1997 started to offer electronic commerce, it also changed its product and service offering. As customers could use the electronic commerce, customers could inform themselves better, compare Dell Sweden offerings more easily with competitors regarding prices and peripherals, and more fully take advantage of the product customisation capabilities offered by Dell Sweden. The introduction of electronic commerce increased transparency of the product and service offering. This benefited Dell Sweden because it had a competitive offering. By increasing transparency the trustworthiness and attractiveness of Dell Sweden's offering was increased.

The case of Dell Sweden shows that interactivity with customers is an effective way to produce the offering and make customers satisfied with the present order, but also to experiment and learn from customers about future demand. It is here suggested that it is more a matter of "listening" carefully and correctly to your customers, rather than listening sometimes and sometimes not. A truly close relationship with customers is likely to quickly reveal if customers are likely to defect to another product, service, technology or vendor. Furthermore, the case of Dell Sweden provide an additional example that it is important to have a small number of key customers, with whom new products and services can be developed and tested (Shapiro, 1988).

In starting to offer electronic commerce, Dell Sweden changed not only how it sold the computers, but also what it sold to its customers, and to whom. The change in how computers were sold translated into new customers. These customers bought a transformed package of service and computers that in turn also changed what Dell Sweden was selling. These shifts were slower at Compaq Sweden and more uneven, putting it in a weaker position in terms of capabilities acquired. This weakness was partially remedied with the launch of the new Prosignia line in 1999, which was designed for full BTO and CTO. The Prosignia called for a radical effort to bring it about.

The essence of interactivity in itself, and in combination with the other electronic commerce related capabilities, is that customers expose the selling organisation to direct and constant evaluation. Responding to this real-time customer attention made Dell Sweden focus religiously on the customers in a constant struggle to weed out quality problems in service, software, and hardware. This real-time accountability makes interactivity a capability that relentlessly harnesses the firm and greatly improves the ability to acquire new capabilities.

Customisation

The cases of Compaq Sweden and Dell Sweden illustrate various ways to acquire customisation. Compaq Sweden was able to rely on its channel members to provide ample post-sale customisation, producing computers on anticipated demand. From a customer perspective, Compaq Sweden offered a high degree of customisation. By educating its channel members well Compaq Sweden took considerable responsibility for its products and made sure that customers could obtain service and support if they needed and wanted to.

Compaq Sweden could not offer pre-sale customisation in the early 1990s, and have since gradually been introducing pre-sale customisation, shifting focus from post-sale to pre-sale customisation. This process has been a reflection of the reduced waste, lower costs, and speedier delivery that Dell Sweden achieved compared to Compaq Sweden, due to its ability to customise the computers in limited dimensions. Because of customisation, Dell Sweden has been able to “up-sell” customers extra memory and hard disc space, extracting extra revenue for itself. In the case of Compaq Sweden, this high margin revenue went to the channel members.

When it came to post-sale customisation, even during the latest business models described in the thesis, Dell Sweden still could not offer the same level of post-sale customisation that Compaq Sweden could offer via its channel members. This gave Compaq Sweden a substantial competitive advantage, especially with customers who are not advanced or not sufficiently large to be able to afford to maintain sufficient in-house knowledge. For these customers, the indirect channel supply service, support, advice, assortment, and attention that Dell Sweden has not been able to emulate.

As a result the revenue mix of the firms eventually came to differ substantially, particularly if the revenue generated by Compaq Sweden members is included. Dell Sweden mainly generates revenue from its core offering, the computer, rather than ancillary services and support. With the acquisition of Digital, Compaq Sweden has changed the revenue mix; making it less dependent on computers themselves and more diversified in terms of technologies, products, services and customer groups.

The case of Compaq Sweden suggests that the capability to deliver complex value adding services is a less effective strategy in the electronic commerce context. Dell Sweden has focused on the computers themselves, leaving complex services to others. Electronic commerce presence offers significantly weaker opportunities for generating post-sale revenues than in the traditional marketplace. This is due to the variation and dispersion of the electronic commerce customer stock in time, place and skills.

Dell Sweden cannot rely on channel members to generate post-sale revenue. As technology evolves, customers mature, and Dell Sweden's ability to utilise electronic commerce improves; this advantage based on channel members should become less effective. In order to offset this relative shortcoming of electronic commerce, vendors can try to codify and standardise ancillary services to market them on the Internet. Electronic commerce vendors may also try to put more emphasis on generating revenue at the time of the primary sale event by transforming post-sale services into integrated parts of the initial product sale.

The notion of pre- and post customisation indicate that customised products can be less expensive than standardised and remanufactured products. There are a number of reasons for this apparent paradox. In terms of pre-sale customisation, Dell Sweden performs the configuration of the computers at the point of the original production process, and is thus able to realise significant savings.

In addition, the customisation process itself is in the hands of the end-customer. Despite the fact that the outcomes of the processes in terms of actual realised customisation are similar, Dell Sweden achieves about the same value to its customers more quickly, with less effort, and at a lower cost. From the cases it can be inferred that a Dell computer costs more to manufacture. But this difference is more than offset by its lower distribution costs. Accordingly, being an efficient manufacturer, which Compaq EMEA is, is not a path towards competitiveness by itself.

The case of Dell Sweden shows that acquisition of the right capabilities can mitigate or even solve the apparent trade-off between greater product variety and reduced delivery time lead times (McCutcheon et al, 1994). Furthermore, the largest benefit of pre-sale customisation is the perception by the end-customer that the customisation is a result of his or her actions. That the customisation process is partially cosmetic and confined to a few pre-defined dimensions is then of less relevance.

The cases indicate the role that the various actors in the distribution system can assume is governed by which capabilities they have been able to acquire. Compaq Sweden was not able to handle direct customer relationships before it could offer BTO and CTO. Until that time, the best Compaq Sweden could do was to refer its customers to its channel members. So while the Compaq business models contained BTO and CTO to some extent and enabled Compaq Sweden to deliver a similar degree of pre-sale customisation as Dell Sweden, the capability portfolio of Compaq Sweden determined what role it could assume in the business model.

The customisation capability illustrates that one capability can be performed by the manufacturer, the intermediaries, and in some cases by the customers. Capabilities represent the job tasks (e.g. lead generation, installation, customer training) that must be performed within the distribution channel. They represent the basic building blocks of any distribution channel. When capabilities are split and shared between the firms (Foss, 1999), it reflects a need to quickly shift functional roles in the distribution system

In particular, this is illustrated by how Dell Sweden gradually extended information about machine specifications internally and externally to facilitate post-sale customisation performed by the customers themselves. Shifting out tasks without access to the requisite capabilities can lead to situations where customers or intermediaries assume roles they are not capable of performing well. For instance, in order to save costs, Dell Sweden tried off-loading as much support and help desk functions as possible to downstream channel partners, which led to customer dissatisfaction.

Acquiring customisation can be achieved in several ways. Furthermore, customisation can be performed at several levels which affects to what degree the overall industrial system conforms to the customisation offered. The cases shows that the introduction of electronic commerce shifts the emphasis to pre-sale customisation and gradually forces sellers to introduce changes in their industrial systems which enable them to offer pre-sale customisation. Pre-sale customisation is not needed in many dimensions; instead the thing is to make customers involved in those aspects which are highly valued by the customer.

Personalisation

Acquiring the personalisation capability imply that addressability, interactivity and customisation already are acquired to at least some degree. The cases illustrate that personalisation is one of the capabilities which is most clearly dependent upon technology for electronic commerce. Personalisation must be programmed and rests on the logging of customer action and the appropriate response to the gathered information.

In the case of Dell Sweden premier pages constituted a tool to create personalisation and increase customer loyalty. Dell Sweden used the premier pages to manage the buying organisations, catering simultaneously to different constituencies within the buying organisations. The customer purchasing department could obtain inventory lists, tags, and standardisation. The installation and support staff could obtain information that facilitates and simplifies their work, enabling the buying organisation to help itself with regard to service, installation, upgrading and maintenance.

When Compaq Sweden in 1998 launched CompaqConnectExtranet it was a signal that it thought that extranets could become a business tool for Compaq Sweden. Through the Extranet, personalisation was achieved in a manner that the Internet could provide. This means that electronic commerce can be made more successful with personalisation, and that this can be achieved by extranets.

Both Compaq Corporation and Dell Corporation started electronic commerce with Intranets and gradually become comfortable with the technology. This stage was followed by Internet sites, which could not generate significant sales. This stage was followed by extranets that offered a higher degree of personalisation and sales capability, suggesting that extranets is the most effective way to deliver electronic commerce.

While personalisation via extranets appears to be an important tool to create and increase customer loyalty by locking in customers and making them feel special, the role played by the personal sales force, cannot be underestimated. To make personalisation work, the personal sales force sought out the customers, made contact with them, and wrote agreements with buyers that included Extranet usage. The premier pages are designed and adjusted by phone and personal interaction to fit customer preferences. This shows that personalisation is not easy to achieve and does not occur automatically or is a process that buyers can be trusted to manage themselves.

A striking feature of Dell Sweden's experience in electronic commerce is that it has fared so differently in different customer segments, indicating that technology, processes, and methods cannot simply be transferred from one customer segment to another. Dell Sweden's tradition and focus is on large corporate accounts. In this area it could also conceive of a useful and effective way to apply the opportunity of electronic commerce.

The strive of Dell USA to create MyDell pages for private consumers indicates that it was searching for a similar ability to offer personalisation, in order to generate sales from private consumers. The case of Dell Sweden illustrates that personalisation can be a critical electronic commerce capability only when it gains content by the actions of customers themselves in the form of discussion forums and sharing of customer experiences.

Interestingly, and as a consequence of its failure to implement personalisation, Dell Sweden has not been successful in building sales in the transactional customer segments (private consumers in particular), which indicates that it has a capability in personalisation, which it does not know how to transfer into consumer markets. In contrast, Compaq Sweden has been considerably more effective in building up sales to consumers. It started early, and has always, due to its reseller system, had to figure out how to communicate with the customers without having a proper direct customer relationship.

Actually, electronic commerce became a manifestation of already established customer relations and a further strengthening of those relations. In the other segments, where its theory of business proved less versatile, Dell Sweden was not been able to formulate comparable effective use of electronic commerce. The experience of Dell Sweden indicates that electronic commerce must be built up differently depending on customer group, with different combinations of marketing activities and technology.

Building up sales via relationships is different in that it starts with finding one or a few customers. These customers are given attention, and are used for feedback and adjustment. Dell Sweden uses word-of-mouth, internal ambassadors, and a close study of internal purchasing processes to replace or complement traditional segmentation. In addition, the special treatment of new customers, established customers, and customers who are drifting away implies segmentation according to the customer purchasing behaviour, rather than segmentation according to customer properties in general.

This choice of customers has proved critical for Dell Sweden. It transferred sales that had been created off-line via real-world customer relationships, moving transactions online, whereas Compaq Sweden tried to generate transactions online without having relationships in place. These attempts to create sales electronically have yielded different results, and the renewed ambitions by Compaq Sweden to transfer sales has been to use its sales force, partly acquired from Digital, first to establish relationships, then for transfer to Extranets, rather than the Internet.

The case of Dell Sweden proposes that starting with established relationships that depend on personalisation not being electronically delivered is a clever way to achieve electronic commerce sales. Once relationships, i.e. ongoing business and a basic level of trust and mutual knowledge and approach, have been established, sales can be generated as a result of the established relationship. The cases suggest that it is far easier to transfer existing sales, than to create new sales. It is also far easier to move sales generated on the basis of established relationships, rather than on ad-hoc transactions with distant and unknown customers, indicating the difficulty in creating profitable sales using electronic commerce mainly in the consumer market, where meaningful relationships are less common.

For Dell Sweden, personalisation is not confined to electronic commerce features, but is a combination of capabilities that are adjusted both to the particulars of various customer segments as well as particular capabilities of individual customers. The introduction and management of customisation both of the offering and of the customer experience implies that electronic commerce must be integrated in firm operations differently depending on segment, to balance customisation of customer contact at the segment level and the individual customer level. Personalisation demands flexibility of the information technology infrastructure to enable the customisation of customer contact.

Eventually, the adjusted and refined offer produced as a result of the established relationships facilitated Dell Sweden to increase the number and the variation of relationships that could be managed. Personalisation is closely connected to and pre-conditioned by interactivity and addressability.

As Dell Sweden acquired new customers in new segments they initially became dissatisfied. Indicating that with growth follows a challenge in customer satisfaction. New, dissimilar customers put further demands to develop their offerings. Dell Sweden used this to its advantage by slowly fine-tuning the products and services directed to a particular segment before pushing harder for sales to increase.

Personalisation is an advanced and demanding capability to acquire. Yet it is a capability which takes advantage of the opportunities offered by electronic commerce. Personalisation is acquired by devising menu's and options that allow customers to understand and read the offering. The attention given to personalisation made Dell Sweden choose customers that it could satisfy, and made customers that could be satisfied choose Dell Sweden.

Postponement

In terms of upstream activities, Compaq EMEA and Dell EMEA compare well and are similar. Both have gradually established relationships with prominent suppliers. In return for loyalty and continuous adjustment, Compaq EMEA and Dell EMEA have rewarded them with a steady flow of revenue, high volumes, shared planning and as much predictability as possible. By leveraging its operations in this manner, both Compaq EMEA and Dell EMEA have been able to grow without experiencing severe resource constraints that limit growth.

The difference in terms of integration between Compaq EMEA and Dell EMEA is evident in production and downstream activities. Whereas Compaq Sweden focused on optimising production and pushing out computers via distribution channels, while asking resellers to manage customer relationships. Dell Sweden has been able to rely on customers taking on a number of activities. In contrast, Compaq Sweden EMEA focused on minimising the number of exchange relationships to reduce costs. Furthermore, Dell EMEA has passed on part of the savings to its customers, and thus reinforced its price advantage. Dell Sweden acquired the capability to postpone production while offering the same or improved customisation.

In a process of reversal, Compaq EMEA tried to shift from speculation to postponement. This process was gradual as Compaq EMEA tried to manage channel conflicts by adjusting the existing channel, introducing BTO and CTO in steps and in parallel with the existing distribution system. The difficulty and cost involved in this process, in combination with the ample resources that Compaq EMEA has devoted to moving from speculation to postponement, indicates the importance of the postponement capability not only for electronic commerce, but also for efficiency and effectiveness in the computer industry.

The cumbersome process whereby Compaq Corporation gradually introduced BTO and CTO does not suggest that the postponement capability is difficult to acquire by itself, but that it is difficult to switch from speculation to postponement. A quick process whereby BTO and CTO were implemented fast to avoid the duplication and fuzziness that the mixture of speculation and postponement created could have replaced the gradual process of Compaq EMEA. In the case of Dell EMEA, there is a somewhat similar process going on where the benefits of postponement are gradually increased. Across the various business models, the number of days of inventory are reduced and the throughput time increased, reducing overall lead times.

Sole reliance initially on a speculation strategy meant that Compaq Sweden, was devoting resources to motivate desirable behaviour at the next vertical level of the channel. When Compaq Sweden eventually started using distributors, it had to redesign and redirect its promotional, financial, and educational capabilities to reflect the changing functional allocation of tasks in the distribution system.

The need to duplicate functions and capabilities in order to increase effectiveness has led to a costly transformational process with a high degree of channel conflict. Together with their duplication follows ambiguity from channel members and customers about whom to interact with, weakening business and customer relationships, and threatening trust in the distribution system.

Both Compaq Corporation and Dell Corporation, in the early business models, opted for pure examples of either postponement or speculation. They are examples of firms that originally were small and facing major resource constraints designing and devising distribution strategy in response to these constraints. This purity soon disappeared. Despite Dell Corporation depicting itself as a direct selling company, both firms have come to rely on a combination of postponement and speculation. Over time, the emphasis of both firms shifts back and forth depending not only on the developments of capabilities with direct relevance for distribution, but also in production, product technology, logistics, and supplier relationships. During the studied period, the overall shift has been towards more postponement, as Bucklin (1965) predicted.

Compaq Corporation critically assessed its distribution systems and anticipated the need to shift from speculation to postponement, but deferred it as long as possible. A major reason for this deferral was the loyalty to, and dependence on, the resellers. Compaq Sweden had continuous channel conflicts, which it had to handle. Compaq Corporation faced a critical decision under significant uncertainty, about which long-term paths to commit to and when to change paths, with the added problem of having an elaborated and powerful set of skills that could be expected to become obsolete.

Postponement is difficult to acquire because it demands to integration and co-ordination of many actors in the supply and distribution system. Convincing them to alter the system makes it attractive to make it step by step, and to add capabilities without discarding existing capabilities. The case of Compaq Sweden illustrates the pitfalls of such a strategy. Wanting to have it both ways, Compaq Sweden created confusion and impaired the trust it had established in the distribution system.

The cases suggest that postponement can best be acquired in one radical shift, rather than by an incremental approach. While this cannot be expected to be easy or progress smoothly or fast, at least such a move carries clarity and coherence, and make it possible for channel members and customers to adjust to postponement. Although Dell Sweden for a long time has possessed the postponement capability virtually from the outset, electronic commerce enabled Dell Sweden to obtain yet another set of tools to enhance postponement. Furthermore, Dell Sweden managed to integrate postponement with addressability, customisation, interactivity, and personalisation. Without postponement fulfilment cannot fully support electronic commerce, making the electronic commerce capability as a whole less versatile.

Concluding Remarks

The cases of Compaq Sweden and Dell Sweden offer managerial lessons and insights. There are a few which are principally important. Both firms have been innovators in creating distribution systems. They have innovated because they have established new ways to approach the customer. Looking at the entire history of the two firms, they have succeeded without having complete capability portfolios from the outset. Only with time have the capability portfolios become strong, and they have become so only in limited areas.

The rise and growth of electronic commerce illustrates the notion of singular and dual capabilities eminently. Electronic commerce transforms capabilities into dual capabilities, since it creates contexts where both static and dynamic capabilities come to concur, inducing firms to acquiring capabilities more correctly, and faster. This finding suggests that it is not so important to possess the right capabilities, it is more important to possess the right capabilities for acquiring new capabilities. Electronic commerce is less important in itself; rather it is the contribution towards overall capability acquisition that electronic commerce confers upon the firm, which is truly valuable.

The prescription for the firm that seeks to become successful must be that it should engage and expose itself to relentless capability acquisition from customers. By searching for the right combination of means directed in the right proportion to various actors providing the opportunity to acquire capabilities, the firm can embark on a process where customers in particular can drive the capability acquisition of the firm. Customers engage in exchange in order to be equipped and prepared for their own task, i.e. when they buy a computer they acquire a capability. The selling firm should acquire capabilities in a manner that enables the customers to acquire the capabilities they need.

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Appendixes

Appendix 1: Company Information

*Compaq Corporation 1991-1995*³¹⁰

Operating Results (in millions USD)	Fiscal Year Ended				
	Dec 31, 1995	Dec 31, 1994	Dec 31, 1993	Dec 31, 1992	Dec 31, 1991
Net revenue	14.755	10.866	7.191	4.100	3.271
Cost of Sales	11.367	8.139	5.493	2.905	2.053
Revenue-products	16.308	NA	NA	NA	NA
Revenue-services	367	NA	NA	NA	NA
Gross Margin	3.388	2.727	1.698	1.195	1.218
Operating Income	2.200	1.555	1.082	900	1.064
Net income	789	867	462	213	131
Financial Position:					
Current Liabilities	3.580	2.013	1.244	960	638
Total assets	9.637	6.166	4084	3.142	2.826
Stockholders equity	5.757	3.674	2.654	2.006	1.931
Other Data:					
Employees (year end)	17055	14372	10541	9559	10059
Market capitalisation (in millions)	14.100	12.300	NA	NA	NA

*Compaq Corporation 1996-2000*³¹¹

Operating Results (in millions USD)	Fiscal Year Ended				
	Dec 31, 2000	Dec 31, 1999	Dec 31, 1998	Dec 31, 1997	Dec 31, 1996
Net revenue	42.383	38525	31169	24.584	20.009
Revenue-products	35.667	31.902	27.372	24.122	19.611
Revenue-services	6.716	6.623	3.797	462	398
Gross Margin	9.970	8.730	7.190	6.750	5.150
Operating Income	3.570	1.882	1.746	NA	NA
Net income	569	569	(2.743)	1.855	1.318
Financial Position:					
Current Liabilities	11.549	11.838	10.733	5.202	4.751
Total assets	24.856	27.277	23.051	14.631	12.331
Stockholders equity	12.080	14.834	11.351	9.429	7.290
Other Data:					
Employees (year end)	67.100	70.665	23.670	21.472	18.863
Market capitalisation (in millions)	26.220	46.950	71.300	42.900	22.000

³¹⁰ Quoted from Compaq Corporation Annual Reports 1991-1995 as stated.

³¹¹ Quoted from Compaq Corporation Annual Reports 1996-2000 as stated.

*Dell Corporation 1991-1995*³¹²

Operating Results (in millions USD)	Fiscal Year Ended				
	Jan 29, 1995	Jan 30, 1994	Jan 31, 1993	Feb 2, 1992	Feb 3, 1991
Net revenue	3.475	2.873	2.014	890	546
Gross Margin	738	432	449	282	182
Operating Income (loss)	249	(39)	139	69	45
Net income (loss)	149	(36)	102	51	27
Financial Position:					
Working Capital	719	510	358	283	95
Total assets	1.594	1.140	927	560	264
Stockholders equity	651	471	369	274	112
Other Data:					
Employees (year end)	6.400	5.800	NA	NA	NA
Market capitalisation (in millions)	2.650	900	1.800	800	NA

*Dell Corporation 1996-2000*³¹³

Operating Results (in millions USD)	Fiscal Year Ended				
	Jan 28, 2000	Jan 29, 1999	Feb 2, 1998	Feb 2, 1997	Jan 28, 1996
Net revenue	25.265	18.243	12.327	7.759	5.296
Gross Margin	5.218	4.106	2.722	1.666	1.067
Operating Income	2.457	2.046	1.316	714	377
Net income	1.860	1.460	944	518	272
Financial Position:					
Working Capital	2.489	2.112	758	891	923
Total assets	11.471	6.877	4.268	2.993	2.148
Stockholders equity	5.308	2.231	1.293	806	973
Other Data:					
Employees (year end)	36.500	24.400	16.200	10.350	8.400
Market capitalisation (in millions)	95.928	127.150	31.995	11.430	2.570

³¹² Quoted from Dell Corporation Annual Reports 1991-1995 as stated.

³¹³ Quoted from Dell Corporation Annual Reports 1996-2000 as stated.

Appendix 2: Case Study Question Sheet

<p>How would you define competitiveness? What is competitiveness for your firm? Do you discuss this term and refer to this term on a regular basis?</p>
<p>How would you characterise strategy making in your organisation? Do you perceive that your firm has a clear strategy that you can relate to? How has the strategy varied over the years in your opinion?</p>
<p>Do you think of strategy in terms of distribution? Is distribution an important aspect of your business? How would you describe the Evolution of your distribution strategy?</p>
<p>In your opinion, can the Evolution of your company be divided into phases? How would you label these phases? Duration, content, time-span. Are these phases particular for your firm or are they general for the industry?</p>
<p>How would you describe learning in your organisation? Degree of order, speed, organisational scope. How would you categorise the learning that occurs?</p>
<p>How does the firm come to the conclusion that it must learn a new skill? Who or what drive this process? Do you think and discuss this process often? Is it perceived as important by your firm?</p>
<p>What sources of organisational learning would you identify for your company? Are they equally important? Has the importance changed over time?</p>
<p>What decides in what way your organisation learns new skills? Do you keep track of what you know and how you have learnt something?</p>
<p>Is the concept of capabilities used in your organisation? If so how and why. What does it describe? How would you grade your capabilities in comparison with the competition?</p>
<p>Has the way you learn new things changed over time? How and why?</p>
<p>What is the task of the local subsidiary/EMEA level/US level in learning new things?</p>
<p>Does your firm learn internally or externally? Is it possible to learn something externally? Is internal and external learning the same thing?</p>
<p>Do you think that the trajectory is an important concept for your firm in terms of learning? Is the product trajectory an important concept for your firm?</p>
<p>Do you think that cloning is an important concept for your firm in terms of learning? Do you copy learning within your organisation? Outside of your organisation?</p>
<p>Do you think that collaboration is an important concept for your firm in terms of learning? Is there a link between power and learning? What about learning at your business partners? Do you support this learning?</p>

<p>Do you include their learning in your learning? Do you think that customers are an important source for learning?</p>
<p>Do you think that firm purchasing is an important concept for your firm in terms of learning? How many firms have you acquired and when? Why?</p>
<p>What factors hamper or facilitate learning? Are these factors internal or external? Can you please identify important learning events that you can relate to? Why are they important? Is there, in your view any pattern in learning? How has this pattern evolved?</p>
<p>Could you please paint your distribution system? Business models? Webs of capabilities? Web of business relationships? How have your business models evolved?</p>
<p>Who would you describe as your competitors? How would you rank them? In what respect are they competitors? Is there a link between your learning and the learning that takes place at your competitors?</p>
<p>How would you describe your organisational culture? Is individual growth and development important? Is there any strategy to manage skills?</p>

Appendix 3: Capability Acquisition Identified in the Cases

Compaq: Acquired Capabilities and Used Means in the Reseller Model

Acquired Capabilities	Used Means by Compaq USA, Compaq EMEA, and Compaq Sweden
Portable computers.	USA: In-house innovation, collaboration (CB) and cloning (CI) EMEA: Cloning (CR) Sweden: Cloning (CR)
Desktop computers.	USA: Cloning (CI), collaboration (CB) and in-house innovation EMEA: Cloning (CR) Sweden: Cloning (CR)
Reseller acquisition skills.	USA: In-house innovation and collaboration (CB) EMEA: Cloning (CR) and collaboration (CB) Sweden: Cloning (CR) and collaboration (CB)
Market entry skills.	USA: In-house innovation EMEA: In-house innovation and cloning (CR) Sweden: In-house innovation and cloning (CR)
Manufacturing skills including assembly and adjustment for local markets (Customisation).	USA: In-house innovation, cloning (CI) and collaboration (CB) EMEA: Cloning (CR) and collaboration (CB) Sweden: Cloning (CR)
Logistics and inventory management for BTS.	USA: In-house innovation EMEA: Cloning (CR) Sweden: Cloning (CR)
Reseller management skills for stimulating consolidation.	USA: In-house innovation and collaboration (CB) EMEA: Cloning (CR) Sweden: Cloning (CR) and collaboration (CB)
EDI, supplier oriented with direct links to suppliers nearby (Postponement).	USA: In-house innovation, collaboration (CB) and cloning (CE) EMEA: Collaboration (CB) and cloning (CR) Sweden: Cloning (CR)

Compaq: Acquired Capabilities and Used Means in the Indirect Sales Model

Acquired Capabilities	Used Means by Compaq USA, Compaq EMEA, and Compaq Sweden
Improved channel management skills: including extended price-protection and buy back programmes.	USA: In-house innovation EMEA: Cloning (CR) Sweden: Cloning (CR)
Product cycle management skills including long-term contracts with suppliers and joint planning.	EMEA: In-house innovation and collaboration (CB) Sweden: Cloning (CR)
Intensive distribution management skills for five different channels (Customisation).	USA: In-house innovation and collaboration (CB) EMEA: Cloning (CR) Sweden: Cloning (CR), collaboration (CB) and in-house innovation
Authorisation and education programmes.	USA: Cloning (CI), collaboration (CB) and in-house innovation EMEA: Cloning (CR) Sweden: Cloning (CR), in-house innovation and collaboration (CB)
Co-ordination and joint market communications between Compaq Sweden and channel members (Interactivity).	Sweden: In-house innovation and collaboration (CB)
New low cost product lines in desktops and portables developed on old components.	USA: In-house innovation EMEA: Cloning (CR) Sweden: Cloning (CR)
Development of a new production system involving Taiwanese subcontractors, in particular Quanta, for labour intensive work.	USA: In-house innovation, cloning (CI) and collaboration (CB) EMEA: Cloning (CI) and collaboration (CB) Sweden: Cloning (CR)
EDI, supplier oriented establishment of smooth component flow, with increased quality and order accuracy (Postponement).	EMEA: In-house innovation and collaboration (CB) Sweden: Cloning (CR)

EDI, channel member oriented to reduce waste and logistics costs, reduction of finished inventory costs (Postponement).	EMEA: In-house innovation and collaboration (CB) Sweden: Cloning (CR) and collaboration (CB)
Telephone based customer contact for small and medium sized businesses via channel members (Interactivity).	USA: Cloning (CE) and in-house innovation Sweden: Cloning (CE) and collaboration (CB)
The Munich War Room.	EMEA: In-house innovation Sweden: Cloning (CR)
Introduction of countryfication, enabling Compaq Sweden to obtain computers quicker as Compaq EMEA could shift the destination of computers in response to changing demand (Customisation and Postponement).	EMEA: In-house innovation Sweden: Cloning (CR)
Forecasting routines including the order book system with sequential aggregation of forecasts (Postponement).	EMEA: In-house innovation Sweden: Cloning (CR)
New packaging and construction of computers into integrated boxes for consumers (Customisation).	EMEA: In-house innovation and cloning (CR) Sweden: In-house innovation
The Presario offering, with multimedia features.	USA: In-house innovation EMEA: Cloning (CR) Sweden: Cloning (CR)
Consumer market entry skills.	USA: In-house innovation EMEA: Cloning (CR) Sweden: Cloning (CR) and in-house innovation

Compaq: Acquired Capabilities and Used Means in the Distributor Model

Acquired Capabilities	Used Means by Compaq USA, Compaq EMEA, and Compaq Sweden
Channel management skills for rebate structure and inducement of consolidation.	USA: In-house innovation and collaboration (CB) EMEA: Cloning (CR) Sweden: Cloning (CR)
The introduction of ProLiant servers in Sweden.	USA: In-house innovation, collaboration (CB) and cloning (CE) EMEA: Cloning (CR) Sweden: Cloning (CR)
Networking products.	USA: Firm purchasing EMEA: Cloning (CR) Sweden: Cloning (CR)
Direct personal sales force (Addressability and Interactivity).	EMEA: In-house innovation Sweden: In-house innovation and cloning (CR)
The introduction of Compaq.com/se (Interactivity).	USA: In-house innovation and collaboration (CB) EMEA: Cloning (CR) Sweden: Cloning (CR)
Inventory financing, assortment creation including peripherals, inventory management, fast delivery - via distributors (Customisation).	USA: Collaboration (CB) EMEA: Collaboration (CB) Sweden: In-house innovation and collaboration (CB)
Improved logistics and inventory management with BTSms, by the transfer of the goods flow to the Horkum warehouse and demand signals from national subsidiaries (Postponement).	EMEA: Collaboration (CB) Sweden: Collaboration (CB)
Promotional and educational programmes for small retailers and resellers.	EMEA: In-house innovation Sweden: In-house innovation, cloning (CR) and collaboration (CB)

Accounting for kickback, price promotions and price protection programmes by the distributors.	USA: In-house innovation and collaboration (CB) EMEA: Cloning (CR), collaboration (CB) and in-house innovation Sweden: Cloning (CR) and collaboration (CB)
Advanced forecasting models (Postponement)	EMEA: In-house innovation and collaboration (CB) Sweden: Cloning (CR)
The TOPS programme to make Compaq EMEA an order-driven organisation (Postponement)	EMEA: In-house innovation and collaboration (CB) Sweden: Cloning (CR)

Compaq: Acquired Capabilities and Used Means in the Optimised Distribution Model

Acquired Capabilities	Used Means by Compaq USA, Compaq EMEA, and Compaq Sweden
Licensing of network products.	USA: Collaboration (CB) EMEA: Cloning (CR) Sweden: Cloning (CR)
Implementation of manufacturing capability to handle four different assembly techniques including both batch and unit production (Customisation and Postponement).	USA: In-house innovation, collaboration (CB) and cloning (CE) EMEA: In-house innovation, collaboration (CB) and cloning (CR) Sweden: Cloning (CR)
Implementation of SAP with special extensions including configuration to handle BTS/BTSms, BTO/CTOch and CTO/CTOch simultaneously (Customisation and Postponement).	USA: In-house innovation and collaboration (CB) EMEA: Cloning (CR), collaboration (CB) and in-house innovation Sweden: Cloning (CR) and collaboration (CB)
Adjustments at the Erskine manufacturing plant to handle BTO/BTOch and CTO/CTOch (Customisation and Postponement).	USA: In-house innovation EMEA: In-house innovation Sweden: Cloning (CR)
Channel configuration programme to integrate channel members with the new CTOch and BTOch processes (Interactivity, Customisation and Postponement).	EMEA: In-house innovation and collaboration (CB) Sweden: In-house innovation, cloning (CR) and collaboration (CB)
OrderLink – electronic order handling for resellers (Interactivity).	USA: In-house innovation and collaboration (CB) EMEA: In-house innovation, collaboration (CB) and cloning (CR) Sweden: In-house innovation, collaboration (CB) and cloning (CR)
High-end mission critical servers obtained by the acquisition of Tandem (Customisation).	USA: Firm purchasing Sweden: Cloning (CR)
Electronic commerce web interface to customers (not launched) (Interactivity).	USA: In-house innovation EMEA: In-house innovation Sweden: In-house innovation

Introduction of BTOch and CTOch facility for distributors (Interactivity).	Sweden: In-house innovation, cloning (CR), and collaboration (CB)
Local Swedish variation of direct sales with a combination of resellers and Compaq Sweden's sales force (Addressability and Interactivity).	Sweden: In-house innovation and collaboration (CB)
The establishment of SalesLinq – the new contact nod and organiser of customer contact (Addressability, Interactivity and Personalisation).	Sweden: In-house innovation and collaboration (CB)
CompaqConnect Extranet – for transfer of customer contact from the centre to the resellers (Addressability, Interactivity and Personalisation).	Sweden: In-house innovation and collaboration (CB)

Compaq: Acquired Capabilities and Used Means in the Customer Choice Model

Acquired Capabilities	Used Means by Compaq USA, Compaq EMEA, and Compaq Sweden
Augmented sales force with extensive customer relationships with businesses (Addressability, Interactivity and Personalisation).	USA: Firm purchasing Sweden: Cloning (CR)
Augmented distribution network.	USA: Firm purchasing Sweden: Cloning (CR)
Software and hardware technologies not related to the Wintel standard.	USA: Firm purchasing Sweden: Cloning (CR)
New and augmented services like outsourcing, installation, maintenance, upgrading, education, and programming, hosting, financing, and planning (Customisation and Personalisation).	USA: Firm purchasing EMEA: Cloning (CR) Sweden: Cloning (CR)
CompaqDirectPlus programme to sell computers directly to customers by phone and fax, building up internal customer records (Addressability, Interactivity and Customisation).	USA: In-house innovation and cloning (CE) EMEA: Cloning (CR) Sweden: Cloning (CR)
Formation of Compaq.com/se, extension of DirectPlus to the Internet (Interactivity and Personalisation).	USA: In-house innovation, cloning (CE) and collaboration (CB) EMEA: Cloning (CR) Sweden: Cloning (CR)
New pricing regime with standardised and transparent prices across all channels.	EMEA: In-house innovation Sweden: Cloning (CR)
The Prosignia computer line, fully BTO and CTO ready (Customisation).	USA: In-house innovation EMEA: In-house innovation and cloning (CR) Sweden: Cloning (CR)

CarePAQ services for Prosignia	USA: In-house innovation Sweden: In-house innovation, cloning (CR), collaboration (CB)
BTO and CTO capabilities bought from Pcoorder (Customisation and Postponement).	USA: Collaboration (CB) EMEA: Cloning (CR) Sweden: Cloning (CR)
Agent fee payment systems to facilitate resellers to selling computers without carrying stocks.	USA: Collaboration (CB) EMEA: Collaboration (CB) Sweden: Collaboration (CB)
Purchasing of configuration and distribution assets of Inacom to perform BTO and CTO (Customisation and Postponement)	USA: Firm purchasing EMEA: Cloning (CR) Sweden: Cloning (CR)
New organisation with four global business groups	USA: In-house innovation EMEA: Cloning (CR) Sweden: Cloning (CR)

Dell: Acquired Capabilities and Used Means in the Direct Sales Model

Acquired Capabilities	Used Means by Dell USA, Dell EMEA, and Dell Sweden
The basic BTO and CTO process, including local assembly lines focusing on fulfilment (Customisation and Postponement).	USA: In-house innovation and collaboration (CC) EMEA: Cloning (CR) and collaboration (CC) Sweden: Cloning (CR) and collaboration (CC)
The partnership with Intel and other components suppliers.	USA: Collaboration (CB) EMEA: Cloning (CR) Sweden: Cloning (CR)
Price/performance communication with focus on value and the quality of components.	USA: In-house innovation, cloning (CI) and collaboration (CB) Sweden: Cloning (CR)
European organisation and Nordic Office, with the Stockholm office being responsible for all operations in the Nordic countries.	USA: In-house innovation EMEA: In-house innovation and cloning (CR) Sweden: In-house innovation and cloning (CR)
Manufacturing facility in Limerick including suppliers nearby, and shipment and logistics to customers across EMEA (Postponement).	USA: In-house innovation and collaboration (CB) EMEA: In-house innovation, cloning (CR) and collaboration (CB) Sweden: Cloning (CR)
Implementation of the Scala Business System with customer records in Sweden, followed by many other small EMEA markets (Addressability).	EMEA: In-house innovation, cloning (CR) and collaboration (CB) Sweden: In-house innovation, cloning (CR) and collaboration (CB)
Computer description skills to make the offering transparent for the customer and unique internally with bar code to suppliers (Customisation and Personalisation).	USA: In-house innovation and collaboration (CB) Sweden: In-house innovation and cloning (CR)

Direct marketing and communications skills in newsletters, price list, advertising and product presentations (Interactivity and Personalisation).	USA: In-house innovation and collaboration (CB) EMEA: Cloning (CR) Sweden: In-house innovation, cloning (CR) and collaboration (CB)
Co-ordination of basic logistics operations with transport of goods to final destination (Postponement).	USA: In-house innovation and collaboration (CB) EMEA: Cloning (CR) and collaboration (CB) Sweden: Cloning (CR) and collaboration (CB)
Direct feedback loop from customers regarding demand, features, quality, service, and support (Interactivity, Customisation and Personalisation).	USA: In-house innovation and collaboration (CC) EMEA: Cloning (CR) and collaboration (CC) Sweden: Cloning (CR) and collaboration (CC)
Marketing communication skills in stimulating referrals from existing customers (Personalisation).	USA: In-house innovation and collaboration (CC) EMEA: Cloning (CR) and collaboration (CC) Sweden: Cloning (CR) and collaboration (CC)
Component supply management with improved negotiating and purchasing skills and component brand awareness.	USA: In-house innovation and collaboration (CB) EMEA: Cloning (CR) and collaboration (CB) Sweden: Cloning (CR)
Quarterly product scheduling, organising product launches and price changes in quarters, following Intel closely.	USA: Cloning (CE) and collaboration (CB) EMEA: Cloning (CR) Sweden: Cloning (CR)
The pricing strategy and practices including short product life cycles, up-selling and price positioning.	USA: In-house innovation and collaboration (CC) EMEA: Cloning (CR) Sweden: In-house innovation, cloning (CR) and collaboration (CC)
Adjusting operations to large business including products and services by working intensively with a few customers (Customisation and Personalisation).	USA: In-house innovation and collaboration (CC) EMEA: Cloning (CR) and collaboration (CC) Sweden: Cloning (CR) and collaboration (CC)

Dell: Acquired Capabilities and Used Means in the Relationship Model

Acquired Capabilities	Used Means by Dell USA, Dell EMEA, and Dell Sweden
Telemarketing systems to facilitate selling and supporting computers by phone, including question sheets (Interactivity and Personalisation).	USA: In-house innovation and collaboration (CC) EMEA: In-house innovation and cloning (CR) Sweden: In-house innovation, cloning (CR) and collaboration (CC)
Local logging of quantitative and qualitative aspects on customers to determine purchasing behaviour, demand patterns and satisfaction levels (Addressability, Customisation and Personalisation).	Sweden: In-house innovation and collaboration (CC)
Establishment of personal sales force (Interactivity and Personalisation).	USA: In-house innovation and collaboration (CC) EMEA: In-house innovation, cloning (CR) and collaboration (CC) Sweden: In-house innovation, cloning (CR) and collaboration (CC)
Regular meetings among Dell EMEA country managers to exchange experiences and operational insights.	USA: In-house innovation EMEA: Cloning (CR) Sweden: Cloning (CR)
Top-down selling practice with central co-ordination role for CIOs.	USA: In-house innovation EMEA: Cloning (CR) Sweden: Cloning (CR)
TCO graded monitors.	USA: Cloning (CR) EMEA: Cloning (CR) Sweden: In-house innovation and collaboration (CC)
Direct sales marketing programmes with dedicated teams for large business customer's incl. agreements and mutual commitments (Customisation and Personalisation).	USA: In-house innovation and collaboration (CC) EMEA: Cloning (CR) Sweden: Cloning (CR) and collaboration (CC)

Segmentation strategy according to nature of customer relationships and customer maturity (Customisation).	USA: In-house innovation, cloning (CR) and collaboration (CC) EMEA: Cloning (CR) Sweden: Cloning (CR)
Organisational spin-off practice for new customer segments (Personalisation).	USA: In-house innovation and collaboration (CC) EMEA: Cloning (CR) Sweden: Cloning (CR) and collaboration (CC)
Creation of special organisational units to manage customer acquisition and customer retention (Personalisation).	USA: In-house innovation and collaboration (CC) EMEA: Cloning (CR) Sweden: In-house innovation, cloning (CR) and collaboration (CC)
The sink metaphor and the ability to adjust and balance supply with demand (Postponement).	USA: In-house innovation and collaboration (CC) EMEA: In-house innovation and cloning (CR) Sweden: Cloning (CR) and collaboration (CC)
The obtaining of operational guiding principles of Dell Corporation, including liquidity, profitability, growth and selling directly to customers.	USA: In-house innovation EMEA: Cloning (CR) Sweden: Cloning (CR)
The creation of Dellnet and Dell.com (Interactivity).	USA: In-house innovation, cloning (CR) and collaboration (CC) EMEA: Cloning (CR) Sweden: Cloning (CR)

Dell: Acquired Capabilities and Used Means in the Hybrid Model

Acquired Capabilities	Used Means by Dell USA, Dell EMEA, and Dell Sweden
Creation of pre-assembled notebook kits to facilitate BTO and CTO in similar fashion to desktops (Customisation and Postponement).	USA: In-house innovation, cloning (CI) and collaboration (CB) EMEA: In-house innovation, cloning (CR) and collaboration (CB) Sweden: Cloning (CR)
The creation of separate product development teams developing different platforms resulting in the introduction of servers, and eventually workstations and storage equipment.	USA: In-house innovation and cloning (CE) EMEA: In-house innovation and cloning (CR) Sweden: In-house innovation and cloning (CI)
Product market entry skills developed as a result of problems with the notebooks.	EMEA: Cloning (CR) Sweden: In-house innovation
Establishment of stronger business relationships with channel partners in logistics support and service (Postponement).	Sweden: In-house-innovation and collaboration (CB)
New service packages with service, support and education (Customisation).	USA: In-house innovation EMEA: Cloning (CR) Sweden: In-house innovation, collaboration (CB) and cloning (CR)
New support organisation with three levels, one national, one regional and one for EMEA (Customisation).	USA: In-house innovation EMEA: In-house innovation and cloning (CR) Sweden: In-house innovation, cloning (CR) and collaboration (CB)
Worldwide partnership with Wang and Unisys who provided consulting, installation, service and support and local contracts with Digital and Telia (Customisation).	USA: Collaboration (CB) EMEA: Cloning (CR) and collaboration (CB) Sweden: Cloning (CR) and collaboration (CB)

<p>The establishment and development of technology partnerships with a number of industry hardware and software vendors across product lines to include components and software that sold well at competitors (Customisation).</p>	<p>USA: In-house innovation, cloning (CI) and collaboration (CB) EMEA: Cloning (CR) Sweden: Cloning (CR)</p>
<p>The establishment of research and development for clustering technology, storage and mobile products.</p>	<p>USA: In-house innovation Sweden: Cloning (CR)</p>
<p>The build up of a patent portfolio to be used in negotiating patent exchanges.</p>	<p>USA: In-house innovation and collaboration (CB) Sweden: Cloning (CR)</p>
<p>Informal agreement with numerous channel members to handle outsourcing, software loads, testing and 3rd-party product integration (Customisation).</p>	<p>USA: Collaboration (CB) EMEA: Cloning (CR) and collaboration (CB) Sweden: Cloning (CR) and collaboration (CB)</p>

Dell: Acquired Capabilities and Used Means in the Customer Segment Model

Acquired Capabilities	Used Means by Dell USA, Dell EMEA and Dell Sweden
New website with the opportunity for customers to place orders with configuration and price calculation facility (Customisation and Personalisation).	USA: In-house innovation and collaboration (CC) EMEA: Cloning (CR) Sweden: Cloning (CR)
Local pricing unit to update prices daily (Personalisation).	EMEA: In-house innovation and cloning (CR) Sweden: Cloning (CR)
Integrated marketing communications with leaflets, price lists, advertising, and subsidies to transfer sales to the Internet (Interactivity and Personalisation).	USA: In-house innovation EMEA: Cloning (CR) Sweden: Cloning (CR)
Gathering and measurement of non-financial indicators to assess operational performance by logging end buyer behaviour (Interactivity, Customisation and Personalisation).	EMEA: In-house innovation Sweden: In-house innovation and cloning (CR)
The formation of Dell Northern Europe with customer segment focus instead of national geographic focus (Personalisation).	USA: In-house innovation EMEA: Cloning (CR) Sweden: Cloning (CR)
Formation of Global Account Organisation to provide one-stop shopping for large business customers (Personalisation).	EMEA: In-house innovation and collaboration (CC) Sweden: Cloning (CR) and collaboration (CC)
The creation of value added service programmes for large business customers (Customisation).	USA: In-house innovation and collaboration (CB) EMEA: Cloning (CR) and collaboration (CB) Sweden: Cloning (CR) and collaboration (CB)

The creation of the Direct Effect software programme for the supply of pre-installed software (Customisation).	USA: In-house innovation and collaboration (CB) EMEA: Cloning (CR) and collaboration (CB) Sweden: Cloning (CR)
The establishment of the Applications Solutions Centre in Limerick (Customisation and Personalisation).	USA: In-house innovation EMEA: Cloning (CR) Sweden: Cloning (CR)
The introduction of ImageWatch - notice about future product changes (Personalisation).	USA: In-house innovation and collaboration (CC) EMEA: Cloning (CR) Sweden: Cloning (CR)
New legacy business system, Oracle Finance, implemented in Italy, including standardisation efforts for Dell EMEA (Personalisation).	EMEA: In-house innovation and collaboration (CB) Sweden: Cloning (CR)
Creation of aggregated report cards to integrate data from several internal computer systems (Personalisation).	USA: In-house innovation EMEA: Cloning (CR) Sweden: Cloning (CR)
The creation of the GS architecture to link all internal computer programs (Interactivity, Customisation and Personalisation).	USA: In-house innovation EMEA: Cloning (CR) Sweden: Cloning (CR)
Introduction of Premier pages (Personalisation).	USA: In-house innovation and collaboration (CC) EMEA: Cloning (CR) Sweden: Cloning (CR)
Paperless purchase order system to increase order accuracy (Interactivity).	Sweden: In-house innovation and collaboration (CC)

Dell: Acquired Capabilities and Used Means in the Customer Contact Mix Model

Acquired Capabilities	Used Means by Dell USA, Dell EMEA and Dell Sweden
Managing segments and individuals simultaneously with a greater focus on individual customers (Personalisation).	USA: In-house innovation EMEA: In-house innovation and cloning (CR) Sweden: In-house innovation and cloning (CR)
Improved BTO and CTO manufacturing capability (Postponement).	USA: In-house innovation and collaboration (CB) EMEA: Collaboration (CB) and cloning (CR) Sweden: Cloning (CR)
New online support facilities including tag driven retrieval system (Interactivity and Personalisation).	USA: In-house innovation EMEA: Cloning (CR) Sweden: Cloning (CR)
New incentive programmes including bonus and share options.	USA: Collaboration (CB) EMEA: Cloning (CR) Sweden: Cloning (CR)
Expanded Intranet directed to staff with information and continuously upgraded performance figures (Interactivity).	USA: In-house innovation EMEA: Cloning (CR) and in-house innovation Sweden: Cloning (CR)
Improved customer knowledge by consolidation of customer record database and the ability to address non-customers (Addressability and Interactivity).	Sweden: In-house innovation and collaboration (CB)
Improved Internet infrastructure (Customisation and Personalisation).	USA: In-house innovation and collaboration (CB) EMEA: Cloning (CR) Sweden: Cloning (CR)

Document and information management by XMS to standardise and streamline administration (Customisation and Personalisation).	USA: Collaboration (CB) EMEA: Cloning (CR) and collaboration (CB) Sweden: Cloning (CR)
Expanded investments on R&D with focus on PDAs and mobile gadgets.	USA: In-house innovation Sweden: Cloning (CR)
New bundling of computers and private premier pages with portals and other services (Customisation and Personalisation).	USA: Collaboration (CB) EMEA: Cloning (CR) and collaboration (CB) Sweden: Cloning (CR)
DellWare site for peripherals.	USA: In-house innovation EMEA: Cloning (CR) Sweden: Cloning (CR)
E-value code to simplify Internet purchase (Interactivity).	USA: In-house innovation EMEA: Cloning (CR) Sweden: Cloning (CR)
Storage Equipment skills.	USA: Firm purchasing EMEA: Cloning (CR) Sweden: Cloning (CR)

Appendix 4: Capability Acquisition Analysed in Terms of the four Hypothesises

Compaq: Capability Acquisition in the Reseller Model 1982-89

The Supply Pattern: Three engineers working together at Texas Instruments started Compaq Corporation. The firm was innovative in the design and production of portable computers. The lack of experience and knowledge about customers stimulated Compaq USA to find resellers who could establish and maintain customer relationships. Tying up with resellers was the fastest and least costly way to reach out to the marketplace and supplied Compaq USA with this capability it lacked. Compaq EMEA facilitated the exchange of market entry skills to and among national markets in Europe, using external and internal capability acquisition. Compaq EMEA built up manufacturing skills in Erskine together with logistics and inventory management for BTS, using mainly internal capability acquisition. When Compaq Sweden entered the Swedish market in 1987 it relied on cloning-replication of internal capability acquisition that had taken place in USA and in EMEA. These internal capabilities were adjusted to the Swedish market. Compaq Sweden developed local reseller acquisition skills, relying on external capability acquisition.

The Resource Portfolio Pattern: A culture of product and production orientation was established. A corporate mantra was that Compaq USA would provide products that were of high quality and were compatible with the PC standard, giving the firm its name. The focus on compatibility fostered a natural inclination to watch competitors carefully and imitate. The lack of experience and knowledge about distribution stimulated Compaq USA to find resellers who could establish and maintain customer relationships. This approach was different from the direct customer contact with customers that other leading computer hardware companies like IBM and Digital practised. It enabled Compaq USA to specialise on products and production despite relatively limited resources. When Compaq USA and EMEA established Compaq Sweden in 1987, the new venture imported and implemented the Reseller Model. Compaq EMEA made investments in EDI, following the USA blueprint, and managed the supply chain, assembly, and logistics. Compaq Sweden was built upon the same capabilities as Compaq EMEA and relied on complementary capability acquisition by local resellers. The reseller management capabilities were adjusted to the local Swedish market by additive capability acquisition from Compaq USA and EMEA.

The Trajectory Pattern: Compaq USA created offerings in portable PCs and desktop PCs, jumping on the PC bandwagon just as it was getting started. The high growth rate in demand made it easy to sell computers. The high growth rate was a result of the demand for software for writing and calculating. Compaq USA had only to concentrate on making good computers. Since it was an upstart company it lacked the heavy cost structure of its competitors and so was able to price its computers lower, while still making a good profit.

Compaq USA faced strong demand and lived well by selling computers to businesses with gross margins exceeding 50 percent. Management at all organisational levels was focused on products and on bringing out products with impressive performance that would support the growing demand. Via collaboration Compaq USA acquired resellers to off-load the computers as quickly as possible. This division of labour became a fundamental facet of its theory of business. It facilitated rapid market penetration for new products and enabled Compaq USA to quickly move from an emergence phase to the phase of acceptance and market penetration. Compaq EMEA and Sweden followed the same indirect trajectory as Compaq USA with a time lag.

The Performance Pattern: Compaq USA focused on creating portable and desktop computers that had an attractive combination of quality, compatibility, price, and performance. By offering the market a new competitive combination of efficiency and effectiveness, Compaq USA was able to establish itself as a leading PC firm. Compaq USA and EMEA developed EDI capabilities to externalise customer relationship management focusing on making manufacturing and production efficient. Compaq EMEA also created manufacturing skills to provide adjustments for local market conditions, enhancing effectiveness. In this phase the capability acquisition of Compaq Sweden was dominated by the strive for enhanced effectiveness, by creating long term relationships with a high content of personal contact and service via resellers. By offering a high degree of pre- and post-sale customisation, Compaq Sweden was able to enter, and prosper in, the Swedish market.

Capability Acquisition Pattern for Compaq USA	Capability Acquisition Pattern for Compaq EMEA	Capability Acquisition Pattern for Compaq Sweden
SP:Internal/External RP:Complementary TP:Indirect PP:Efficiency/ Effectiveness	SP:Internal/External RP:Additive/ Complementary TP:Indirect PP:Efficiency/ Effectiveness	SP: External RP:Complementary TP:Indirect PP: Effectiveness

Compaq: Capability Acquisition in the Indirect Sales Model 1990-93

The Supply Pattern: Compaq USA focused on internal product development and developed capabilities to manage the channel members more effectively, implementing authorisation, education, price-protection, and buy-back programmes. These capabilities were cloned by Compaq EMEA and introduced in Compaq Sweden. By cloning-imitation of Dell USA, Compaq USA established a phone-based direct channel, which was not introduced outside of the USA. Channel members within EMEA were encouraged to introduce phone channels. The Indirect Sales Model implied the broadening of Compaq Sweden in terms of channel members, while the number of product lines remained the same. The intensive distribution was facilitated by the continued investments that Compaq EMEA had done in EDI. The channel members enabled Compaq Sweden to deliver excellent post-sale customisation. Compaq Sweden could in concert with its resellers provide strong skills in maintenance, spare-parts, support, education, installation, and consulting. By combining the offering of Compaq Sweden with the offering of channel members, the value proposition was strengthened and it became competitive in the marketplace. The Indirect Sales Model relied on a combination of internal and external means for capability acquisition across all three organisational levels.

The Resource Portfolio Pattern: In the 1980s Compaq USA had been a successful builder of top-quality, expensive PCs for corporate customers willing to pay a premium. The Indirect Sales Model was a result of margin compression that forced Compaq Sweden to redraw the Reseller Model. Compaq EMEA and Sweden started to broaden the market penetration by acquiring more channel members. Compaq Sweden used its reseller management skills and applied them on new channel member categories such as retailers, solution providers, and system specialists. Market communications were developed to communicate with customers via the channel members. By adding channel members Compaq Sweden made itself omnipresent in the marketplace. By lowering prices while simultaneously expanding volumes ahead of the competition Compaq EMEA matched the clones. The volume expansion was facilitated by heavy investments in manufacturing and EDI infrastructure capabilities. The Indirect Sales Model relied on utilising existing capabilities within Compaq EMEA and Compaq Sweden and augmenting and extending those, acquiring the needed capabilities additively. In Compaq USA, a phone-based direct channel was established, making Compaq USA rely not only on additive, but also on complementary, capability acquisition. In Compaq USA, the Compaq consumer PC was created, relying on a combination of additive and complementary capability acquisition.

The Trajectory Pattern: The Indirect Sales Model was a manifestation of an emerging clear strategic intent by Compaq Corporation. By distributing Compaq computers through many channel members, it was possible to quickly build up many business relationships and maximise acceptance and penetration in the marketplace. The accumulation of business relationships enabled Compaq Sweden to rely on channel members, for pre- and post-sale customisation and management of business relationships with customers. Compaq USA capabilities for managing channel members were cloned in EMEA and Sweden. The channel members that Compaq Sweden and other national subsidiaries established enabled EMEA to prolong product trajectories to maintain low cost leadership. Compaq Corporation was able to implement its strategy of low prices, attractive design, and quality and produced large volumes ahead of the competition, driving its growth. This strategy enabled Compaq Corporation to dominate the PC market and benefit from the demand it was stimulating. The rapid implementation of the Indirect Sales Model was facilitated by the maturing local organisations of EMEA and Sweden. The implementation of the Indirect Sales Model reduced the time lag between Compaq USA, EMEA, and Sweden.

The Performance Pattern: By developing several different channels, primarily adding retailers, the Indirect Sales Model was better suited to handle a broad set of customers and could also offer new combinations of value and price, leading to improvements in effectiveness. Each channel member category was designed to handle a particular customer group in Sweden as efficiently as possible. Compaq EMEA focused on efficiency, introducing EDI for suppliers and channel members to reduce distribution costs. Compaq USA developed the phone-based direct channel, products with attractive price/performance ratios, and used subcontractors to reduce costs.

Capability Acquisition Pattern for Compaq USA	Capability Acquisition Pattern for Compaq EMEA	Capability Acquisition Pattern for Compaq Sweden
SP:Internal RP:Additive/ Complementary TP:Indirect/Direct PP:Efficiency/ Effectiveness	SP:Internal/External RP:Additive TP:Indirect PP:Efficiency	SP:Internal/External RP:Additive TP:Indirect PP:Effectiveness

Compaq Capability Acquisition in the Distributor Model 1994-96

The Supply Pattern: The variation of channel members created a business opportunity for distributors to establish themselves between the channel members and Compaq USA/EMEA/Sweden. The distributors kept inventory and provided the channel with assortment, availability, and financing. Compaq Sweden depended on the distributors for capabilities that were beyond the control of Compaq Sweden. The capabilities of the distributors were essential for the competitiveness of Compaq Sweden. The Distributor Model relied on external capability acquisition via the distributors as well as internal capability acquisition at all three organisational levels. Compaq USA launched compaq.com, creating initial electronic commerce capabilities. Compaq EMEA introduced BTSms and Compaq Sweden introduced a personal sales force.

The Resource Portfolio Pattern: In the Distributor Model, Compaq Sweden came to rely on distributors to complement Compaq Sweden's capability portfolio. The distributors developed systems and skills that Compaq Sweden did not have and could not create. The distributors changed how inventory, logistics, assortment, and reseller contacts were handled and improved the competitiveness of Compaq Corporation. The capabilities that the distributors brought to the channel were complementary, but also led to additive capability acquisition to manage the channel members via the distributors. Compaq Corporation acquired direct sales force capability complementary, albeit in small scale, to maintain some direct contact with customers. In Compaq USA, the server and networking businesses were created, relying on a combination of additive and complementary capability acquisition. In Europe, the focus was on making Compaq EMEA production more order driven, by additive capability acquisition.

The Trajectory Pattern: The position achieved by Compaq Sweden during the Distributor Model was influenced by the rise of the distributors, which at a critical juncture addressed some of the weaknesses of the Indirect Sales Model. By reluctantly letting the distributors establish themselves in the channel, Compaq Sweden was able to continue to dominate the PC hardware market. The distributors made the channel longer with more actors and enabled the hardware firms to be more focused on their products and services. New capabilities had to be developed to enable Compaq Sweden to interact with its channel members to sustain its position: rebate structures, financial incentives, and promotional and educational programmes. Compaq EMEA started to work with the TOPS programme in order to reconfigure the distribution and manufacturing system. Compaq USA bought a number of networking companies and branched out into servers, creating a new business division, redirecting and rejuvenating the firm for further growth.

The Performance Pattern: The Distributor Model replaced the Indirect Sales Model. The Distributor Model was a more efficient business model for physical handling of computers. The Distributor Model increased efficiency in the distribution system and improved availability of a larger assortment to the other channel members and customers, contributing to improved effectiveness. The Distributor Model implied that important capability acquisition took place both to enhance effectiveness and efficiency in the distribution system. Compaq EMEA focused on improving efficiency, implementing the TOPS programme and forecasting models, but also supported the creation of a personal sales force, enhancing effectiveness. Compaq USA developed the new server product family, enhancing effectiveness.

Capability Acquisition Pattern for Compaq USA	Capability Acquisition Pattern for Compaq EMEA	Capability Acquisition Pattern for Compaq Sweden
SP:Internal/External RP:Complementary TP:Indirect/Direct PP:Effectiveness	SP:Internal/External RP:Additive TP:Indirect PP:Efficiency	SP:Internal/External RP:Complementary TP:Indirect/Direct PP:Effectiveness

Compaq: Capability Acquisition in the Optimised Distribution Model 1997-98

The Supply Pattern: In the Distributor Model no actor in the system took responsibility for the overall distribution system. Information flows between Compaq Sweden and its customers became more diluted. This complicated demand forecasting and made it difficult to offer BTO and CTO. It also made Compaq Sweden unable to respond quickly to customer demand. To address this shortcoming, Compaq Sweden launched the Optimised Distribution Model so that the whole distribution channel could respond to customer demands directly in a co-ordinated fashion. Compaq EMEA developed systems to handle BTOch and CTOch. In addition, Compaq USA acquired Digital Equipment Corporation, whereby it obtained many direct customer relationships with businesses, enabling addressability. The Optimised Distribution Model relied on both external and internal capability acquisition at all three organisational levels.

The Resource Portfolio Pattern: The Distributor Model created an additional filter for customer contact for Compaq Sweden, diluting customer response. In the Optimised Distribution Model, the ambition was to integrate the channel and make the actors work more closely together. To improve customer responsiveness, Compaq Sweden implemented a number of locally developed tools by complementary and additive capability acquisition. For instance, SalesLinq allowed for direct sales in combination with resellers and CompaqConnect Extranet was a special BTOch and CTOch facility for distributors. The local implementation of the Optimised Distribution Model was a reflection of additive capability acquisition at Compaq EMEA, where BTO and CTO were gradually implemented. Tandem Computers was acquired, which provided Compaq Corporation with additive capabilities regarding servers and complementary customer relationships with advanced users.

The Trajectory Pattern: The Optimised Distribution Model implied reconfiguration of capabilities aimed at integration and co-ordination of the channel. The key capability in this respect was the implementation of SAP across Compaq Corporation. Compaq EMEA started to establish BTO and CTO capabilities across all product lines. This process demanded the discarding of some of the capabilities that had been important for resellers and indirect business models, but which hampered the establishment of BTO and CTO capabilities. In particular the discarding was related to how production planning and forecasts were made. The large number of products, services and customer groups made this task complicated and time consuming. One explicit aim of Compaq EMEA and Sweden was to reduce the risk for channel conflict and minimise the loss of sales, until it could verify that its new channels and systems worked.

The Optimised Distribution Model was the first business model of Compaq Sweden that took into account the wide variety of customer needs and rates of adoption and usage. Thus, it partly captured customer demand. Compaq Sweden and EMEA designed several business processes with different properties, to allow the firm to serve and follow the evolution of the various sub-markets. It was acknowledged that some customers wanted a direct customer relationship with Compaq Sweden. To implement the Optimised Distribution Model, Compaq Sweden entered a phase of prolonged reconfiguration to sustain its dominating position, which had been challenged.

The Performance Pattern: The Optimised Distribution Model replaced the Distributor Model. The Optimised Distribution Model was a response to the rise of the distributors who tried to control and direct the distribution system. The Optimised Distribution Model was also designed to reduce costs and improve efficiency for Compaq Corporation. Towards this end, Compaq Corporation implemented SAP. While the Optimised Distribution Model focused on efficiency, it also provided more scope for customisation, strengthening effectiveness in EMEA. Compaq Sweden introduced a number of services to improve effectiveness, including extranets, SalesLinq, and integrating its own sales force with reseller activities.

Capability Acquisition Pattern for Compaq USA	Capability Acquisition Pattern for Compaq EMEA	Capability Acquisition Pattern for Compaq Sweden
SP:Internal/External RP:Additive/ Complementary TP:Indirect PP:Efficiency	SP: Internal/External RP:Additive TP:Indirect PP:Efficiency/ Effectiveness	SP: Internal/External RP:Additive/ Complementary TP:Indirect/Direct PP:Effectiveness

Compaq: Capability Acquisition and the Customer Choice Model 1999-

The Supply Pattern: During 1999, Compaq Sweden started to bypass channel members via the sales force that it had obtained from Digital Equipment in Sweden. By creating the Customer Choice Model, Compaq Sweden established partial interactivity between itself and its customers. By utilising the technology bought from PCOrder, Compaq Sweden was able to implement customisation. The electronic commerce solutions offered customers pre-sale customisation capabilities similar to those of Dell Sweden. Compaq Sweden also started to implement tools for personalisation for the large business segment, albeit to a limited number of customers. To bring about the Customer Choice Model, Compaq Sweden relied on internal and external capability acquisition at all three organisational levels.

The Resource Portfolio Pattern: During the Customer Choice Model, Compaq Sweden started to utilise the Internet, Extranets, and the telephone to serve customers more forcefully. To implement the Customer Choice Model, Compaq Sweden acquired a complementary set of capabilities for BTO and CTO. Many of these were acquired by Compaq USA and implemented in Compaq EMEA. These capabilities were adjusted and integrated by additive capability acquisition in Compaq EMEA. While the Customer Choice Model offered new choices for customers, old systems and routines were still in place, and the Customer Choice Model did not represent a break from the established channels and systems. Instead, the Customer Choice Model added complexity to the distribution system and provided a refurbished interface towards customers, rather than a makeover of Compaq EMEA's capabilities in production and logistics. The introduction of a new customer interface was delayed by consideration of the business relationships that Compaq Sweden had with resellers. Compaq Sweden relied on complementary capabilities to implement the Customer Choice Model.

The Trajectory Pattern: During the Customer Choice Model, Compaq EMEA and Sweden focused on reconfiguration with regard to capabilities, with implications for the customer interface. Inspired by Dell Sweden, Compaq Sweden started to focus on customer experience and personalisation of customer contact. To achieve personalisation and interaction, many capabilities were bought or constructed in-house and then transferred within Compaq Corporation. With the Customer Choice Model, Compaq Sweden was able to match or compete with Dell Sweden in a number of key areas with the support of capabilities like customisation, personalisation and postponement. The improved logistical system, which was being implemented, made Compaq Sweden more order driven and responsive to customer needs. Compaq Sweden did not try to slow down the adoption of new upgrades and new processors, and instead aimed to follow the market in tandem. By introducing the Customer Choice Model, Compaq Corporation concluded a ten-year struggle to distance itself from the PC, and broaden its reach to encompass computers of all kinds directed to many customer groups as well a numerous related products like PDAs, storage, network equipment, terminals, and projectors. Compaq Corporation set out to be the leading firm in all customer segments, which made it less dependent on any singular supplier, technology, product, or customer group.

The Performance Pattern: The Customer Choice Model was created to facilitate the increasing number of customers who wanted to choose channel and combinations of channels. As a result of individual customer needs, segments became fragmented and Compaq Sweden could not control how customers approached Compaq Sweden. This led to a situation in which Compaq Sweden relented and decided that customers should be able to choose how they wanted to interact with Compaq Sweden. Compaq Sweden would offer a wide selection of means of contact for customers to choose from. The dominating capability acquisition efforts were aimed at improving effectiveness. Compaq EMEA focused on standardisation of prices, production of the new Prosignia, introducing the agent fee system and integrating the Digital acquisition, improving both efficiency and effectiveness. Compaq USA acquired capabilities to implement various systems to introduce BTO and CTO, enhancing effectiveness.

Capability Acquisition Pattern for Compaq USA	Capability Acquisition Pattern for Compaq EMEA	Capability Acquisition Pattern for Compaq Sweden
SP:Internal/External RP:Complementary TP:Direct PP:Effectiveness	SP:Internal/External RP:Additive TP:Direct PP:Efficiency/ Effectiveness	SP:Internal/External RP:Complementary TP:Direct PP:Effectiveness

Dell: Capability Acquisition in the Direct Sales Model 1983-1990

The Supply Pattern: The Direct Sales Model was created with addressability and interactivity as key capabilities. Dell Corporation created customer records with detailed information about customers. The direct buyer-seller relationship forced Dell Corporation to respond to customer demands and needs. Since Dell Corporation began with customer contact, the information infrastructure, the internal organisation and business processes were designed to facilitate BTO and CTO from the outset. By following Intel, Dell Corporation obtained the newest technology at attractive prices, relying on Intel to set critical operational guidelines. The Direct Sales Model forced Dell Corporation to innovate internally regarding the design of its business processes, starting from a customer outside-in pattern. The construction of business processes relied on the utilisation and configuration of both internal and external capability acquisition at all three organisational levels.

The Resource Portfolio Pattern: The Direct Sales Model was created as a result of resource constraints, which lead to complementary capability acquisition. Initially, Dell Corporation did not have any place to handle and carry inventory, and it did not have cash to hold inventory of components. Dell Corporation could not afford R&D and so had to rely on R&D done by suppliers and competitors. These resource constraints limited what Dell Corporation could do and made the capability portfolio similar to that of a reseller, specialising on customer contact. Dell EMEA utilised additive capability acquisition, taking the USA blueprint to Europe, establishing manufacturing and corporate infrastructure. Dell Sweden engaged in complementary capability acquisition, setting up local operations. The Scala Business system was used first for Sweden and was quickly spread around Dell EMEA. Dell Sweden was a pioneer in using the phone in direct contact with the customer.

The Trajectory Pattern: Michael Dell, who spotted an opportunity to broker old computers, created the Direct Sales Model. The only way that Dell Corporation could enter the PC industry was by assuming greater responsibility and accountability towards customers and going “direct”. During the emergence phase, Dell Corporation focused on getting its basic business processes - BTO and CTO - in order. Dell Corporation started to link its own product cycle to Intel; piggybacking on the trajectory that Intel had set out for itself. By following its partners closely, Dell Corporation became an interesting distribution vehicle of Intel and Microsoft. The Direct Sales Model was never implemented in EMEA and Sweden, because Dell USA was entering the Reseller Model when the Swedish market was entered. The international expansion benefited from the operational principles developed during the Direct Sales Model. While the creation of Dell Corporation in the USA involved a number of crises, experiments, and reconfigurations to find the basic Dell formula, this was not the case in Sweden, which could focus on establishing the business by selling a basic set of “vanilla” products to large businesses.

The Performance Pattern: During the Direct Sales Model the basic way of organising operations - starting from the customer, taking orders, and then fulfilling them - was established. The business model offered both competitive prices and value for marginal customer groups by introducing customisation and postponement. This was a new attractive combination of efficiency and effectiveness. The main improvement in effectiveness was in the basic BTO and CTO process, supplying the market with customised computers on order. Regarding efficiency, the direct contact with customers enabled low prices. This way of working was a novelty compared with Compaq Corporation. When Dell EMEA and Sweden were established towards the end of the Direct Sales Model they relied on the new combination of efficiency and effectiveness created by Dell Corporation. Dell EMEA undertook a number of investments in information systems, manufacturing, and logistics to serve the region efficiently once orders starting coming in. Dell Sweden focused on serving customers effectively.

Capability Acquisition Pattern for Dell USA	Capability Acquisition Pattern for Dell EMEA	Capability Acquisition Pattern for Dell Sweden
SP:Internal/External RP:Complementary TP:Direct PP:Efficiency/ Effectiveness	SP:Internal/External RP:Additive TP:Direct PP:Efficiency	SP:Internal/External RP:Complementary TP:Direct PP:Effectiveness

Dell Capability Acquisition in the Relationship Model 1991-94

The Supply Pattern: During the Relationship Model, Dell Sweden started choosing customers. The preferred customers were large private businesses with internal knowledge about computers. These customers were able to clearly state their needs. Dell Sweden tried to create intimacy with its customers. The primary tool was the personal sales force. These relationships would drive the operations of Dell Sweden, aligning and adjusting the capabilities of Dell Sweden to the needs of customers. The Relationship Model relied on simultaneous internal and external capability acquisition at the USA and the Swedish organisational levels. Dell EMEA relied on internal capability acquisition, importing the USA concept and skills to Europe, and transferring knowledge between the national subsidiaries.

The Resource Portfolio Pattern: To find improved growth prospects, Dell Corporation experimented with various distribution strategies. One such experiment was selling via resellers and retailers. These attempts failed because Dell Corporation lacked the right capabilities to support and manage the channel members. Furthermore, Dell Corporation did not know how to offer BTO and CTO via channel members, although it tried to acquire capabilities complementary to support an indirect channel. Instead, Dell Corporation searched and found ways to innovate itself around the lack of access to customers via indirect channels, instead focusing on additive capability acquisition. The fact that Dell Corporation had been locked out from the indirect channels in the USA contributed to the additive focus that Dell Sweden had. Dell Sweden put emphasis on developing customer business relationships and capabilities to support this direct contact. Dell EMEA strengthened the offering by establishing manufacturing in Limerick, drawing on Dell USA's assembly skills.

The Trajectory Pattern: The operations of Dell Sweden were aimed at servicing large business customers directly from the outset. Thus the reorientation undertaken in the USA, with a shift in focus from small business and private individuals to large businesses, did not take place in Sweden. The Relationship Model was imported from the USA via Dell EMEA and was adjusted and trimmed to fit the Swedish market. During the Relationship Model there was a strong focus on getting acceptance of the business model among key decision-makers. One tool that was used was to create ambassadors within and around customers who sold Dell Sweden as a phenomenon within their organisation. Often these people were technical staff or purchasers. Dell Sweden made their job easier and supported them in making Dell Sweden their supplier. To make customers try buying directly Dell Sweden had to change the attitudes and established patterns of behaviour by educating its customers. Linking to customers and gaining a critical mass of customer relationships was regarded as the key to sales. The driving customer segment of Dell Sweden was large customers, and the unit devoted to large businesses was leading the struggle to gain acceptance in the marketplace.

The Performance Pattern: When Dell Corporation entered Sweden it focused on large businesses from the start. Dell Sweden had one customer interface which was open to all customers, regardless of what kind of customer they were. Customers that were marginal to Dell Sweden were neglected and treated without much effort being devoted to them. During the Relationship Model Dell Sweden focused on building up business relations and identifying how to serve this key customer group as efficient as possible with the standard desktop offering. The offering of Dell Sweden was attractive for a particular customer group. Those customers that approached Dell Sweden and were ready to place an order via the phone were served. By adding the personal sales force within Dell EMEA effectiveness was enhanced. Dell USA developed telemarketing systems to increase effectiveness in service and support. Dellnet and Dell.com were introduced to save on service and support, contributing to efficiency.

Capability Acquisition Pattern for Dell USA	Capability Acquisition Pattern for Dell EMEA	Capability Acquisition Pattern for Dell Sweden
SP:Internal/External RP:Additive/ Complementary TP:Direct PP:Efficiency/ Effectiveness	SP:Internal RP:Additive/ Complementary TP:Direct PP:Effectiveness	SP:Internal RP:Complementary TP:Direct PP:Efficiency

Dell Capability Acquisition in the Hybrid Model 1995-96

The Supply Pattern: Dell Corporation had a tradition of relying on strong partners on the inbound side, i.e. Intel and Microsoft, which made it easier for Dell Corporation to employ external capabilities for its offering on the outbound side. Dell USA used cloning-imitation to build up a server business similar to that of Compaq Corporation. The broadened product portfolio in combination with a broadened customer base made it necessary for Dell Sweden to build up a network of external channel partners. Via channel partners Dell Sweden delivered many of the services that the indirect channel supplied. By utilising channel partners Dell Sweden was able to quickly build up a service and support organisation, without having to create these capabilities internally. Dell USA relied on both external and internal capability acquisitions to augment its offering. Dell EMEA and Sweden focused on expanding its network of support and service channel partners as well as informal agreements with channel members, relying on external capability acquisition.

The Resource Portfolio Pattern: Dell Corporation augmented the offering, extending customisation and postponement to new product lines, relying on both additive and complementary capability acquisitions. Dell USA improved capabilities related to product technology via reorganisation and the building of a patent portfolio. To sell this offering successfully, Dell Sweden had to find complementary capabilities and learn how to co-ordinate other actors via partnerships to manage the increased complexity of the offering. Dell Sweden had weak capabilities in terms of computer skills and support, but a new support organisation was created that could utilise the dept of Dell EMEA knowledge. Dell Sweden developed a picture and position of the Dell brand as something special and attractive - a way for customers to buy computers without assuming the cost of expensive middlemen.

The Trajectory Pattern: The Hybrid Model transformed Dell Corporation from a marginal player into a mainstream competitor. During the Hybrid Model, Dell Corporation's theory of business obtained an indirect dimension. Dell Corporation mimicked many of the capabilities possessed by resellers, while maintaining a direct contact with customers. The Hybrid Model was more complex than previous business models since it made Dell Corporation work directly with customers in concert with channel partners. The Hybrid Model involved adjustment and refinement of existing capabilities in R&D and reinforced co-operative agreements with technology suppliers and logistic service suppliers at Dell EMEA. During the Hybrid Model Dell EMEA and Sweden introduced new product lines with controlled costs and few mistakes. As a result the overall growth and revenue potential of Dell Sweden was greatly enhanced. The novelty of the Hybrid Model was based on the business relationships developed by Dell Sweden with independent service channel partners that enabled Dell Sweden to provide installation, service, support, and advice. This propelled Dell Sweden from a second rate firm focusing on selling desktops to large businesses to a broad PC company.

The Performance Pattern: In the Hybrid Model, customisation was partly created by the mobilisation of channel partners, and customer interface that enabled customers to search for and find the services that they wanted. The introduction of the Hybrid Model attracted many new customers and offered enough flexibility to house them, but these customers still bought computers in a similar fashion despite having different needs. The Hybrid Model had a strong emphasis on effectiveness and on acquiring external capabilities that could complement and augment the Relationship Model. Dell EMEA implemented a new support organisation and contributed to the strengthening of channel partners, thereby enhancing effectiveness.

Capability Acquisition Pattern for Dell USA	Capability Acquisition Pattern for Dell EMEA	Capability Acquisition Pattern for Dell Sweden
SP:Internal/External RP:Additive/ Complementary TP:Indirect/Direct PP:Efficiency/ Effectiveness	SP:External RP:Additive TP:Indirect/Direct PP:Effectiveness	SP:External RP:Complementary TP:Indirect/Direct PP:Effectiveness

The Supply Pattern: The Customer Segment Model involved internal capability acquisition to handle the growth in sales, in particular over the Internet. Special organisational units were created to cater to the various segments across Dell Northern Europe (DNE), instead of having national subsidiaries focusing on customers within a given national market. This reorganisation facilitated the creation of global accounts and one-stop shopping, and personalisation and customisation of services in the form of premier pages. The rise of the Internet in combination with the phone enabled Dell Sweden to log all customer interactions and in particular purchases on item level and over time, payments, complaints, questions, and feedback. This information gave Dell Sweden the capacity to direct and control the network of firms, both upstream and downstream. In the Customer Segment Model DNE tried to transfer skills across the segments with mixed success, relying on cloning-replication.

The Resource Portfolio Pattern: The Customer Segment Model was built on additive and complementary capability acquisition, which enabled Dell Corporation to establish meaningful direct relationships with many more customers. For Dell EMEA/DNE, the Customer Segment Model was a possibility to respond to the internationalisation of purchasing of computers among large businesses. The Dell Nordic organisation was abolished, and a new organisation was designed to handle global accounts and one-stop shopping for large business customers. Dell Sweden augmented its logging of customer action to collect richer information about its customers by additive capability acquisition. It enabled Dell Sweden to improve the integration of the online ordering process with inventory and scheduling systems. The Customer Segment Model relied on augmenting capabilities within Dell EMEA/DNE and Sweden, acquiring capabilities additively. Dell Sweden relied on Dell USA to supply Internet capabilities that complemented the existing information infrastructure of Dell Sweden.

The Trajectory Pattern: The Hybrid Model attracted many new customers to Dell Sweden with different needs and expectations. This forced Dell Sweden to reorganise and more clearly create a number of firms within the firm to reaffirm direct customer contact. This was done in the Customer Segment Model. For every segment a special strategy was devised to fit with the maturity of that segment regardless of national border, rather than national markets as had previously been the case. A particular combination of customer contact forms was designed for each segment. They included electronic commerce, specially assigned sales forces, support and service programmes, and marketing activities. The Customer Segment Model enabled Dell EMEA/DNE to more intensively transfer skills across markets, which allowed Dell Sweden to acquire capabilities from its customers at a higher rate. In addition, it enabled Dell Sweden to penetrate markets segments to obtain a dominating position in Sweden, while simultaneously allowing every segment to evolve according to the needs of various customer groups. A key tool for implementing the Customer Segment Model was the premier page concept that was developed by Dell USA in collaboration with customers.

The Performance Pattern: The Hybrid Model was costly since it did not take into account the different needs of the customers. In some cases it offered too many services, in some cases too few, which caused Dell Sweden to have to rush in resources expensively to win or sustain business. To become more efficient DNE was formed with clear sub-organisations specifically designed to handle particular segments. The customers were routed more carefully and the internal organisation was disciplined to cater better to various customer groups. Dell EMEA focused on efficiency by improving and standardising the information infrastructure, which allowed it to lower costs and gain economies of scale in its various segment organisations. The focus on a particular customer segment facilitated quick decision processes and created economies of scale in the segments where Dell Sweden had previously been weak. Dell USA introduced a new website that offered BTO and CTO configuration. For the large business segment a number of products and services were created, mostly in the USA, which enhanced effectiveness.

Capability Acquisition Pattern for Dell USA	Capability Acquisition Pattern for Dell EMEA	Capability Acquisition Pattern for Dell Sweden
SP:Internal RP:Additive/ Complementary TP:Direct PP:Effectiveness	SP:Internal RP:Additive TP:Direct PP:Efficiency	SP:Internal RP:Additive TP:Direct PP:Efficiency

Dell: Capability Acquisition and the Customer Contact Mix Model 1998-

The Supply Pattern: The mix of customer contact modes enabled Dell Sweden to establish a business model with focus on personalisation and customer experience, rather than on the actual products and services. The model was strengthened by in-house innovation of new internal capabilities, primarily tags and e-value codes developed by Dell USA. Dell USA acquired storage capabilities externally and entered into agreements to bundle computers with other products and services. Dell EMEA introduced the XMS document handling system by collaboration. Dell Sweden improved its market intelligence capabilities by consolidating databases, becoming a more data driven organisation, which enabled Dell Sweden to acquire external capabilities not only from customers, but also from non-customers.

The Resource Portfolio Pattern: The Customer Contact Mix Model emerged as a result of the electronic information infrastructure that had been created during the evolution of the Hybrid Model and the Customer Segment Model. By using this infrastructure - the phone, the Internet, the personal sales force, and the direct marketing efforts - Dell Sweden established a new business model that to a large extent was based on additive capability acquisition, put into a coherent combination. The Customer Contact Mix Model allowed customers to mix a number of products, services, and contact ways into individually designed offerings. Dell Sweden was only able to control this process to a certain degree. Dell EMEA strengthened the support organisation and manufacturing capabilities additively. Dell USA improved the Internet and created a number of services related to the Internet, both by augmenting the premier pages and by acquiring new complementary capabilities.

The Trajectory Pattern: In 1998, the sales growth of Dell Sweden continued apace, propelled by strong Internet sales. By growing faster than the market, Dell Sweden established itself as a leading player in Sweden. The manufacturing expansion provided sufficient productive capacity for Dell EMEA to pursue growth without fearing shortage of supply. This enabled Dell Sweden to actively address customer groups like small businesses and private/home where Dell Sweden had been a weak contender. The Customer Contact Mix Model focused on exploiting and maximising the returns of previous achievements. In Sweden this process still yielded good results, but within Dell Corporation there was a shortage of new fundamental ideas that could further the existing business, making it work indirectly. Growth in the core USA business was showing signs of maturity and Dell USA expected the growth rate to eventually nudge closer to the overall growth rate of the market. Dell USA branched out into auctions, sales of leased machines and sales of peripherals and software. Dell Corporation identified storage equipment as a new growth area where it did not have enough technological depth. In response, it bought Converse Technology. Dell USA sought partnerships with ISP providers like AOL, charging customers a fee for using a PC.

The Performance Pattern: Dell Sweden had relied on product customisation in the previous business models. This was followed by product customisation and personalisation of customer contact at the segment level in the Customer Segment Model. The Customer Contact Mix Model relied on customisation of products and personalisation of customer contact. The Customer Contact Mix Model enabled individual customers to create their own experience of DNE by offering products and services that were partly designed by segment and partly by customer. The acquired capabilities had an emphasis on the individual customer experience, and the Customer Contact Mix Model offered improved effectiveness for customers. Dell EMEA improved the Internet information infrastructure and the BTO and CTO manufacturing capability-enhancing efficiency. Dell USA opened a site for selling peripherals and e-value identification codes were introduced. Furthermore, storage equipment skills were acquired, enhancing effectiveness.

Capability Acquisition Pattern for Dell USA	Capability Acquisition Pattern for Dell EMEA	Capability Acquisition Pattern for Dell Sweden
SP:Internal/External RP:Additive/ Complementary TP:Indirect PP:Effectiveness	SP:External RP:Additive TP:Indirect PP:Efficiency	SP:External RP:Additive TP:Direct PP:Effectiveness

Appendix 5: Frequencies of Used Means of Capability Acquisition

Compaq Sweden

The Reseller Model 1982-89	In-house innovation: USA=8; EMEA=1;
Acquired static capabilities: 8	Sweden=1; Total: 10
Total number of used means: 41	Cloning: USA= 4; EMEA= 8;
Total number of used means USA: 18	Sweden= 8;
Total number of used means EMEA: 12	Total: 20
Total number of used means Sweden: 11	Cloning-replication: USA=0;
Average number of used means per static capability: 5.13	EMEA=8; Sweden=8; Total: 16
Share of total: in-house innovation, 24%; cloning, 49%; collaboration, 27%; firm purchasing, 0%.	Cloning-imitation: USA=3; EMEA=0; Sweden=0; Total: 3 Cloning-emulation: USA=1; EMEA=0; Sweden=0; Total: 1
Share of total with particular focus on cloning and collaboration: in-house innovation, 24%; cloning-replication, 39%; cloning-imitation, 7.5%; cloning-emulation, 2.5%; collaboration-business, 27%; collaboration-customers, 0%; firm purchasing, 0%.	Collaboration: USA=6; EMEA=3; Sweden=2; Total: 11 Collaboration-business: USA=6; EMEA=3; Sweden=2; Total 11 Collaboration-customers: USA=0; EMEA=0; Sweden=0; Total: 0 Firm purchasing: USA=0; EMEA=0; Sweden=0; Total: 0

The Indirect Sales Model 1990-93	In-house innovation: USA=8; EMEA=7; Sweden=5; Total: 20
Acquired static capabilities: 16	Cloning: USA=3; EMEA=8; Sweden=14; Total: 25
Total number of used means: 57	Cloning-replication: USA=0; EMEA=7; Sweden=13; Total: 20
Total number of used means USA: 14	Cloning-imitation: USA=2; EMEA=1; Sweden=0; Total: 3
Total number of used means EMEA: 19	Cloning-emulation: USA=1; EMEA=0; Sweden=1; Total: 2
Total number of used means Sweden: 24	Collaboration: USA=3; EMEA=4; Sweden=5; Total: 12
Average number of used means per static capability: 3.56	Collaboration-business: USA=3; EMEA=4; Sweden=5; Total=12
Share of total: in-house innovation, 35%; cloning, 44%; collaboration, 21%; firm purchasing, 0%.	Collaboration-customers: USA=0; EMEA=0; Sweden=0; Total:0 Firm purchasing: USA=0; EMEA=0; Sweden=0; Total: 0
Share of total with particular focus on cloning and collaboration: in-house innovation, 35%; cloning-replication, 35%; cloning-imitation, 5.5%; cloning-emulation, 3.5%; collaboration-business, 21%; collaboration-customers, 0%; firm purchasing, 0%.	

The Distributor Model 1994-96	In-house innovation: USA=4; EMEA=5; Sweden=3; Total: 12
Acquired static capabilities:11	Cloning: USA=1; EMEA=5; Sweden=9; Total: 15
Total number of used means: 42	Cloning-replication: USA=0; EMEA=5; Sweden=9; Total: 14
Total number of used means USA: 11	Cloning-imitation: USA=0; EMEA=0; Sweden=0; Total: 0
Total number of used means EMEA: 15	Cloning-emulation: USA=1; EMEA=0; Sweden=0; Total: 1
Total number of used means Sweden: 16	Collaboration: USA=5; EMEA=5; Sweden=4; Total: 14
Average number of used means per static capability: 3.82	Collaboration-business: USA=5; EMEA=5; Sweden=4; Total: 14
Share of total: in-house innovation, 28.5%; cloning, 35.75%; collaboration, 33.5%; firm purchasing, 2.25%.	Collaboration-customers: USA=0; EMEA=0; Sweden=0; Total: 0
Share of total with particular focus on cloning and collaboration: in-house innovation, 28.5%; cloning-replication, 33.5%; cloning-imitation, 0%; cloning-emulation, 2.25%; collaboration-business, 33.5%; collaboration-customers, 0%; firm purchasing, 2.25%.	Firm purchasing: USA=1; EMEA=0; Sweden=0; Total: 1

The Optimised Distribution Model 1997-98	In-house innovation: USA=5; EMEA=6; Sweden=7; Total: 18
Acquired static capabilities: 12	Cloning: USA=1; EMEA=4; Sweden=8; Total: 13
Total number of used means: 47	Cloning-replication: USA=0; EMEA=4; Sweden=8; Total: 12
Total number of used means USA: 11	Cloning-imitation: USA=0; EMEA=0; Sweden=0; Total: 0
Total number of used means EMEA: 14	Cloning-emulation: USA=1; EMEA=0; Sweden=0; Total: 1
Total number of used means Sweden: 22	Collaboration: USA=4; EMEA=4; Sweden=7; Total: 15
Average number of used means per static capability: 3.92	Collaboration-business: USA=4; EMEA=4; Sweden=7; Total: 15
Share of total: in-house innovation, 38%; cloning, 28%; collaboration, 32%; firm purchasing, 2%.	Collaboration-customers: USA=0; EMEA=0; Sweden=0; Total: 0
Share of total with particular focus on cloning and collaboration: in-house innovation, 38%; cloning-replication, 26%; cloning-imitation, 0%; cloning-emulation, 2%; collaboration-business, 32%; collaboration-customers, 0%; firm purchasing, 2%.	Firm purchasing: USA=1; EMEA=0; Sweden=0; Total: 1

The Customer Choice Model 1999-	In-house innovation: USA=5; EMEA=2; Sweden=1; Total: 8
Acquired static capabilities: 13	Cloning: USA=2; EMEA=7; Sweden=12; Total: 21
Total number of used means: 40	Cloning-replication: USA=0; EMEA=7; Sweden=12; Total: 19
Total number of used means USA: 15	Cloning-imitation: USA=0; EMEA=0; Sweden=0; Total: 0
Total number of used means EMEA: 10	Cloning-emulation: USA=2; EMEA=0; Sweden=0; Total: 2
Total number of used means Sweden: 15	Collaboration: USA=3; EMEA=1; Sweden=2; Total: 6
Average number of used means per static capability: 3.08	Collaboration-business: USA=3; EMEA=1; Sweden=2; Total: 6
Share of total: in-house innovation, 20%; cloning, 52.5%; collaboration, 15%; firm purchasing, 12.5%.	Collaboration-customers: USA=0; EMEA=0; Sweden=0; Total: 0
Share of total with particular focus on cloning and collaboration: in-house innovation, 20%; cloning-replication, 47.5%; cloning-imitation, 0%; cloning-emulation, 5%; collaboration-business, 15%; collaboration-customers, 0%, firm purchasing, 12.5%.	Firm purchasing: USA=5; EMEA=0; Sweden=0; Total: 5

<p>The Direct Sales Model 1983-1990</p>	<p>In-house innovation: USA=12; EMEA=3; Sweden=5; Total: 20</p>
<p>Acquired static capabilities: 15</p>	<p>Cloning: USA=2; EMEA=13;</p>
<p>Total number of used means: 79</p>	<p>Sweden=15; Total: 30</p>
<p>Total number of used means USA: 27</p>	<p>Cloning-replication: USA=0;</p>
<p>Total number of used means EMEA: 24</p>	<p>EMEA=13; Sweden=15; Total:</p>
<p>Total number of used means Sweden: 28</p>	<p>28</p>
<p>Average number of used means per static capability: 5.27</p>	<p>Cloning-imitation: USA=1; EMEA=0; Sweden=0; Total: 1</p>
<p>Share of total: in-house innovation, 25%; cloning, 38%; collaboration, 37%; firm purchasing, 0%.</p>	<p>Cloning-emulation: USA=1; EMEA=0; Sweden=0; Total: 1 Collaboration: USA=13; EMEA=8; Sweden=8; Total: 29 Collaboration-business. USA=8; EMEA=4; Sweden=3; Total: 15</p>
<p>Share of total with particular focus on cloning and collaboration: in-house innovation, 25%; cloning-replication, 35.5%; cloning-imitation, 1.25%; cloning-emulation, 1.25%; collaboration-business, 19%; collaboration-customers, 18%; firm purchasing, 0%.</p>	<p>Collaboration-customers: USA=5; EMEA=4; Sweden=5; Total: 14 Firm purchasing: USA=0; EMEA=0; Sweden=0; Total: 0</p>

The Relationship Model 1991-94	In-house innovation: USA=11; EMEA=3; Sweden=5; Total: 19
Acquired static capabilities: 13	Cloning: USA=3; EMEA=12; Sweden=11; Total: 26
Total number of used means: 62	Cloning-replication: USA=3; EMEA=12; Sweden=11; Total: 26
Total number of used means USA: 22	Cloning-imitation: USA=0; EMEA=0; Sweden=0; Total: 0
Total number of used means EMEA: 16	Cloning-emulation: USA=0; EMEA=0; Sweden=0; Total: 0
Total number of used means Sweden: 24	Collaboration: USA=8; EMEA=1; Sweden=8; Total: 17
Average number of used means per static capability: 4.77	Collaboration-business: USA=0; EMEA=0; Sweden=0; Total: 0
Share of total: in-house innovation, 31%; cloning, 42%; collaboration, 27%; firm purchasing, 0%.	Collaboration-customers: USA=8; EMEA=1; Sweden=8; Total: 17
Share of total with particular focus on cloning and collaboration: in-house innovation, 31%; cloning-replication, 42%; cloning-imitation, 0%; cloning-emulation, 0%; collaboration-business, 0%; collaboration-customers, 27%; firm purchasing, 0%.	Firm purchasing: USA=0; EMEA=0; Sweden=0; Total: 0

The Hybrid Model 1995-96	In-house innovation: USA=7; EMEA=3; Sweden=5; Total: 15
Acquired static capabilities: 11	Cloning: USA=3; EMEA=8; Sweden=9; Total: 20
Total number of used means: 48	Cloning-replication: USA=0; EMEA=8; Sweden=8; Total: 16
Total number of used means USA: 15	Cloning-imitation: USA=2; EMEA=0; Sweden=1; Total: 3
Total number of used means EMEA: 14	Cloning-emulation: USA=1; EMEA=0; Sweden=0; Total: 1
Total number of used means Sweden: 19	Collaboration: USA=5; EMEA=3; Sweden=5; Total: 13
Average number of used means per static capability: 4.36	Collaboration-business. USA=5; EMEA=3; Sweden=5; Total: 13
Share of total: in-house innovation, 31%; cloning, 42%; collaboration, 27%; firm purchasing, 0%.	Collaboration-customers: USA=0; EMEA=0; Sweden=0; Total: 0
Share of total with particular focus on cloning and collaboration: in-house innovation, 31%; cloning-replication, 33.5%; cloning-imitation, 6.5%; cloning-emulation, 2%; collaboration-business, 27%; collaboration-customers, 0%; firm purchasing, 0%.	Firm purchasing: USA=0; EMEA=0; Sweden=0; Total: 0

The Customer Segment Model 1997-1998	In-house innovation: USA=10; EMEA=4; Sweden=2; Total: 16
Acquired static capabilities: 15	Cloning: USA=0; EMEA=11; Sweden=14; Total: 25
Total number of used means: 53	Cloning-replication: USA=0; EMEA=11; Sweden=14; Total: 25
Total number of used means USA: 15	Cloning-imitation: USA=0; EMEA=0; Sweden=0; Total: 0
Total number of used means EMEA: 19	Cloning-emulation: USA=0; EMEA=0; Sweden=0; Total: 0
Total number of used means Sweden: 19	Collaboration: USA=5; EMEA=4; Sweden=3; Total: 12
Average number of used means per static capability: 3.53	Collaboration-business: USA=2; EMEA=3; Sweden=1; Total: 6
Share of total: in-house innovation, 30%; cloning, 47%; collaboration, 23%; firm purchasing, 0%.	Collaboration-customers: USA=3; EMEA=1; Sweden=2; Total: 6
Share of total with particular focus on cloning and collaboration: in-house innovation, 30%; cloning-replication, 47%; cloning-imitation, 0%; cloning-emulation, 0%; collaboration-business, 11.5%; collaboration-customers, 11.5%; firm purchasing, 0 %.	Firm purchasing: USA=0; EMEA=0; Sweden=0; Total: 0

The Customer Contact Mix Model 1998-	In-house innovation: USA=8; EMEA=2; Sweden=2; Total: 12
Acquired static capabilities: 13	Cloning: USA=0; EMEA=11; Sweden=12; Total: 23
Total number of used means: 45	Cloning-replication: USA=0; EMEA=11; Sweden=12; Total: 23
Total number of used means USA: 14	
Total number of used means EMEA: 16	
Total number of used means Sweden: 15	
Average number of used means: 3.46	Cloning-imitation: USA=0; EMEA=0; Sweden=0; Total: 0
Share of total: in-house innovation, 27%; cloning, 51%; collaboration, 20%; firm purchasing, 2%.	Cloning-emulation: USA=0; EMEA=0; Sweden=0; Total: 0 Collaboration: USA=5; EMEA=3; Sweden=1; Total: 9 Collaboration-business: USA=5; EMEA=3; Sweden=1; Total: 9 Collaboration-customers: USA=0; EMEA=0; Sweden=0; Total: 0 Firm purchasing: USA=1; EMEA=0; Sweden=0; Total: 1
Share of total with particular focus on cloning and collaboration: in-house innovation, 27%; cloning-replication, 51%; cloning-imitation, 0%; cloning-emulation, 0%; collaboration-business, 20%; collaboration-customers, 0%; firm purchasing, 2%.	

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