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E-TAILER BUSINESS MODEL CREATION: AN INFORMATION TECHNOLOGY PERSPECTIVE

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ABSTRACT

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This research analyzes e-tailer business model formulation and the role of information technology in enabling value creation from the point of view of an e-tailer. The thesis explains the value creation dynamics and the components of an e-tailer business model and further illustrates how information technology enables value creation throughout the different components of e-tailer business models.

The theoretical part of the thesis describes the sources of value creation in virtual markets through evaluating the explanatory value of traditional strategic management theories. The theoretical part advances to present an integrated model of the value creation mechanisms in the virtual markets and further describes the components of an e-tailer business model. The role of information technology in e-tailer business models are represented by illustrating how it is able to add value throughout the activities and processes of the e-tailer business model.

The empirical descriptive qualitative single-case research focuses on demonstrating how a global retailer of consumer goods operates the different components in its business model. The findings indicate that information technology plays a considerable role in all the components of an e-tailer business model and should not be treated solely as a supporting business function, but rather as one of the most valuable assets in enabling successful e-tailing operations.

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Tämä tutkielma keskittyy vähittäiskaupan sähköisiin liiketoimintamalleihin ja sen osakokonaisuuksiin, sekä kuvaamaan informaatioteknologian roolia eri aktiviteettien ja prosessien arvonluonnissa.

Tutkielman teoreettinen osuus kuvaa arvonluonnin lähteet virtuaalisilla markkinoilla perinteisten strategiateorioiden näkökulmasta ja selventää miten sähköisten markkinoiden arvonluontidynamiikka eroaa perinteisten strategiakirjallisuuden lähtökohdista. Tutkielmassa esitetään kokonaisvaltainen malli virtuaalisten markkinoiden arvonluontimekanismeista, sekä kuvataan sähköisen liiketoimintamallin osakokonaisuudet. Lisäksi esitellään informaatioteknologian rooli vähittäiskaupan sähköisen liiketoimintamallin arvonluonnissa.

Kvalitatiivinen empiirinen tutkimus analysoi miten globaalin vähittäiskaupan toimija operoi sähköistä liiketoimintamalliaan ja sen komponentteja, sekä tutkii miten informaatioteknologia käytännössä luo arvoja liiketoimintamallin eri komponenteissa. Löydökset viittaavat siihen, että informaatioteknologialla on merkittävä rooli arvonluonnissa kaikilla liiketoimintamallin osa-alueilla, eikä sitä tulisi johtaa pelkkänä tukifunktiona, vaan pikemminkin johtaa käsi kädessä liiketoimintapäätösten kanssa menestyksekkään vähittäiskaupan sähköisen liiketoimintamallin mahdollistamiseksi.

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There was a time before entering university, when I was dedicated on becoming a professional hockey player, which my parents always supported and let me even move to Lappeenranta in the middle of high school to play hockey for the local team SaiPa. However, my parents always stressed the importance of having an education for a back-up, in case something unexpected would occur in sports. I want to thank my parents for all the wise words and all support throughout the years and for looking out that the young athlete did take care of his education – I did not become a professional athlete after all.

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I am very grateful for having being granted the opportunity in January 2011 to work for the largest e-commerce technology vendor in the nation. The expertise I have been able to gain from my more experienced colleagues and co-workers during the past years have greatly contributed to the formulation of this thesis.

I will certainly continue on exploring the complex structures and dynamics of online business models and hopefully will be able to support as many companies as possible in their online business operations in the future.

Helsinki, July 4, 2013

Mikael Orvomaa

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1. INTRODUCTION

1.1 Background to the Research Subject

This research analyzes e-tailer business model formulation and the role of information technology in enabling value creation from the point of view of a retailer merchant of physical goods in a business-to-consumer context. The objective is to explain the value creation dynamics and the components of an e-tailer business model and further introduce how information technology enables value creation throughout the different components of e-tailer business models.

There are many reasons why it is particularly relevant to understand how successful e-tailer business models are created, and what the dynamics of the value creation process are. Despite the global weak economic development recently, the e-tailing sector has remained on its growth track and long term outlooks on online activity gives strong confidence in that the growth and expansion of internet businesses will continue (Chandra & Sunitha 2012, p. 43; Kumar et al. 2012, p. 807). Overall on a global basis, the dynamics of retail are in great turmoil. The growth of the Internet has resulted in upheavals of revolutionary scope across the entire retail landscape (Sorescu et al. 2011, pp. 3-16).

The internet has become a powerful communications tool, which enables the execution of business transactions, and has transformed businesses and industries (DeLone & McLean 2004, p. 31). Retailers should no longer be defined as merchant intermediaries, who buy from suppliers and sell to customers. The rise of the Internet and shifts in consumer behavior has made a retailer an orchestrator of bi-sided platforms which serve as networks, in which different operators create and deliver value to

customers and appropriate value to the company and its partners in the network. (Sorescu et al. 2011, pp. 3-16) The dynamics of the virtual markets are very different to the traditional offline environment in terms of factors such as order fulfillment, cost structure, profit contributions, logistical requirements, service quality expectations, and access to demand and supply side information. (Kumar et al. 2012, p. 806) It is important to understand how the retailer should organize its operations according to the new logics of value creation.

For a retailer the shift to online selling increases the role of information technology infrastructure since the online environment requires intensive information and transaction processing capabilities. In the online operating environment, information technology is deployed in all components of the business model in order to connect the different value creating operators of the e-tailers' value-adding network in order to deliver value to the customer. (Weill & Vitale 2002, p. 17-18) The role of information technology has been to enable business transactions and to communicate information to decision makers. This fundamental objective has not changed due to the rise of internet-enabled retailing, (DeLone & McLean 2004, p. 31) but understanding the interconnected relationships between different actors in e-tailer business models and implementing the complex processes in order to capture the created value by the use of information technology has become the core process of an e-tailer (Sorescu et al. 2011, p. 12).

1.2 Literature Review

The research spectrum of e-business stems from several academic fields, including but not limited to behavioral sciences, computer science,

economics, information systems, marketing, operations management and technology management (Gupta et al. 2009, p. 617)

The characteristics of virtual markets differ from traditional markets (Strader & Shaw 1997) and have altered the sources of value creation, and challenged the explanatory power of traditional strategic management theories in explaining value creation in e-business (Amit & Zott, 2001; Weiber & Kollmann,1998; Cartwright & Oliver, 2000) . Central strategic management theories, such as the Resource-Based View of the firm (Wernerfelt 1984; Peteraf 1993; Teece et al 1997), Shumpeterian Innovation (Schumpeter, 1934; Hospers, 2005; Zhuang, 2005), Transaction Cost Economics (Williamson, 1981; 1985) , Value Chain Analysis (Porter, 1985; 2001), and Strategic Network Theory (Gulati et al. 2000; Lau & Ka-leung 2008) have all provided valuable contribution in explaining the value creation mechanisms of virtual markets, but they have been proven inadequate in fully explaining how value can be created in virtual markets. The work by Amit & Zott (2001; 2012) and Zott & Amit (2007; 2008) provides valuable contribution to this thesis by integrating the mentioned central strategic management theory value creation mechanisms into a coherent model of the sources of e-business value creation.

Osterwalder et al. (2005) define the terminology and ontology of a business model and provide a comparison with previous work in academic literature. Sorescu et al. (2011) draw their work from theories on the concept of business models when describing the retailer business model components and how innovations in retailer business models are able to constitute to competitive advantages. The work by Sorescu et al. (2011) is applicable to the e-business model domain, in which there have been several attempts to illustrate the components of an online business model during the past decade. E-Business model design and classification

integrating information technology considerations to the analysis has centered the work of for example Dubosson-Torbay et al. (2002), Osterwalder & Pigneur (2002; 2003b.), and Gordijn et al. (2005). Osterwalder & Pigneur (2003a.) describes the interactive relationship between customer relationship management with other components of the e-business model, namely a company's value proposition, target customer segments, distribution channels and customer interaction.

In their efforts on providing a framework for analyzing e-business model ontology, Pateli & Giaglis (2004, p. 308) note in their review on previous literature, that there seems to be somewhat of a joint agreement between researchers in the field of business models in e-business, that the listed components hereunder constitute or are part of the e-commerce business models and are present in previous frameworks on the subject. These components include according to Pateli & Giaglis (2004, p.308) "mission (strategic objectives), target market (scope and market segment), value proposition (product/service offering), resources (capabilities and assets), key activities (intra- and inter-organizational processes), cost and revenue model (cost and revenue streams, pricing policy), value chain/net (alliances and partnerships)." Zott et al. (2011, p. 1019) further conclude, that common themes between scholars of business models include the notion that the business model is an entirely new unit of analysis, business models provide a system-level, holistic approach to explaining how companies operate and create value by stressing the role of the company's activities and finally, business models have the power to not just explain how value is captured but also how it is created.

From a strategic perspective, the ability of an e-tailer to operate its business model is dependent on how well it is able to align its business processes according to its business model by the use of information technology. (Attaran, 2004; Trkman, 2010; Solaimani & Bouwman, 2012).

Information technology should be taken into consideration when designing supply chain processes (Skrinjar & Trkman, 2013). Xu, (2011) reinforces the previous notion by stating that e-tailers have to construct state of the art information architectures in order to operate complex and evolving supply chains. In order for the e-tailer to be able to deploy business model enabling information technology, it has to possess a range of information technology resources and capabilities, which may provide the company with sustainable competitive advantage (Melville et al. 2004; Zhu, 2006). Data mining possesses the potential to influence customer relationships in several ways (Phan & Vogel, 2010) and supply chain activities (Xu, 2011). The data mining activities performed by a modern e-tailer by the use of intelligent agents has been discussed meritoriously by Rao (2012). Warkentin et al. (2011) have introduced the modern agent-enhanced e-tailer architecture, and describe the roles and relationships of different systems, data mining and intelligent agents in the process of providing managerial decision support data out of the e-tailers current operations.

1.3 Definitions of Key Concepts

The following section defines the key concepts discussed in the thesis and expresses how these concepts will be referred to in this thesis. Retailing refers to all activities and operations conducted by an organization in order to sell goods or services directly for final consumers for their personal, non-business use (Kotler & Armstrong 2006, p. 397). A retailer is a business organization, which primarily engages in retailing (Kotler & Armstrong 2006, p. 397). For the purpose of this thesis retailing and re-tailer will be referred to according to the above mentioned definitions, but organizational sellers of services will be excluded from the definition.

The definition of e-tailing is directly derived from retailing. According to Chandra & Sunitha (2012, p. 43), "*e-tailing is defined as retailing conducted online, over the internet."* For the purpose of this thesis, an e-tailer is a retailer of products which operates solely online, over the internet. It should further be clarified, that the term "online retailer", has been used with the same meaning set forth in the definition of an e-tailer, since they are interchangeably employed in wider literature (Doherty & Ellis-Chadwick 2010, p. 944).

The concept e-commerce can be defined as the sale or purchase of a good or service via a computer network by means specifically designed to make and receive orders. An e-commerce transaction can be conducted between companies, consumers, governments and possible other public or private organizations. The definition excludes orders made by manually typed e-mail, orders made by a telephone call or by a facsimile. (OECD, 2011) The definition made by the OECD can be stated as a very broad definition of the subject at hand, as it includes all possible ways of conducting an order online by means designed for this task. It also includes the sales and purchase of both goods and services, and does not make any adjustments on industries or specify differences between different organizational or individual selling and buying settings. For the purpose and scope of this thesis, some specifications to the definition of e-commerce by OECD have to be made. As the study focuses on dynamics of e-commerce in retail and on the buying and selling of physical goods only, services sold online (such as travel packages and digital content) will be excluded from the definition. Moreover, the definition will be limited to business-to-consumer (B2C) e-commerce only. For the purpose of this thesis, the terms of e-commerce and e-business will be referred to as synonymous.

The definition of a business model stated by Sorescu et al. (2011) stresses on the incorporative function of the business model in integrating interdependencies that change a set of structures, activities, and processes into a coherent system. A business model is not only a company's revenue model or the cost structure, or a combination of resources and a value proposition, but it describes how these pieces of the company and its operations are brought together and combined to create and deliver value. (Sorescu et al. 2011 pp 3-16) Following the definition, retail business model expresses how a retailer delivers value for its customers and appropriates value from the markets. These definitions of a business model and a retail business model by Sorescu et al (2011) will be used in this research in the context of e-commerce conducted by a physical goods retailer.

Customer Relationship Management (CRM) is defined by Payne and Frow (2005, p.168) as a strategic initiative, which focuses on creating increased shareholder value to the strengthening of appropriate relationships with customers. CRM combines the possibilities of relationship marketing strategies and information technology in order to achieve profitable long-term relationships with customers (and other stakeholders). CRM is equipped with the opportunity to use data and information in order to gain deep understanding of customers and create value for the counterparts. CRM requires integrated processes inside the company between people, operations, and marketing capabilities, which can be maintained by the use of information, technology, and applications.

Infrastructure Management is an element of the e-business model, which illustrates the value system configuration required in order to deliver the value proposition. Infrastructure Management includes the management of inhouse *resources and assets*, the management of the *activities* designed

to create and deliver value and the company's *partner network.* (Osterwalder & Pigneur 2003a., p. 447)

In the context of this thesis, Product Innovation is referred to as an element of the e-business model, which covers product-related aspects. The components of product innovation include the company's *value proposition*, which it wants to deliver to its *targeted customers* by the exploitation of *capabilities* required to deliver the promised value. (Osterwalder & Pigneur 2002, p.2)

A business process is an entity, which includes a number of logically related activities which are dynamically coordinated and are performed to deliver value to customers and to achieve set organizational goals. (Trkman 2010, p. 125) For the purpose of this thesis, a utilitarian view of an information system is taken, by defining them as entities which have been built by the use of information technology in order to improve individual or organizational performance (Petter et al. 2008, p. 236).

1.4 Research Objectives

This study aims to examine how a retail company, which distributes its products solely by utilizing the online channel is able to build a successful e-tailer business model and explains the role of information technology in delivering value and managing the relationships between customers and processes of the e-tailer, as well as the processes extending outside the firm to include its value adding partner network. The main research problem is:

How is an e-tailer business model created?

The secondary research questions, listed in order to provide the understanding required to answer the main research problem, are:

1. How is value created in online business models?

2. What are the necessary components of a successful e-tailer business model?

3. What is the role of information technology in an e-tailer business model and how does it contribute to e-tailer value creation?

1.5 Scope and Limitations of the Thesis

The scope of this study is to analyze e-commerce business model formulation solely from the point of view of a retailer merchant of physical goods in a business-to-consumer context. All other industry-specific considerations other than retail will be out scoped. This thesis will neither consider the varied modes of operations, concepts, value chains and business models of merchants offering digital goods or any other form of goods other than physical goods.

This thesis does not consider such business models and modes of operations which do not have the characteristics of a retailer e-commerce business model for physical goods. Thus business models and operations of service providers, transaction brokers, content providers, community providers, or general portals, specialized portals or search services are out scoped from this thesis.

E-tailer operations are seen as the only mode of operation when describing the formulation of an e-tailer business model and the internationalization of the concept. This thesis does not consider the subject from a multichannel retailing point-of view, in which concept formulation is based on the notion of interdependencies between the entire spectrum of different customer service channels, such as brick-and mortar, mobile, television, and any other customer service channel other to the online channel (Agatz et al. 2008, p. 339). Also specific considerations of offering the e-tailers service available via online mobile user interfaces or via mobile applications will be excused from closer review.

Concepts related to branding, brand management, brand recognition and other brand-related topics have been identified as important factors of a successful e-commerce business model (Dubosson-Torbay et al 2002, p. 9). Thus they will be introduced and considered in synthesis with business model considerations. However as the subject of this thesis is not branding specifically, comprehensive review of brand management will not be included in the thesis. Traditional- or online marketing mix components will not be reviewed comprehensively, but they may be referred to in conjunction with value-creation mechanisms and business model components.

This thesis does recognize that technology plays a crucial role in efficient overall management of online e-tailer business models and value-creation processes. This thesis will introduce the technological considerations crucial for e-tailer business model development. However, specific user interface layout-considerations will be limited from this research, despite the notion from for example Colla & Lapoule (2012, p. 845) that effective website design and the ease-of-use are included in e-tailing success factors.

1.6 Theoretical Framework

The theoretical framework of this thesis is a combination of several theoretical backgrounds, and initiates by explaining how value is created in virtual markets drawing together several strategic management theory classics and explaining how these may not be valid individually in the virtual marketplace. Explaining the value creation mechanisms can be seen as a natural starting point when discussing business models, since value creation should be at the heart of every business model (Sorescu et al. 2011; Dubosson-Torbay et al. 2002). Value creation mechanisms are further applied to explain the components of an e-tailer business model. The role of business process management and information systems in value creation and respectively in e-tailer business model explains how these two concepts offer the tools for deriving value from the components of an e-tailer business model.

Figure 1 illustrates the theoretical framework of this thesis. It describes how the dynamics of virtual markets have a profound effect on the value creation mechanisms in e-business and describes the operating environment of an e-tailer. The dynamics of virtual markets significantly differ from the more traditional physical markets (Cartwright & Oliver 2000; Amit & Zott 2001; Zott et al. 2011). Traditional strategic management theories, namely the Resource-based view, Shumpeterian innovation, Transaction cost economics, Value chain analysis and the Network theory have all provided valuable contribution to explaining the value creation mechanisms in virtual markets, but all them have fallen short in explaining how value is being captured in the “modern marketplace”. Rather, the source of value creation in e-business (which is subject to the laws of virtual markets) is a combination of all of the traditional strategic management literature approaches explanations on how value is created. (Cartwright & Oliver 2000; Amit & Zott 2001)

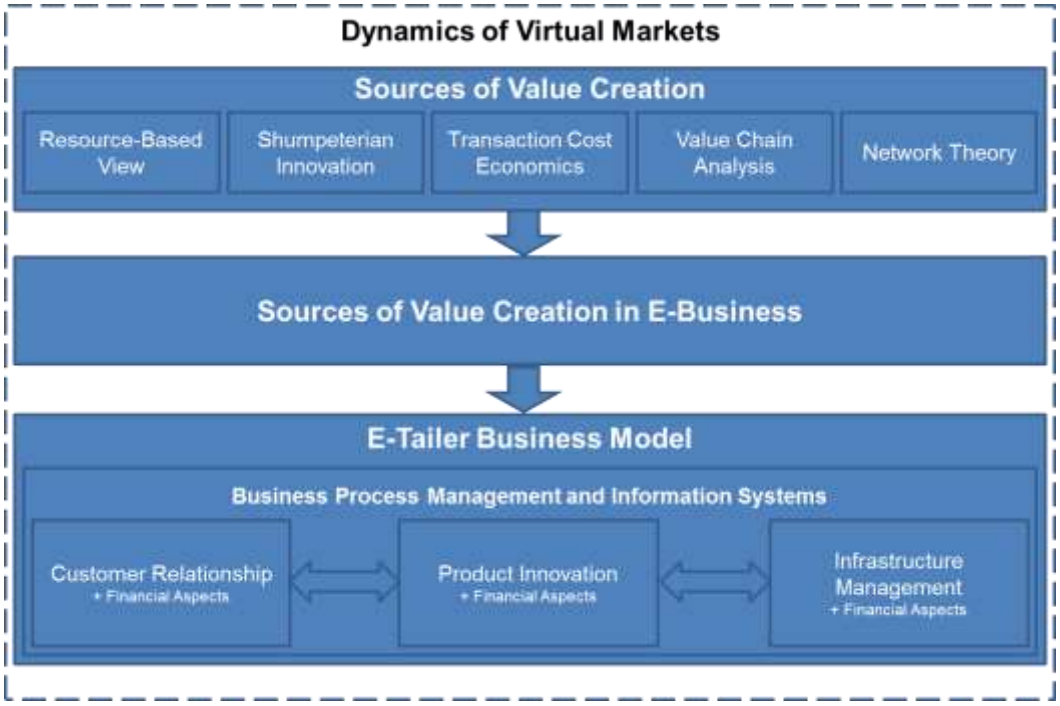

Figure 1: Theoretical Framework

Customer Relationship in an e-tailer business model refers to all the actions taken by the e-tailer in order to strengthen the relationship between customers in order to deliver additional value to the customer and also to appropriate value from them. Customer relationship initiatives in e-tailing include the use of information technology (such as data and information) to gain a deep understanding of the customer. (Payne and Frow 2005, p.168) Product Innovation in the context of e-tailer business models refers to all components related to the e-tailers product/service. Product Innovation explains how the company will exploit the capabilities at its disposal in order to deliver value to its customers (Osterwalder & Pigneur 2002, p.2). Infrastructure Management in e-tailer business models is associated with the management of resources and assets consumed by and for activities in order to create and deliver value (Osterwalder & Pigneur 2003a., p. 447). Financial aspects include the cost structure, profit model, and revenue model of the e-tailer, and they are present throughout the online business model. Financial aspects include the costs required to

organize the infrastructure of the company for the purpose of generating revenues from sold value (Dubosson-Torbay et al. 2002, p.11).

Business Process Management (BPM) and Information systems have a significant role in all the activities and processes carried out throughout the different components of the e-tailer business model, including the customer relationship component, product innovation component, and infrastructure management. BPM and information systems can be seen as the e-tailers tools which facilitate and combine the components of the e-tailer business model into an integrated entity, which is able to deliver value in the competitive virtual marketplace. (Weill & Vitale 2002)

1.7 Research Methods

This research is qualitative by nature. Qualitative research is interested in the quality or nature of human interactions and experiences and in interpreting the meanings of these interactions and experiences to individuals. Qualitative questions tend to ask ”what”, ”how” and ”why”-types of questions. Qualitative research can be described as naturalistic and interpretative, as it aims in explaining and understanding beliefs and behaviors in the specific context in which they occur. (Draper 2004, pp. 642) As Draper (2004) describes, *”qualitative research builds a complex, holistic picture, analyzes words, reports detailed views of informants, and conducts the study in a natural setting*”. Qualitative research additionally offers the flexibility required for exploring new or anticipated issues during the research process, instead of having to follow a fixed or standardized research protocol (Draper 2004, pp. 642).

Qualitative research offers the ability to explain patterns, by focusing on intentions, motives, beliefs, attitudes, rules and values that underline

actions and make them meaningful. Qualitative reasoning follows the inductive analytical process, in which the reasoning moves from observations to generalizations, in other words more general rules are made and patterns explained from specific research observations in formulating hypotheses or theories. (Draper 2004, pp. 643)

Case study research is a research method which centers on understanding the dynamics found in an individual setting. Case studies are mainly utilized to provide description, test theory, or generate a novel theory. Within case studies, the researcher often combines more than one data collection method, such as archives, interviews or observations. The data may be quantitative or qualitative by nature, or may also include both forms of data. (Eisenhardt 1989, p. 534-535) This research includes a carefully chosen case study, which will be capable of illustrating how e-tailer business models are created and also fully explain the role of information technology in the business model. Data will be collected by utilizing both acquired documentation of the business model and the technical solution and further by interviewing both business management and IT management from the case company by utilizing the semi-structured interview method. Further interviews will be carried out by interviewing business- and technical experts from the technology vendor of the e-tailer solution to the case company. Chapter five of this thesis will describe the methodological approach of this research in more detail.

1.8 Structure of the Thesis

This study is divided into six main chapters. Chapter one introduces briefly the subject and background to e-tailer internationalization and describes the theoretical and practical motivations. Additionally the first chapter illustrates the research problems, defines the key concepts and lists the

limitations of the research as well as describes the theoretical framework. Also the research methodology and the structure of the thesis are presented.

The second chapter identifies the contributions and shortcomings of traditional strategic management literature in explaining how value is created in the context of virtual markets. The second chapter advances to present an integrated model of the value creation mechanisms in the virtual markets. The third chapter presents the components of an e-tailer business model and describes on an operational level, how the different components of an e-tailer business model constitute to value creation.

The following chapter focuses on describing the role of information technology in enabling and managing an e-tailer business model, by illustrating how information technology both enables efficient maneuvering of e-tailer business processes and information processing and distribution and thus adds value to all the components of the e-tailer business model.

Chapter five consists of an empirical study on e-tailer business model creation and internationalization. The chapter describes the research methods and data gathering, and consists of analysis of the data. Chapter six introduces the findings and empirical observations. Chapter seven finalizes the thesis by the discussion and conclusions made from the research.

2 SOURCES OF VALUE CREATION

It is of utmost importance for the purpose of this thesis to understand how value is derived in e-commerce operations and more specifically in e-tailer business operations, since this thesis discusses business model creation wherein value creation is the core of operations. (Sorescu et al. 2011, p. 4) As Sorescu et al. (2011, p. 4) state, in retailing context the objective of a business model is to create and deliver value to the customers, simultaneously gathering value from the markets to the e-tailer and its partners. The following section initiates by describing briefly the shortcomings of traditional strategic management theory in explaining e-commerce value creation and then further proceeds to illustrating the theory of “Sources of Value Creation in E-commerce” by Amit & Zott (2001).

2.1 Traditional Theories on Value Creation vs. Dynamics of the Virtual Markets

Numerous previous studies have attempted to explain the value creation mechanism in e-commerce by utilizing one of the generally accepted theories of strategic management. (Amit & Zott 2001, p. 494) This section briefly summarizes the central strategic management theories and their stand on value creation mechanisms, and explains how they provide valuable insights to the value creation process of virtual markets and why they fall short in explaining the e-commerce value creation mechanisms in the virtual markets.

2.1.1 Virtual Markets

Zott et al. (2011, p. 1029) state that “the digital economy has provided firms with the potential to experiment with novel forms of value creation mechanisms, which are networked in the sense that value is created in concert by a firm and a plethora of partners, for multiple users. The development of interlinked information systems have expanded the physical marketplace of raw materials, resources, and products into a marketplace where the physical value chain (including inbound and outbound logistics, production etc.) continues to exist, but equally importantly a virtual world of interlinked information systems has emerged as an entirety in which value is created by information handling, processing and utilization and which equally constitutes to value creation of the physical value chain operations and processes. (Cartwright & Oliver, 2000, p. 23)

The virtual markets create value by enabling efficiency increases in delivering products or services, information itself can be seen as a source of competitive advantage, which can be traded in the virtual market space, and when components of the physical and virtual world are simultaneously utilized, information can provide the basis for additional value for physical products and services. According to the above mentioned, value creation and competitive advantages are determined by a company’s ability to combine the physical activities and activities in the virtual market. (Weiber & Kollmann 1998, p. 603-604) Value creation in the context of virtual markets often exceed the value that can be created solely by Schumpeterian innovation, configuration of value chain activities, the introduction of strategic networks between companies, or the use of a company’s core competencies. (Zott et al. 2011, p.1029)

The virtual market enables the creation of commercial arrangements, which are not limited to company boundaries in a value chain, but in which companies are able to share business processes without even being aware of the end customers. As information about products is provided directly to the end-customers on the Internet, traditional middlemen in value chains will be disregarded and traditional logics of industries may be replaced. Simultaneously new ways of value creation by bringing buyers and sellers together emerge by the use of information systems. (Amit & Zott 2001, p.495) According to Amit & Zott (2001, p.495), the characteristics of virtual markets which enables the ease of adding complementary products to a company's offering, the ease of gaining access to complementary assets, new forms of collaboration between companies, the reduction of information asymmetry between industry operators, and the possibility of real-time customization of product offering on the Internet all have an impact on the issue of traditional value chains being abandoned and more often value will be created outside a specific industry's boundaries in which a company operates. All the above mentioned characteristics of virtual markets diminish greatly the costs of information processing and utilization, and provide the tools for companies to distinctively alter the ways in which they operate.

2.1.2 Value Chain Analysis

The value chain and value chain analysis provides a strategic tool for analyzing how a company has organized its set of activities to deliver a product or service to its customers. According to the theory, when a company operates in an industry, it implements a number of interlinked activities, which create value to the customer. A company's value activities can be divided into two categories, primary activities and support activities. Primary activities involve the physical assembly of the product, marketing, sales and delivery to customers, and the after sales processes. Support activities exist to enable the primary activities to happen. (Porter 1985,

p.150) Analyzing the value chain makes it possible to determine how different intra-firm activities result in costs for the company and value delivered to customers (Porter 2001, p. 73). The value chain analysis includes identifying strategic business units, identifying critical activities, defining products and setting a value for an activity (Amit & Zott 2001, p. 496). Despite the value chain having gained considerable acceptance throughout the previous decades, it may not be able to illustrate how value is created in the virtual marketplace. Amit & Zott (2001, p.496) and Cartwright & Oliver (2000, p. 23) point out that in Internet based markets, value creation may result also from combining information in new ways, by introducing innovative configurations of transactions, and by finding new ways to utilize or share resources, capabilities and roles between customers, partners and suppliers.

2.1.3 Schumpeterian Innovation

In his theory of economic development, Joseph Schumpeter considered innovations and technological change as the sources of value creation (Zhuang 2005, p. 149). The theory stresses on the importance of organizing and combining available resources and the services derived from these resources in new ways, which act as the basis of new products and production methods. Introduction of novel products and production methods are further resulting in the transformation of markets and industries. (Hospers 2005, p. 23) Innovations which influence both technical and administrative functions, have a profound effect on the core business processes, or increase the efficiency in the relationships between business partners, have the potential of providing strategic redirection and sustainable competitive advantages to the company. The diffusion of the value-creating innovation may alter the adopting company's strategy and structure. (Zhuang 2005, p. 149-150) As we have entered an era of virtual markets, Schumpeter's theory on innovation cannot fully explain the new ways of value creation, as value may also be

created from other factors than from the introduction of new to the world products or from combining resources in a new way. Value may also be created from the introduction of new collaboration forms between companies, as new exchange models and transaction methods are formed, which may cross industry boundaries. (Amit & Zott 2001, p. 497)

2.1.4 The Resource-Based View of the Firm

According to the Resource-Based View of the firm, a company can be seen as a unique pool of resources and capabilities (Peteraf 1993, p 180). A firms' resources are according to this view the total tangible and intangible assets that the company has at its disposal (Wernerfelt 1984, p. 172). The resources which a company has at its disposal, should differ from the resources from other players inside an industry, and they should be scarce and hard to imitate, and to at least some extent sustainable, in order for these resources to be able to create value. Value creation results from the combination of these resources and capabilities to form the company's product or service. (Peteraf 1993, 180-185; Teece et al. 1997, p. 509).

Teece et al. (1997 p. 515) later included the existence of dynamic capabilities to the theory, due to the notion that for a company to be able to form sustainable competitive advantage from its resources available in order to derive value from its resources, it has to be able to utilize both internal and external resources and capabilities, and more importantly it has to find means to constantly develop new capabilities from its internal and external resources to address the challenges of the rapidly changing environment. Dynamic capabilities are thus the company's ability to constantly find new forms of competitive advantage, by integrating and combining resources in new ways (Teece et al. 1997, p. 519). These capabilities are generated from a company's managerial and

organizational processes (Teece et al 1997, p.519-524). The resource-based view assumes that all resources should be owned or controlled by a company which may not be mandatory in modern virtual markets, as resources can be shared between different entities still preserving the value for all counterparts (Amit & Zott 2001, p 498). Strategic networks may provide a company with access to information, resources, and technologies, which the firm may be able to translate into fulfillment of its strategic objectives (such as risk-sharing and outsourcing non-core value activities), by taking advantage of the learning scale and scope economies. (Gulati et al. 2000, p. 203)

2.1.5 Strategic Network Theory

The resource-based view of the firm stresses on the idea of competitive advantages are being delivered by resources, which are owned or controlled by the company, as long as these resources are not easily imitable or substitutable (Peteraf, 1993, p.186). According to Gulati et al. (2000, p. 207) the resource-based view has been proven insufficient in explaining by which kinds of processes these resources are being transformed into value- rather this process has just been “something” a company does internally, without further clarifying the process. The notion that value-creating activities and resources could be found outside the company itself has shifted the focus from the resource-based view to explaining how value is created outside the company’s boundaries. (Gulati et al. 2000, p. 207)

According to strategic network theory, companies are affiliated in networks of horizontal and vertical exchange relationships with other organizations spanning across industries and countries (Gulati et al. 2000, p.203). A strategic network is defined as a collaboration, in which two or more companies co-operate between business functions, such as inbound and

outbound logistics, production or marketing activities on a long-term basis, in joint co-ordination to reap strategic benefits and to introduce new competitive advantages (Lau & Kaleung 2008, p. 343). These strategic networks may include strategic alliances, joint ventures, long-term buyer-supplier relationships and other comparably strong ties between organizations (Gulati et al. 2000, p. 203). The joint co-ordination of activities between the counterparts of strategic networks includes enabling access to information and technologies, sharing of knowledge and facilitating learning, risk-sharing, and enhanced transaction efficiency (Cartwright & Oliver 2000, p. 24). Gulati et al. (2000, p.207) further note that resources accessible for the company throughout its strategic network may provide sustainable competitive advantage, since it has been proven hard to analyze a company's network and the dynamics of the relationships and customs and operational models have been hard to imitate by competitors due to the hardly traceable dynamics of interfirm relationships. The theory of strategic networks provides useful insight for understanding value creation in e-business, but it fails to answer how novel transaction structures of the virtual markets with its characteristics of unprecedented reach, low-cost information processing power, and overall connectivity constitutes to value creation in completely new ways. (Amit & Zott 2001, p. 499)

2.1.6 Transaction Cost Economics

The main question which transaction cost analysis aims in addressing is why companies internalize their actions instead of conducting these actions in the market. Transaction costs are resulted directly from managing the relationship between the counterparts in a transaction, but also from opportunity costs which result from governance decisions. (Rindfliesh & Heide, 1997, p. 31) In other words, transaction cost economics is first and foremost concerned with addressing what would be the most appropriate governance mode in a specific transaction between

two or more counterparts (Rindfliesh & Heide, 1997, p. 32; Williamson 1981, p. 548-549). Transaction cost economics sees efficient transactions as the central source of value, as continuously increasing efficiency decreases costs. The more specific value drivers include factors such as information asymmetry, reputation, trust, and transactional experience. (Amit & Zott 2001, p 499)

Amit & Zott (2001, p. 499) sees transaction cost economics as insufficient in explaining the value creation in e-commerce, as it focuses solely on cutting costs and does not take a stand on other possible value driving elements, such as introduction of innovative business processes or business models, or novel ways of sharing resources that reach outside company boundaries. Amit and Zott (2001, p.499) further note that "*the theory also focuses on cost minimization by single parties and neglects the interdependence between exchange parties and the opportunities for joint value maximization that this presents."* Neither is the theory competent in explaining what kinds of governance modes would be appropriate in the modern virtual markets. Gulati et al. (2000, p. 204) further explain, that using resources found outside the company may in fact be a factor increasing efficiency, and that in addition to adding value, transaction costs may be decreased by improved management and joint incentives between a company and interfirm actors. (Gulati et al, 2000, p. 210)

2.2 Sources of Value Creation in E-Commerce

The previous section summarized the central strategic management theories and illustrated their contributions and shortcomings in explaining how value is created in e-commerce. It is clear that all the summarized strategic management theories provide valuable insight to the value

creation process of e-commerce and may be applicable to e-commerce, but none of them is able to capture the entirety of complex and diverse value creation mechanisms of e-commerce. (Amit & Zott 2001, p. 500) As this thesis discusses e-tailer business model creation, it is important for the purpose of this thesis to base the factors resulting in value creation to a general theory of e-business value creation. Amit and Zott (2001, p. 503-508) introduce the theory of "Sources of Value Creation in E-Business", which combines the explanatory factors of value creation of the different central management theories and build a total view of the value creation mechanism in e-commerce. The following section will explain Amit & Zott's (2001) theory and further apply and adapt the framework to the specific e-tailer context.

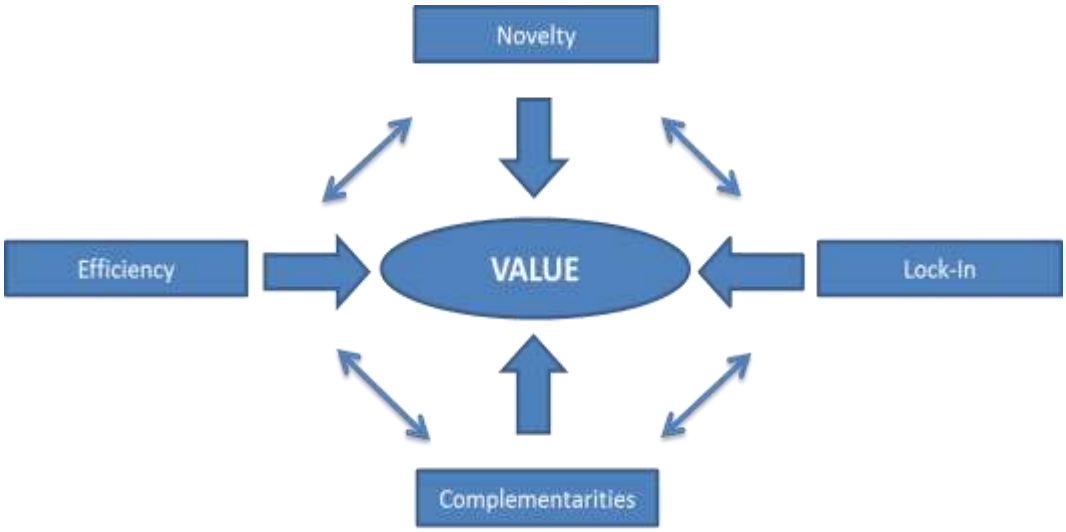

Figure 2: Sources of value creation in e-commerce (Amit & Zott 2001, p. 504)

A company's activity system can be seen to comprise of content, structure and governance elements. Content explains which activities the firm has decided to perform. Structure defines how these selected activities are linked to each other and in what order. Governance defines who performs the activities in the firms' activity system. (Amit & Zott 2012, p. 44-45) In

the Sources of Value Creation in E-Commerce-model developed by Amit & Zott (2001) four major factors which constitute to creation of value are identified. These value drivers are efficiency, lock-in, novelty, and complementarities. (Amit & Zott 2001, p.503) According to Amit & Zott (2012, p. 45-46) the novelty element describes value creation which is included into the activity system. Lock-in describes how switching costs increase the incentives for third parties (such as suppliers and customers) to transact within the company's activity system. Further, the complementarities- element refers to the interdependencies between business model activities which create value, and efficiency captures the cost-savings from the interdependencies between business model activities. All of the factors described above are able to constitute to value creation single handedly, but all of the factors are also interconnected between each other. (Amit & Zott, 2001 p. 509)

2.2.1 Efficiency

Efficiency constitutes to the firms actions, which are directed to enable efficiency of transactions in their business model (Zott & Amit 2007, p. 185). Value deriving from factors effecting efficiency decrease transaction costs, in other words they decrease the cost associated with performing a particular transaction between two parties. The more the e-commerce service is able to decrease the costs associated with a transaction, the more value it is able to provide. E-commerce business models offer several ways of increasing transactional efficiency, such as reducing information asymmetries between the buy-side and sell-side, and by streamlining value-, and supply chain processes to speed up the fulfillment of transactions. (Amit & Zott 2001, p. 503 – 504) It may also be generated from reduced transaction risks (Zott & Amit 2007, p. 185). The increases in efficiency may include processes ranging from inventory management to order fulfillment, and marketing and sales activities (Amit & Zott 2001, p. 503 – 504).

2.2.2 Complementarities

Another major category of value creation according to Amit & Zott (2001, p. 505) is the offering of complementary products and services. The complementary products may be horizontal or vertical by nature. The complementary products and service are closely related to the core product or service offered by the e-commerce company, but these complementarities provide added value both via the core product or service offered, but also directly to the customer by diminished search-related costs. Amit and Zott (2001, p. 505) also point out in their research, that it may even prove valuable for the customer (and thus the company) to include complementing product or service categories which do not directly relate to the company's core product- or service offering.

An important notion is that efficiency-increasing value drivers and complementarities are interconnected. Breakthroughs in information technology offering efficiency gains have also simultaneously enabled e-commerce businesses to offer complementary products, and services, as the transaction costs between partnering product or service providers have diminished drastically. (Amit & Zott, 2001 p. 505) Amit and Zott (2001, p.505) further describe the relationship between information technology and complementarities that "*E-businesses may also create value by capitalizing on complementarities among activities such as supply-chain integration, and complementarities among technologies such as linking the imaging technology of one business with the Internet communication technology of another, thereby unleashing hidden value.".*

2.2.3 Lock-In

It has widely been accepted that an e-commerce service has to possess the capability to turn a customer into one which utilizes the e-commerce service repeatedly. The concept of “lock-in” is closely associated with customer retention and is referred to in this context as the preventive actions taken by an e-commerce company in order for customers not to switch to competing service providers. Lock-in also refers to the e-commerce vendor’s ability to provide value to its strategic partners and to the partners having strong incentives to stay loyal to the vendor instead of offering services to competitors. As the rate of customer lock-in towards a service increases, it raises transaction volumes, which directly benefit the strategic partner, which further raises its incentives to operate with the e-commerce vendor. (Amit & Zott 2001, p. 505-506) Customer retention rates (and further lock-in) can be accelerated by different kinds of loyalty programs, by superior business process design, or by unique value propositions. Including communal parts to form communities inside the e-commerce service, where customers are able to transact with the company and between each other on topics about their shared interests raises their lock-in towards a particular e-commerce service. (Amit & Zott 2001, p. 506). Novel value creating elements in the e-business model is complementary with lock-in, as business models which include novel components creating value, also makes the model more differentiated from competitors offerings thus resulting in increased switching costs for customers and the value adding operators in the network, due to lack of comparable alternatives. (Zott & Amit 2008, p. 8)

2.2.4 Novelty

The last value creating driver in the model is novelty, which refers to an e-commerce service providers ability to innovate an introduce new ways of

structuring business processes and transactions, by diminishing inefficiencies in supply- and value chains and by creating strategic partnerships in order to deliver value. (Amit & Zott, 2001 p. 508) These can be achieved by connecting formerly unconnected parties, by structuring the linkage of current partners in new ways, or by designing novel transaction mechanisms (Zott & Amit 2007, p. 184; 2008, p. 4).

Zott & Amit (2007, p. 186) note, that business models which include novel components creating value, also makes the model more differentiated from competitors offerings thus resulting in increased switching costs for customers and the value adding operators in the network, due to lack of comparable alternatives. Novelty and lock-in are also closely interconnected in the way, that first-movers and innovating companies have it generally easier to attract and retain their customer base, especially if it possesses a strong brand. (Amit & Zott, 2001 p. 508-509) Complementarity, efficiency and novelty are interconnected in the way, that the introduction of novel business processes may include combining complementary product and service offerings in a new way to create a competitive advantage, which in turn may increase efficiency and thus create value. (Amit & Zott, 2001 p. 508-509) Zott and Amit (2007, p. 186) further explain that increasing the degree of novelty in the business model, may also increase the value which derive from design elements aimed to ensure efficiency.

3 E-TAILER BUSINESS MODEL CREATION

A business model centralizes on how the company is able to organize its operations to create and gather value by such means that it is able to gain sustainable competitive advantage. A business model defines the structures, activities and processes (including resources), including the company's internal functions and its external partners and forms and interconnected system, which transforms a company's strategy into operationalized activities. (Sorescu et al. 2011, p. 4-5; Dubosson-Torbay et al. 2002, p. 7) Innovations in an e-tailer business model offer solid ground for sustainable competitive advantage. Changes in one component of the business model effects the entire business model through interdependencies in the business model elements, which makes it harder for other players to imitate the innovation. (Sorescu et al. 2011, p. 12)

Sorescu et al (2011, p.4) clarify on the relationship between strategy and business model, and note that strategy articulates a certain overall objective of a company as opposed to a business model, which expresses the mechanisms by which the company is able to reach this goal. A business model does not only express the company's revenues model, cost structure or the value proposition, but it illustrates how these components link to each other and describes the interdependencies which constitute to an entirety which is larger than the sum of its parts. (Sorescu et al 2011, p. 4)

A business model can be seen to consist of three primary elements, the format, activities, and governance. Format is defined as the organizing of the retailing activities into integrated processes, which deliver the customer experience. (Sorescu et al 2011, p 5-6) Activities can be viewed through the value chain framework and it illustrates the configuration of the

activities included in the process of delivering value (Dubosson-Torbay 2002, p. 10). Governance involves all the players in the network, which constitute to the deliverance of the customer experience and the motivation of these actors (Sorescu et al 2011, p. 6).

In this thesis the e-Business model framework illustrated by Dubosson-Torbay et al. (2001, p. 5-23) will be utilized in order to explain the components of an e-tailer business model. The e-Business model framework consists of four main categories. Figure 3 below expresses the e-Business model framework.

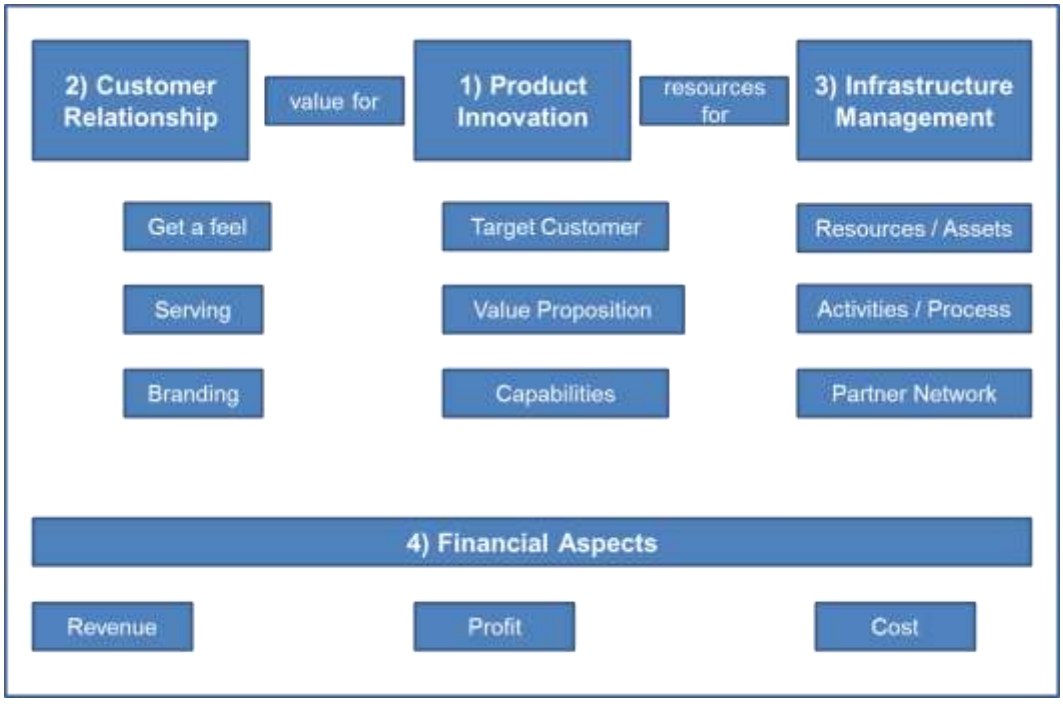

Figure 3. The e-Business Model Framework (Dubosson-Torbay et al. 2002, p. 6)

With regard to the e-Business Model framework, the product component illustrates what kind of value the e-tailer wants to offer to its customers (Dubosson-Torbay et al. 2002 p. 7). Relationship capital refers to the act

of creating and maintaining a relationship with customers for the purpose of satisfying the customers and further to generate steady revenues. Infrastructure management refers to the company's infrastructure and its partner network which are designed and crucial for the purpose of value creation and for customer relationship management. The financial aspects refers to the business models overall cost and revenue structures. (Dubosson-Torbay et al 2002 p. 7) The following sections will clarify the components of the model from an e-tailer point-of-view.

3.1 Product Innovation

In the context of e-tailer products (business models), an innovation is a novel way of organizing the interdependencies of business formats, activities, and governance mechanisms in order to create a competitive advantage. The organizing of the interdependencies of the value driving elements stresses the notion that an innovation in this context includes changes in the entire system. (Sorescu et al. 2011, p. 7) Sorescu et al. (2011 p. 7) note that an business model innovation changes the interdependencies of the actors in network, and thus changes the organizing logic for value creation and value appropriation of the company.

Figure 4. The elements of Product Innovation in e-Business (Modified Osterwalder & Pigneur 2002, p. 3)

The firm has to possess the in-house and/or outsourced capabilities required by its value proposition in order to deliver the value promised to the targeted customers (Osterwalder & Pigneur 2002, p. 3; Dubosson-Torbay et al. 2002, p. 7). Sorescu et al. (2011 p.7) suggest that value may be acquired by the company by introducing novel ways of increasing operational efficiency, operational effectiveness, or by accelerating customer lock-in. Operational efficiency refers to the e-tailer operating in a faster, more simple, and cheaper way. Operational efficiency can be distributed by organizing its back-end processes, such as e-fulfillment in a more streamlined fashion. (Sorescu et al. 2011, p. 7)

Sorescu et al. (2011, p. 9) describe operational effectiveness as the company's ability to operate in such fashion, that it is able to reach desirable outcomes simultaneously maximizing organizational strategic objectives. Organizations can illustrate effectiveness for example by matching product selection with customer demand, which in turn can be acquired through investments in data management and analysis to understand customer needs in detail. (Sorescu et al. 2011, p. 9) E-tailers' do not necessarily have limitations to how they will match customer needs in terms of product offering. Innovations in product effectiveness include the e-tailers' possibility to expand its demand, by offering complementary product offerings to its core product offering in order to deliver superior customer experiences. (Sorescu et al. 2011, p. 9) It has been recognized that the offering of a wide range of complementary products and services to the vendors' core product offering will increase the value of the total offering and enables the vendor to differentiate itself from competitors. These complementary services (in addition to order fulfillment) include factors such as online customer service, payment options, and interactive components (Colla & Lapoule 2012, p. 848).

Customer lock-in refers to a vendor's actions, by which it tries to maximize the customer's costs of switching to a competing product after the initial investment is made. Such switching costs relate to time and resources consumed by the customer in searching for and acquiring the substituting product. (Shapiro & Varian 1999, p. 11) In e-tailing increasing customer lock-in include actions, which are designed to offer the customer a high incentive to return to the storefront (Sorescu et al. 2011, p. 9). Sorescu et al. 2011, p.9) stresses on the fact, that by only taking actions which are designed to get the customer to make repeat purchases, it puts customer satisfaction at risk. Instead, a vendor should be able to provide innovative ways of delivering lock-in, simultaneously building an enduring customer relationship with the counterpart.

An e-tailer business model should also deliver value to the customer, instead of just appropriating value to the e-tailer. Customer efficiency and effectiveness, accompanied with customer engagement constitute to the components of an e-tailer business model, which deliver value to the customer. (Sorescu et al. 2011, p. 7) Making the e-tailers' product offering accessible for customers as easily as possible is referred to as customer efficiency. Increasing customer effectiveness refers to the e-tailers ability to offer products which meet customer needs, and the depth of customer effectiveness has traditionally been increased by offering wider ranges of products. In order to accomplish customer effectiveness, the retailer has to possess a deep understanding of the consumer's needs. (Sorescu et al. 2011, p. 10) According to Sorescu et al (2011, p.11) customer engagement refers to the e-tailers ability to offers such customer experiences, which generates wider emotional involvement from the initial purchase of the physical product.

3.1.1 Value Proposition

A value proposition is a key element in the e-tailer business model. A value proposition is not just fuzzy promises made to consumers about the vendor's service; it is about the overall statement about how the organization has organized its offering, people, processes and technology in order to provide value. Value propositions are not just a statement about how the e-tailer has decided to shape its marketing mix; it is a business tool for providing strategic direction to the entire organization as well as it is a promise for the customer about it providing value. (Murphy & Narkiewicz 2010, pp. 100- 105) As Murphy and Narkiewicz (2012, p. 103) state "A value proposition has to be what you do and who you are. It cannot just be what you want to be and what you say you are."

The elements of an effective value proposition include service, quality, image, and value-based pricing. Value propositions in online retailing should be clearly stated, consistent and possess credibility in addition to providing distinctive elements from the competitors' value propositions. If the e-tailer is able to organize and drive its business processes according to its unique value proposition, it may expect to be awarded with success in the marketplace (Murphy & Narkiewicz 2010, p. 100-105).

3.1.2 Target

Companies should always divide the total market by the use of suitable criterion, choose the segments which are able to generate the greatest customer value, and come up with operative means to profitably serve the chosen customer segments (Kotler & Armstrong 2006, p.47). The segmentation criterion and the targeting of suitable customer segments which best suit the company's value proposition remains important also in

the case of e-business models (Osterwalder & Pigneur 2003a., p. 448). Companies generally design their offerings to meet the needs and create value for clearly defined customer segments. For an e-tailer to be successful in the marketplace, it has to define its market scope. The market scope includes determining where the company will compete for customers, in which geographical context, and with what kinds of product offerings. Information technology has enabled an e-tailer to differentiate its product offering between different geographical areas, and between different customer segments with relative ease. (Dubosson-Torbay et al. 2002, p. 8) Information technology tools such as data mining, multidimensional segmentation and data clustering, enables e-tailers to segment their market at any level between “mass” and “individual” with the only constraint being the benefit-cost perspective of such actions (Osterwalder & Pigneur 2003a., p.449). However, as acquiring customers and maintaining a customer relationship also has costs associated, it is important that a company analyzes what kind of customers it wants to influence and acquire, which will be profitable enough that it will be worthwhile to spend on customer relationship efforts (Osterwalder & Pigneur 2003a., p.455).

3.1.3 Capabilities

Capabilities refer to the performing of repeatable patterns of asset use, with the objective of creating, producing and offering products or services to the market (Osterwalder & Pigneur 2002, p. 5). The company has to possess or have access to the required capabilities which constitute to the deliverance of the proposed value for customers (Dubosson-Torbay et al. 2002, p. 8; Osterwalder & Pigneur 2002, p. 5). From an e-tailer point of view, these capabilities reflect the company’s strategic intentions of using the internet in order to share information, enable transactions, offer added value through customer service and strengthen back-end integration between the counterparts in its network. (Zhu 2006, p.169)

Zhu (2006, p.176) describes that capabilities refer to way an e-tailer distributes its investments in information technology and e-tailer business model components, in order to achieve its business objectives. Information capabilities refers to the e-tailers ability to deliver information about its product and services to the customer, and include components, such as product information which in fact can be delivered to the e-tailer directly through back-end systems integrations by the supplier of the sold goods. Transaction enabled capabilities refers to the e-tailer ability to maneuver all components in its supply chain. Capabilities related to customer service are available in order to the e-tailer to engage in interaction with the customer. Back-end integration capabilities are technology related capabilities, which enable the e-tailer to organize automated co-ordination of information flows and processes with its external partners in the network. These capabilities offer the e-tailer the ability to transform resources which are fragmented throughout the e-tailers value adding network into a tightly interlinked network of systems which may offer the e-tailer competitive advantage. (Zhu 2006 p. 181)

Technology does not directly translate into capabilities which will become a source of competitive advantage. Rather, the means by which capabilities may be translated into competitive advantages is the overall information technology architecture, which cuts out barriers relating to system incompatibilities between different in-house operating systems and further the systems utilized by other actors in the e-tailers value creating network. E-tailer capabilities derive from resources in the entire e-tailer value creating network and are present in all business processes inside the company and between the value adding operators. (Zhu 2006, p. 177) Back-end integration capabilities include integrating the online storefront user interface with various corporate databases and back-end information systems (in-house and out-house) in order to conduct efficient fulfillment and logistics management with suppliers and distributors in its network by transferring for example invoice data, product information data, and

inventory data between the operators in the value adding network. (Zhu 2006, p.181)

3.2 Customer Relationship

Customer relationships cover all aspects relating to customers. It includes determining which segment of customers the e-tailer targets, in which ways it gets in touch with them and how and what kind of relationship it establishes with the customer's. Customer relationship describes how and to whom it delivers its value proposition. (Osterwalder & Pigneur 2003a. p. 448; Dubosson-Torbay et al 2002 p. 8) Profits from customer relationships are crucial for any business (Osterwalder & Pigneur, 2003 p. 455). Figure 5 below describes the scope of customer relationship in e-tailing.

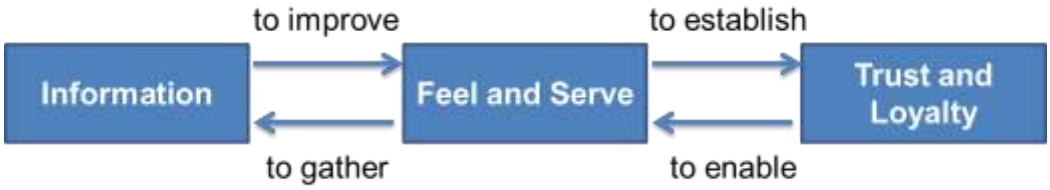

Figure 5: Elements of the Customer Relationship component (Modified Osterwalder & Pigneur 2002, p. 6)

The online operating environment offers great means for an e-tailer to interact with its customer base, in order to build relationships with them. Interaction with customers include actions prior to the shopping experience and during the initial storefront visit. (Wang & Head 2007, p.120) E-tailers may use tools such as personalized storefronts or community-building features in their business model. Further, as customer service is one of the key components in e-tailer business models, the vendor may provide individual customers with exclusive treatment, such as

non-standard offerings. E-tailers, which are able to provide constant and mutually beneficial relationships with its customers to create a bond between the counterparts, have better customer retention rates. (Wang & Head 2007, p.119)

Recent studies indicate that consumers tend to prefer the use of a single e-tailer when purchasing online. Consumer relationships, such as the consumer's perceived trust in quality or the brand are considered vital components that influence the consumer decision-making process, since online storefronts cannot provide such decision-making criteria which relate to tactile input. Relationships between the e-tailer and customers have also been viewed as a factor diminishing the perceived risk online consumers may experience (Wang & Head, 2007 p. 115) Customer relationships refers to the possibilities for an e-tailer to exploit its customer base by the use of information technology, in order to feel (understand) the customers desires and serve and develop an enduring relationship with them.

Gupta et al. (2009, p. 612) view customer satisfaction as one of the key success factors in online business. Wang & Head (2007, p. 127) conclude from their study on e-tailer customer relationships, that e-tailers should focus on building and maintaining consumer satisfaction, trust, and the perception of high switching costs in their customer relationship efforts. Wang & Head (2007, p.127) further note that advances in technology and the changing competitive environment requires constant benchmarking and evaluation of performance with regard to the mentioned relationship building blocks.

3.2.1 Getting a Feel for the Customer

Information technology can be used for gathering databases in order to analyze customer related information and it can also be used to facilitate innovative means to interactive relationships with customers (Osterwalder & Pigneur 2003a. p. 447-448). The subcomponent “getting a feel for the customer” refers to the e-tailers constant gathering and analysis of customer information and knowledge by the use of information systems, in order to understand the customers’ detailed needs in order to enable the fulfillment of personalized needs and to strengthen the relationship with its customers (Dubosson-Torbay et al. 2002, p. 8). The fallen cost relating to information technology acquisition and utilization has enabled vast diffusion of customer- and product related information, by the use of frameworks such as data warehousing, data mining and business intelligence to name a few (Osterwalder & Pigneur 2003a. p. 447-448).

According to Rowley (2006, p.343) an e-tailer should strive to understand the process of how customers will get committed to the vendors service. Further the e-tailer should constantly develop its product/service in such direction, that it will facilitate the process of customer commitment. (Rowley 2006, p.343) Dubosson-Torbay et al. (2002, p. 8) and Osterwalder & Pigneur (2003, p. 448) further note, that gathering and analyzing customer data also enables the e-tailer to discover new business opportunities within its customer segments and increase customer satisfaction. Detailed information about customers enables rapid product/service development or even product/service innovation.

3.2.2 Serving the Customer

Customer support, customer relationship management (CRM) and e-fulfillment constitute to the subcomponent “serving the customer”. The concept refers to the e-tailers determined way of delivering additional value to the customer (in addition to its core product offering) and how it has organized its support and service operations. The internet offers several ways of implementing efficient CRM and service- functions, such as providing the customer with extensive information about the products offered, by offering personalized real-time information for customers, and by offering value-adding e-fulfillment services. (Dubosson-Torbay et al. 2002, p. 9)

E-fulfillment as used in the context of e-tailing, is associated with the process of delivering the ordered goods to the customer. The e-fulfillment distribution process includes the sales, delivery, warehousing, and purchasing functions. The sales function includes all processes, which directly are affiliated with customer demand, including pricing, order promising and forecasting. Delivery processes include the entirety which physically shifts the product to the end-user. Warehousing involves the storage and order handling functions. Purchasing refers in this context to all supply processes, which involve the ordering of the sellable items. (Agatz et al. 2008, p.341-342) The operation has frequently been reviewed as the most critical and also the most expensive operation of e-tailing (Agatz et al. 2008, p. 340; Kumar et al. 2012, p 810). The notion has led to e-tailers’ taking drastic measures in organizing its supply chain operations as efficiently as possible, in order to gain competitive advantage (Nicholls & Watson 2005, p. 431).

Customer loyalty refers to a customer’s deep desire to constantly buy the preferred product provided or service produced by the company, despite

situational competitive actions to win the customer to consume its products or services. It is extremely important for e-tailers' to create a loyal customer base, since it has positively effects on the long term profitability of the e-tailer. (Ribbink et al. 2004, p 446) Rowley (2006, p. 347) supports the notion that e-fulfillment is important in delivering customer satisfaction and loyalty and further explain, that customer loyalty can generally be traced to customer satisfaction. Customer satisfaction is further related to trust and has been considered to derive from trust (Ribbink et al 2004, p. 448). Colla & Lapoule (2012, p. 847) note that fulfillment has been considered the most important element in establishing consumer trust. In other words, an e-tailer should design its business model in a way which enables trust-building with customers, which results in customer satisfaction and ultimately to customer loyalty, which in turn has a profound effect on profitability. If an e-tailer wishes to be successful in the marketplace, it has to be able to organize its entire business operations in a closely integration fashion, from systems and networks, to logistics and customer support. (Rowley 2006, p. 347)

E-tailers should offer its customers a personalized relationship, which can be done by storing and analyzing data from large databases, which relate to the customer's historical buying behavior, tastes and needs and their contact history. A personalized relationship in e-tailer context does not relate to a one-to-one relationship, rather it relates to the use of tools such as personalized product recommendation systems which enables the e-tailer to take actions based on different attributes in the customer profile, which in turn have been collected based on previous association with the customer. (Osterwalder & Pigneur 2003a., p. 457)

3.2.3 Branding

Osterwalder and Pigneur (2003, p.458) summarize the concept of a brand being a resource for creating differences between actors that possess the capability to fulfill a specific customer need, and assists in delivering a consistent message about the company to the consumer in order to generate and sustain a competitive advantage. Branding has not lost its relevance with respect to e-tailer business-models, but the contents of branding can be seen to have shifted towards relationship dynamics, which refers to the emotional and transactional relationship between the e-tailer and the customer. Branding in e-tailer context can be seen as the vendors' ability to build an interactional relationship between its suppliers, partners, and customers in such fashion, which makes this relationship beneficial (value-adding) to all the counterparts. (Dubosson-Torbay et al. 2002, p. 9) Sorescu et al. (2011, p. 11) also explain, that branding should directly influence customer engagement by adding "tangible or intangible value tie-ins" which offers the consumer an "emotionally stimulating" shopping experience, which creates an unique relationship between the customer and e-tailer. Branding in the context of e-tailer business models appear close by the definition of a value proposition made by Murphy & Narkiewicz (2010, pp. 99-105).

3.3 Infrastructure Management

The development of information technology has enabled the seamless inter-firm integration of the e-tailer, suppliers and distributors and enabled the formation of supply chain alliances which are strategic by nature and provide competitive advantage to the e-tailer. (Stavrulaki & Davis 2010, p 347),

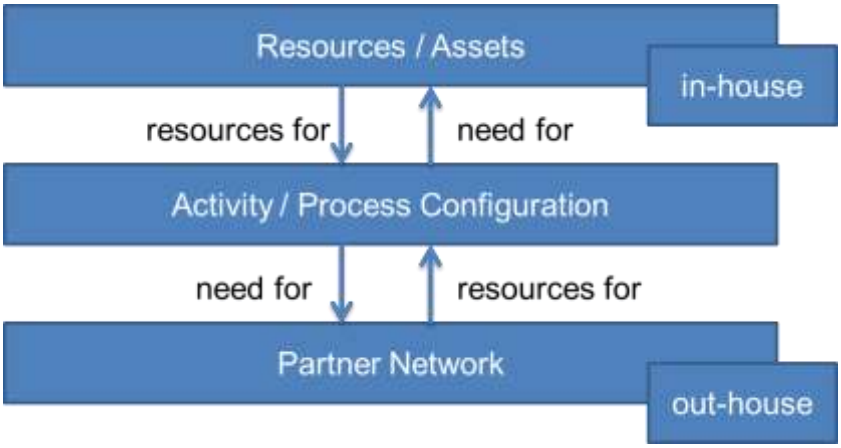

Figure 6: The elements of Infrastructure Management (Modified Osterwalder & Pigneur 2002, p. 5)

The co-ordination of the network of relationships between intra-firm and/or external partners resources, assets and activities in order to deliver the value proposition to customers are subject to infrastructure management (Dubosson-Torbay et al. 2002, p. 9). According to Chandra (2002, p.41) the e-tailer should aim in building a redundant information technology solution, which has been integrated to different in-house and partner information systems in order to collect and share data between the various instances in the value chain which provide value for the customer.

3.3.1 Resources / Assets

Resources are the basis for the value-creation process, and a company always needs resources in order to create value. Capabilities are formed by the use of resources in repeatable manner, to create, produce and offer products or services to the customers. Resources form capabilities, which in turn deliver the company's value proposition. (Peteraf 1993 p. 180-185) Resources may be tangible, intangible, or human resources. Tangible resources include factors such as hardware and cash reserves, while intangible resources refer to aspects such as brands and trade secrets.

Human resources are the knot that ties the company's tangible and intangible resources together in order to create value. (Osterwalder & Pigneur 2003b., p. 15-16) Resources have increasingly been outsourced to other actors in the company's value adding network, as information technology has enabled tight co-ordination and integration of these spread resources more economically viable than to possess all resources in-house. (Osterwalder & Pigneur 2003b., p. 15) In the modern networked economy, companies should focus solely on operating those resources and capabilities, which forms its core competence, and outsource the more inferior functions to other operators in the network (Dubosson-Torbay et al. 2002 p. 10).

3.3.2 Activity and Processes

Activities refer to the actions a firm overtakes in order to deliver value to its customers and achieve profits. Activities are implemented by actors, which may be either the company's in-house operations or they may be executed by other actors in the company's value adding network. Activities derive from the company's in-house resources or the possessed resources of the actors in the partner network. (Osterwalder & Pigneur 2003b., p. 17) The activities an e-tailer performs may be visible, and thus imitable by competitors, but the underlying structured dynamics and management of these activities may offer the e-tailer protection to its competitive advantage against imitators, as duplicating these dynamics require the competitors to have gained detailed specifications about the e-tailers interrelated core processes between itself and its partners. (Sorescu et al. 2011, p. 12)

3.3.3 Partner Network

Partnerships are a crucial element of an e-tailer business model (Osterwalder & Pigneur 2003b., p. 21-22). An e-tailer may benefit from a partners or suppliers scale economies or from its specialized knowledge, which the company would not be able to acquire or maintain on its own and is able to grasp resources which it does not possess itself and combine these resources with its own resources to form capabilities. (Osterwalder & Pigneur 2003b., p. 21-22) The partner network in an e-business model defines, which of the operations in the process of adding value are conducted by the e-tailer, and which parts of the activity configuration has been transferred to the partners of the company. (Osterwalder & Pigneur 2002, p. 5)The partner network constitutes to the strategic relationships between the e-tailer and its partners and it expresses how value is being created to the customer. As the internet has diminished transaction costs between operators, companies are able to fully focus on its core competencies and operations, and outsource other competencies to other operators. (Dubosson-Torbay et al. 2002, p. 10; Osterwalder & Pigneur 2002, p. 5)

3.4 Financial Aspects

An easy way to understand the role of financial aspects in an e-business model is define them as the costs required to organize the infrastructure of the company for the purpose of generating revenues from sold value (Dubosson-Torbay et al. 2002, p.11). The differences between the created value and the costs of performing value activities determines the profitability of the company (Nicholls & Watson, 2005 p. 427; Dubosson Torbay et al. 2002, p.11).

3.4.1 Revenue Model

The company's revenue model is an integral part of the e-tailer business model and it describes the specific means, by which the e-tailer captures revenues for itself and its partners (Amit & Zott 2012, p.46). The revenue model component translates to the e-tailers ability to transform the value it offers into incoming streams of money. An e-tailer enjoys the possibility of utilizing new pricing mechanisms made available by information technology. (Osterwalder & Pigneur 2002, p.7)

3.4.2 Cost Structure

The cost structure refers to all the activities with result in costs to the firm, from the creation and deliverance of value to customers. These costs result from all resources, assets, activities, and partner network transactions and relations that the company undertakes or utilizes. Focusing solely on the company's core competence enables cost savings, as the non-core activities can be outsourced to partners. Also, the right use of information systems in operating customer relationship activities may bring the opportunity of delivering premium customer service at a moderate expense. (Osterwalder & Pigneur 2002, p.8)

3.4.3 Profit Model

Profits are determined between the differences between costs and revenues. Deriving from this fact Osterwalder & Pigneur (2002, p.8) refer to the profit model as the "culminating point" of the entire e-tailer business model. The Product Innovation and Customer Relationship component are designed to maximize revenue and the purpose of Infrastructure

management is to minimize the costs of operating the business model, in order to optimize the profit model. (Osterwalder & Pigneur 2002, p.8)

4 THE ROLE OF TECHNOLOGY IN E-TAILER BUSINESS MODELS

The previous chapter described the components of an e-tailer business model. The main components were divided into Customer Relationships, Product Innovation, and Infrastructure Management. These were further divided into subcomponents, in order to explain the relationships and managerial areas of different processes, activities, and the consumer interface. The previous chapter did describe briefly, how information technology plays a significant role throughout the components of an e-tailer business model, but no holistic approach was illustrated. This chapter describes the role of information technology in enabling and managing an e-tailer business model, by illustrating how information technology both enables efficient maneuvering of e-tailer business processes and information processing and distribution and thus adds value to all the components of the e-tailer business model.

Information technology value can be defined as the impacts on company performance on the operational process level, but also within the competitive environment, since it may include unique value creating components, which offers the company competitive advantage and which the competitors find impossible to imitate. (Melville et al 2004, p. 287; Skrinjar & Trkman 2013, p. 50) The information systems utilized for e-tailing are applications using Internet enabled technology, such as tools which enable universal connectivity and the web browser, in order to integrate business processes inside the company and between the actors in its value adding network. E-tailer information systems are the basis for implementing e-tailer business models, since they enable inter-organizational transactions to be made in an integrated information space, and disregards the incompatibilities of various computing platforms,

networks and applications of different actors. (Pant & Ravichandran 2001, p.85)

As information technology has proven its ability to span across organizational boundaries, enabling linking multiple actors in a network of value adding operators, the IT resources of the value adding partners of the focal firms also impact the focal firms by increasing the added value of IT (Melville et al 2004, p.297). Typically e-tailer information systems are integrated within the e-tailers own systems, as well as with its external partners to the extent necessary to deliver value between co-operations between the actors in the network. Internal integration usually includes integration between the company's back-end systems such as the ERP and the CRM system for handling for example inventory levels and customer relationships. (Pant & Ravichandran 2001, p. 90) External integration usually includes integrations between the e-tailers' systems and their partners for the purpose of conducting efficient ordering and procurement processes. (Pant & Ravichandran 2001, p.94)

4.1 Technical E-tailer Resources and Capabilities

An e-tailers' information technology resources can be divided into physical capital resources, human capital, and complementary organizational resources. Physical capital IT resources include the company's common IT infrastructure and the specific business applications which require infrastructure in order to provide value. Physical capital IT thus include both hardware and software resources. (Melville et al 2004, p.294) The expertise and knowledge embedded in the organization are included in the human IT resources category, and consist of both technical and managerial knowledge. Technical expertise includes critical capabilities related to aspects such as application development and system integration

competence. Managerial expertise refers to the company's resources capable of managing the company's resources, and to identify necessary IT development projects. (Melville et al 2004, p.294) Organizations should not just focus on acquiring human resources with specific information systems knowledge, but it should constantly strive on forming organizational dynamic capabilities which are able to assess constant changes in organizational environments and business processes. (Skrinjar & Trkman 2013, p. 50) The third category, complementary organizational resources, include synergies between the IT resource and resources in other organizational resource categories (Melville et al 2004, p.294).

Figure 7 below includes a simplified presentation of the order cycle in e-tailing. In order to carry out the steps in the order cycle, in the e-tailer has to possess different capabilities, including the ability to provide information, enable transactions, offer personalized services, and integrate back-end functionalities and processes for fulfillment by the supply chain. Following this conceptualization, e-tailer e-commerce capabilities can be divided into these four categories, all needed to successfully carry out its business model. (Zhu 2006, p. 181)

Figure 7: E-Tailer Order Life Cycle (Zhu 2006, p. 181)

Information capabilities relate to the e-tailers ability to provide useful and up to date information about the company and its products and services. These capabilities include product information, search and navigation, in-store and online product reviews and additional value-adding complementary information to the e-tailer physical product offering. (Zhu

2006, p. 181) Transactional capabilities include all elements which relate to enabling taking orders online and the capabilities required to efficiently manage the physical transactional linkages in the e-tailers business model constructed into a value-adding network. Capabilities related to personalization include the ability of the e-tailer to customize its service according to the customers' individual preferences and behavioral patterns, and the customer relationship-related capabilities include the ability to offer personalized information, content and configuration, and account management such as real time- customer support capabilities. Integration of the processes included in the supply chain requires capabilities which enable the electronic integration of different actors in the e-tailers value-adding network. (Zhu 2006, p. 181)

Zhu (2006, p.193) notes that e-commerce capabilities and the e-tailer's information technology infrastructure together produce a holistic bundle of resources and capabilities, which possess the ability to operate successfully an e-tailer business model. The e-tailer business model requires significant investments in equipping the organization with resources and capabilities in infrastructure services, such as application infrastructure management, communications management, and IT management. (Weill & Vitale 2002, p.27) The scope of the managerial processes related to information technology includes professional and strategic activities of planning information systems, managing the implementation of project related to the e-tailers overall information systems architecture (Weill & Vitale 2002, p. 31).

4.1.1 Application Infrastructure and Communications Management

An application is a software program, which is designed to transform electronic input into a useful form in order to provide value to the organization. The scope of application management is to purchase

suitable software and develop appropriate applications. Application management is responsible for the applications of the organization delivering the business value for the organization. (Weill & Vitale 2002, p. 30) An e-tailer business model requires investing a range of applications, such as enterprise resource planning entities (ERP), customer relationship management (CRM) software, and e-commerce software designed solely for enabling e-tailing activities and supporting workflow applications to ensure that the business processes related to the business model are managed in an efficient manner. (Weill & Vitale 2002, p. 27)

Weill & Vitale (2002, p. 31) describe the role of communications management to consist of managing all the technology which enables digital communication within the organization and between other organizational actors. Communications management make use of hardware and software, which enable communications via the Internet, telephones and other communication and messaging services, by cabling and linking the organization into and communications network.

4.1.2 Data Management

Data management involves the policies and actions taken by the e-tailer in order to handle its information resources. It includes the sourcing of information from internal and external databases, and the designing, sorting and making use of the information once the compatibility of the data has been assured. (Weill & Vitale 2002, p. 31) Data management procedures are the basis for conducting effective business process management. The e-tailer constantly gathers data about customers, products and suppliers into their systems and databases. For e-tailers harmonized databases are crucial for operating their customer relationships as well as their entire supply chain. The e-tailer has to

possess internal resources and capabilities for ensuring that the available data is of good quality and consistent. (Loser et al. 2004, p.1)

4.2 Business Process Management

The business model describes the creation of the e-tailers product/service, while the operationalization of the tasks of the business model is described by developing and implementing business processes. The business model describes “what to do” and business processes define “how to do it”. From a strategic viewpoint, the suitability of a business model is dependent on how the e-tailer gains access to information and is able to share this information throughout its value adding network of actors by the use of information technology. (Solaimani & Bouwman 2012, p. 655; Xu 2011, p.189)

Soroor & Tarokh (2006, p. 304) describe the supply chain as the e-tailers network of distributors, logistics providers, warehouse facilitators, and suppliers, which include the integration of the critical business processes between the end user and actors which provide different value adding activities from providing products and services to information. Companies require adequate information architectures in order to be able to perform efficient supply chain management and in order to share information between different counterparts and in order to control and coordinate the activities performed within the supply chain. (Xu 2011, p. 183-184) Technology enabled supply chain management enables the integration of information and material flows between actors for increased productivity, more cost efficient processes, and enhanced customer service. Despite the modern e-tailer supply chain network possibly being geographically spread across the globe including numerous actors, information

technology has enabled the almost real-time co-ordination of the business processes. (Soroor & Tarokh 2006, p. 304; Melville et al. 2004, p.297)

Zhu (2006, p. 178) reports that information technology is capable of offering huge benefits in e-tailing for inventory management operations. Inefficient exchange of information between various actors in the e-tailer value-adding network may lead to unnecessary inventory buffer build-ups in the supply chain (bullwhip effect). Modern corporate IT infrastructure accompanied with internet-enabled tools and protocols, enables highly coordinated and optimized information flows between different actors. (Xu 2011, p. 189) Overall, as the speed and content of information is being transmitted throughout the entire value-adding network of actors, average inventory turnover rates increase and unnecessary inventory stock can be dismissed throughout the supply chain. (Zhu 2006, p.178)

4.2.1 Business Process Design

Business process management (BPR) can be seen as an especially critical managerial operation for e-tailers, because the efficiency and effectiveness of the company's processes are the main sources of its competitive advantages. Process design relates to designing and transforming the business model into clearly defined processes, and is the most important component of BPM. (Wang & Harris, 2011 p. 97) When designing business processes, the e-tailer should simultaneously assess how it will be able to provide support for the process by the use of information systems and ensure alignment between information systems and business processes. (Skrinjar & Trkman 2013, p. 50) Managing the different business processes throughout the digitally connected network of partners requires a different managerial view to traditional business process management. Managing business processes in the e-tailing environment is about establishing and monitoring the relationships with the

inter-firm actors which are associated with delivering the overall value of the product/service. (Warkentin et al. 2012, p. 13279)

4.2.2 The Role of Technology in E-Tailer Business Process Design

Information technology is able to provide the e-tailer more than just tools for automating processes, it has the capability to transform the logic by which business is done and reshape entire business processes, instead of solely supporting the established processes. (Attaran 2004, p. 586) A process-oriented viewpoint of activities offers the company the possibility to identify the numerous ways by which information technology is able to deliver business value, and thus the value of IT should also be measured by defining its role in specific activities or processes. Business processes should always be designed by transforming the e-tailer business model components into specific activities, and equally importantly technological factors should be considered in synthesis with business process design. Information technology is capable of providing value only if it is aligned with the business processes. (Trkman 2010, p.126) Skrinjar and Trkman (2013, p. 50) further describe that technology may not be a source of sustainable competitive advantage, but instead the organizational capabilities which are able to constantly sustain the alignment between information technology and business processes may provide competitive advantage.

Information technology offers the company the ability to aid or replace human resources and make processes more efficient. Especially routine tasks can easily be automated. Automating business processes result in faster, more cost-efficient, and better quality results, the trade-off being the costs of building automated enterprise architectures. (Trkman 2010, p.130) Melville et al. (2004, p. 292) note that the company's performance will be enhanced if the appropriate information technology is deployed to

serve the appropriate business process, assuming that the company also invests in complementary workplace practices and considers restructuring the organization and takes into account the competitive environment.

The information technology available today has enabled the companies to truly operate in an agile fashion, by continuously restructuring and redesigning its partner network, to align it in a way which best suits the current demand. State of the art Business-to-Exchange networks utilize standard communications and applications protocols (XML-technologies such as WSDL, UDDI, SOAP) and enable the e-tailer and its partners to connect with web services and utilize the integration points without having to allocate extensive resources for system configuration management. (Warkentin et al. 2012, p. 13279) The availability to quickly connect different back-and front-office functions to real-time information exchange between the e-tailer and the actors in its partner network without requiring human intervention has enabled the e-tailers value adding business processes to seamlessly span outside company boundaries without the various actors having to rigorously design and configurate their systems and processes. (Papazoglou 2001, p. 71-72) As Warkentin et al. (2012, p.13280) state *"We are witnessing the evolution of agent-based inter-organizational systems that enable complex direct interaction between heterogeneous information systems, which allow Web-based eServices to discover each other, act autonomously, communicate independently, provide dynamically-configured services to one another, and establish composite business systems."*

4.3 Data Mining

The actions made by customers on an online site leaves digital footprints, which are automatically stored by servers for the use of intelligent agents,

for analysis and introduction of meaningful data, (Rao 2012, p.1) E-tailing has multiplied the amount of data available for data mining actions, which should be deployed to provide valuable knowledge for managerial decision making. Data mining enables the e-tailer to synthesize consumer online and company storefront behavior and patterns into understandable and valuable information, resulting in deep understanding of consumers. (Rao 2012, p.1) Data mining may use both internet-based data and external data on customers in analyzing and bringing up useful information for decision support purposes. Online data mining can further be divided into web structure mining, which means the efforts made to reconstruct the structure of a popular website by the use of data mining principles, and web-usage mining, which refers to the mining of log files of the e-tailers storefront to generate knowledge about buyer behavior on the site. (Rao 2012, p. 1)

E-tailers should invest in building an information systems architecture, which is able to analyze and make us of the data available, in order to learn about their customers and develop competitive advantages. For an e-tailer, data management and data mining considerations should be treated as an equally important operational field as for example transaction processing and online inventory management. As the amount of data available about online storefront visitors and external sources is enormous, the e-tailer should determine what data it will be continuously collecting and how it will organize it, how it should analyze the data and what the frequency of analysis is, and how to confirm the results of analysis and include the information into managerial planning and decision-making. (Warkentin et al. 2012, p. 13277) As Warkentin et al. (2012 p. 13277-13278) state, the mining of data based online, and analyzing this data for useful information is the enabler of the creation of long lasting relationships with customers, and in addition enables creating even closer relationships with the e-tailer strategic partners.

4.3.1 Data Mining and Customer Relationships

Customer relationship management includes various aspects an e-tailer has to know about its customer in order to make these customers more profitable. As commerce is shifting towards e-commerce at an accelerating pace, the company has to understand how this change has a profound effect on how customer relationship management activities should be maneuvred. No more are customers loyal to brands; they are only loyal to value. (Rao 2012, p. 1) This requires that the company constantly engages in analyzing data that has been gathered from various sources and channels engaged in customer relationship activities. Once the customer is being understood, the company should take actions towards each customer accordingly. (Tuzhilin 2012, p. 588-589)

For the e-tailer, engaging in data mining and investing in customer relationship management (CRM) systems, are vital for achieving a competitive advantage in the field of highly customer-centric business models. CRM systems and business intelligence tools are invested in and used to improve customer relationships by offering decision support data, such as very precise market research data, but also by offering enhanced online and offline customer service operations. (Phan & Vogel 2010, p. 69)

Current information technology and information systems offer the e-tailer the possibility to gather data from consumers' online behavioral patterns and online storefront clickstream- and previous orders-data in order to present the individuals with personalized products/services and product offerings. An example of such personalization and customer engagement includes displaying products from such product groups on the storefront landing page, from which the customer has previously been interested or purchased an item. The e-tailer can also offer individual customers

personalized checkout processes based on their clickstream preferences. (Warkentin et al. 2012, p. 13278)

Data mining and business intelligence possess the capability to determine individual customers shopping patterns and desired product offerings on a very precise level, enabling enhanced customer relationships. (Phan & Vogel 2010, p. 69) Warkentin et al. (2012, p. 13282) note that web-based e-tailer technologies enable the consumers to make more precise purchase decisions, which are not limited by geographical whereabouts, time, or information asymmetry. From the e-tailers point of view, the information gathered and transmitted through information technology and systems, offers tremendous new opportunities to mass customize its product/service, and enables for example the offering an individual storefront for each customer of the e-tailer, which takes into account all possible individual preferences related to the product/service, enabling the deliverance of an intimate and personalized customer experience and the deliverance of value for customers. (Rao 2012, p. 1)

4.3.2 The Role of Data Mining in Supply Chain Management

Information technology which provides the e-tailer and the actors in its value-adding network to connect with each other can also be further enhanced to include data mining activities. As typical e-tailer back end function and supply chain processes such as inventory control, customer service, marketing and production planning are equipped with data mining capabilities, all functions and processes may be optimized. An example of these benefits includes for example more precise demand forecasting. (Papazoglou 2001, p. 73) Intelligent agents could also be deployed by external Application Service Providers (ASP), which gather data from an enormous amount of data from different actors, and crunches the data and sells it to provide information to companies. An example of this kind of

data provided from an external operator includes shipping patterns, providing the e-tailer the opportunity to make order fulfillment and logistics processes more optimized and efficient. The e-tailer and all of its partners in its value-adding network benefit from conducting data mining analysis and sharing the information between the actors in the network. (Warkentin et al. 2012, p. 13282)

4.3.3 General Architecture of an E-tailer

According to Xu (2011, p. 185) the information architecture refers to the interrelated and integrated group of components, which require each other in order to be able to perform a specific activity. Appropriate e-tailer architectures enable the creation of efficient and responsive supply chains or supply networks, which are able to dynamically react to rapidly changing market conditions. The business architecture provides a holistic, logical multifaceted view of the organizations key components, and stresses the importance of information exchange between functions and actors. (Solaimani & Bowman 2012, p. 666) The IT infrastructure connects the different organizational functions and activities and connects them with suppliers, customers and partners. (Zhu 2006, p. 180) For an e-tailer, the investments in the IT infrastructure designed to enable the implementation of its business model, can be fully compared to the physical infrastructure investments of other industries, such as investments in manufacturing plants. (Weill & Vitale 2002, p. 18) The general e-tailer architecture presented in Figure 8 includes the e-tailers web server / online storefront, which includes modules for product searching, order orchestration, payment processing, and customer relationship management.

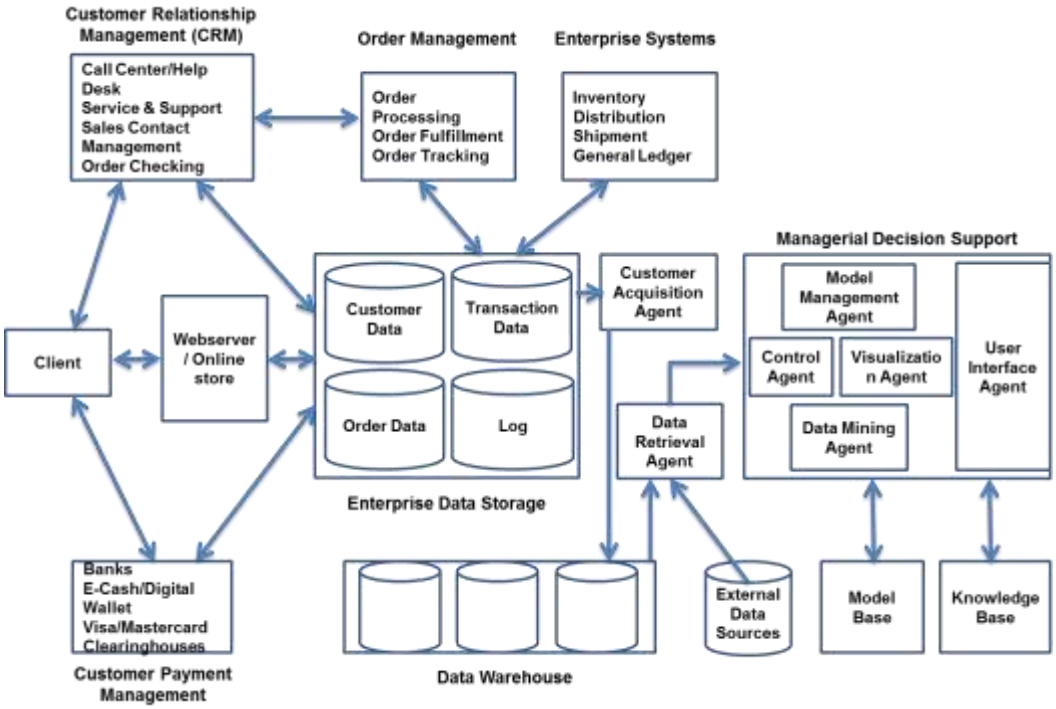

Figure 8: General Agent Enhanced E-tailing Architecture (Warkentin et al. 2012, p.13279)

For an e-tailer being able to automate its supply management activities as far as possible has become the most critical success factor, and constructing such automated processes require different organizational capabilities (Xu 2011, p. 184). The back-end capability includes interfaces and modules, which enable system integration between the entity and the ERP systems, in order to automatically transmit data for the purpose of for example inventory control, shipment processing and order fulfillment. The data acquisition agent in the architecture is responsible for transmitting the information gathered to the data storage to the data warehouse for further use. The data retrieval agent serves as the intermediary between internal and external sources of data and the managerial decision support module. These agents enable the storefront to take into account the behavioral patterns and preferences of individual customers. The architecture further illustrates the role of data mining and intelligent agent technologies. (Warkentin et al. 2012, p.13282)

4.3.4 Data Warehousing for Data Mining

A data warehouse is the storage of previously verified facts and data related to these facts, which are used for managerial decision-making. The data stored in the data warehouse is identified, classified and cataloged by such means which enable the analyzer to access correct information when needed. The data is delivered to the data warehouse by operational systems and external information providers, where after the data is cleansed, aggregated and rearranged into a database and available for decision-making. (Warkentin et al. 2012, p. 13280) Data mining refers to the act of searching for new, hidden, or unintuitive, patterns from the warehouse data. (Rygielski et al 2002, p. 485) Data mining is performed by deploying combinations of techniques, such as statistical analysis, neural networks, fuzzy logic, multidimensional analysis, and data visualization, and can be conducted by human-beings or intelligent agents. (Liao et al. 2012, p. 11303)

4.3.5 Intelligent Agents in Data Mining

As the data available and the various tools and techniques suitable for deploying analysis is enormous, e-tailers have started using “intelligent agents” to handle the information load. Intelligent agents are tools, which enable the automation of data mining-related activities, such as data cleansing and data transformation, and may act on behalf of the controlling human operator in problem solving task and in decision-making. (Warkentin et al 2012, p. 13278; Xu 2011, p. 189) These software tools have proven their usefulness in repetitively conducted tasks, but are also capable of summarizing complex data and have the ability to learn from previous decisions made. They can be seen to perform tasks regarding a specific business process, and are designed to be goal driven, meaning that the software agents are capable of creating a set of goals

which need to be achieved by organizations. (Papazoglou 2001, p. 72) These agents do not only perform data mining, but they also discover, find and report very productive information from enormous amounts of data, which would be impossible for human beings. (Warkentin et al 2012, p. 13280-13281; Rao 2012, p.4) Architectures with data mining capabilities and multiple agents are able to provide support for decision making for supply chain management. They can also assist greatly in supply chain coordination of the actors in the e-tailers network of value adding partners, by enabling the management of the complex interdependencies between the different actors. (Xu 2011, p.189)

The e-tailer information systems architecture includes several agents, which perform different tasks in the overall function. (Papazoglou 2001, p. 73) The roles of different agents can be reviewed by the Generic Agent-Based Data Mining Architecture (GAMA) proposed by Warkentin et al. (2012). The GAMA framework consists of a User Interface Agent, Control Agent, Data-Centric Agent, Data Mining Agent, and a Visualization Agent. The user interface agent is the instance from which the human being is able to manage and control the agent, and provides documents about the results of analysis. The control agent is the instance coordinating the specific tasks performed, such as choosing relevant data sources, requesting and synthesizing services from other agents and stores meta-knowledge about the capabilities of the agents included in the GAMA. The data-centric agent is the instance maintaining the meta-data about all databases, warehouses, and external data sources, and takes into account the differences in these databases while mining is performed and generates queries against the data warehouse. The data mining agent performs the actual data mining operation, and includes algorithms to perform specific analysis. It also distributes the results to the data visualization agent, which transforms the results to reporting templates and graphical illustrations, such as bar charts, ball graphs, rule graphs,

box plots, and trends enabling the analyzer to view the outcomes of the analysis from all possible angles. (Warkentin et al 2012, p. 13280-13282)

5 RESEARCH DATA AND METHODOLOGY

The following chapter describes how this research has been conducted, initiating with justifying why the case study methodology was the most appropriate for the purpose of this thesis and further explaining the research design and case study selection processes. The data collection methods are presented under this chapter and additional information has been brought in Appendix 2 describing the backgrounds of the interview respondents and the interview questions being presented as Appendix 1. The validity and reliability of the research design will also be reviewed under this chapter. Chapter six will proceed with data analysis.

5.1 Justification for Case Study Research Methodology

Creation of e-tailer business models and creating the enabling technology domain for crucial supply chain processes and customer relationship actions is an extremely complex process, in which a large number of actors and activities are interlinked. Qualitative research was seen as the best way to recognize, describe and formulate a holistic picture of e-tailer business model creation from a technology perspective, by investigating how the organizational actors have established the totality. Baxter and Jack (2008, p. 544) describe that case study research enables the researcher to investigate the organization(s), relationships, and programs by deconstructing the research subject into sub-components for later reconstruction. Accordingly, as this thesis focuses on describing the genuine situation of the Case Company it was seen as more important to provide descriptive evidence from the totality instead of introducing statistical data on causal relationships between variables, as noted by Al Qur'an (2010, p.105).

The case study research approach can be described as an empirical examination, which studies a present phenomenon within its real surrounding and context by enabling the use of several sources of data. (Baxter & Jack 2008, p.554) The case study method has been used greatly in topics of business research (Al Qur'an 2010, p. 104) and has been extensively applied to information systems-related research also and possesses considerable strengths for research in information systems, as it offers the researcher the ability to analyze information systems in their natural setting and enables the researcher to gain understanding of the complexities of the processes taking place (Gable 1994, p. 113). As this thesis integrates both business and information system components, it was deemed justified to use the case study research approach.

5.2 Case Study Research Design

The research design refers to the arranged circumstances, under which data is collected and analyzed in such fashion, that relevant information regarding the research objectives can be attained in an economic fashion. The research design is the plan about how to collect, measure, and analyze data. (Gable 1994, p. 116) This study is a descriptive holistic single case study, as it involves a single unit of analysis. However, if it would have been purposeful for the research, the single case study could have been viewed from an embedded perspective, in which for example different elements of the business model such as Customer Relationships and Infrastructure Management would have been treated as single entities instead of viewing them as interlinked, then the case study could have been seen as an embedded single case study. The single case study design was the most appropriate design for the purpose of this thesis, because this thesis aims in understanding a unique and typical phenomenon. (Al Qur'an 2010, p. 107-108)

Several researchers have stressed the importance of case selection over the quantity of cases selected and have strongly advised that cases should be chosen based on theoretical sampling instead of random sampling (Meyer 2001, p.333). Purposeful sampling practices should be undertaken, meaning that the case should be selected from a pool of potential cases, after careful evaluation has been done and the different possibilities have been given points under the relevant decision-making criterion (Al Qur'an 2010, p.108). The following section describes the case selection process in detail.

5.3 Case Selection and Introduction to Case Company

The researcher was granted access to an e-commerce technology vendors' databases, which included vast amounts of documentation and data about numerous e-tailer online business models and their processes and technological architectures from the previous ten years. The case selection started by narrowing down the available cases to the ones comprising of e-tailer online business models and their implementations. This narrowed down the amount of cases to approximately 30 cases. The following phase of case selection was to read the available documentation in order to determine 10 companies which would be most suitable for the purpose of this thesis in terms of scale, scope and robustness, from the point of view of business model components, operative processes and technological factors, such as back- and front-end integration to various instances in the value adding network.

Once the 10 companies were determined, the researcher was advised by the technology vendor's consultants to overrule all cases which had been rolled-out after 2010, since the researcher was informed that the pace of technological development had been so rapid, that basically these 2-3

year old implementations were at a risk of being outdated from a technology perspective. As the purpose of this thesis is to provide knowledge about online business model creation from a technological perspective, it seemed as a valid point for the researcher to consider this advice and to focus on the five suitable cases left, which had been introduced after 2010.

The following phase of case selection involved a more detailed review of the documentation available. The focus was to compare the information architecture with the desired business model objectives and to determine those cases in which information technology had been utilized in all aspects of the online business model, both in terms of efficiency and effectiveness, including business intelligence components for decision support and an extensive network of value-adding partners. This narrowed the optimum cases to an amount of three, of which all where large enterprise-level operators in the field of retail, both domestically and internationally.

One of the three cases clearly stood out of the pack, when the cases where reviewed by how relevant the business model and initiative was for the corporations as a whole. As this information was available in the form of consultation documentation, steering group memo's and quarterly management meeting memo's, it became evident that two of the business models where not seen as overly important for the corporation it was part of and where not given funding and resourcing so that they would have been able to operate their business model as planned. Luckily the case which stood out of the three possibilities was considered strategically important on a global scale for the corporation, and had been granted a generous investment program to implement an e-tailer business model to the slightest detail, with the most robust tools available and with the most suitable partners.

Despite the lengthy and time-consuming process of reading through the vast amounts of documentation of 30 e-tailer business models, operative processes and technological solutions, the outcome of the selection process was very satisfying, since the selected case fulfilled all the thinkable requirements set forth in this thesis. It is important to note, that due to the holistic nature of this research, and due to vast amounts of different theoretical concepts being interlinked together with complex structures, it was deemed most useful to focus solely on understanding the single case to the slightest detail, instead of trying to explain the theoretical concept in practice through three separate cases, as this assumedly would have led to a very platonic view on the totality. It was seen more justifiable to describe a single case in detail, than to report three different case studies (with poorer validity and reliability) the only explanation being that it might have been more generally accepted by research methodology literature.

The case company of this study is a leading global supplier of branded consumer products, offering products which are renowned worldwide for their functionality and cutting-edge design, and the group boasts a strong portfolio of trusted international brands. The company is headquartered in Helsinki. The company has been operating an e-tailer business model for years, but it recently wanted to transform its business model for global scalability and to improve cross-selling revenue and margins between brands, requiring very complex back-end information systems architectures in order to maintain efficient information flows between its internal business activities and its global network of value adding partners. It further wanted the new e-tailer business model to translate brand offering into a spectacular commercial online experience and increase customer satisfaction and loyalty.

5.4 Data Collection Methods, Techniques and Procedures

Data collection methods of qualitative research is varied, but are usually conducted by interviews or observations of social life. Both categories yield textual data. (Draper 2004, pp. 644) In this research data collection was implemented by interviews and by analyzing documentation of the case study's e-tailer business model and technology architecture. Data triangulation by the utilization of more than one data collection method has the ability to provide stronger substantiation of constructs (Eisenhardt 1989, p. 538). Combining different data collection methods has also been proven valuable in information systems related research (Gable 1994, p.112). Data gathering by interviews is one of the most important methods in qualitative research, and it has been deployed in great measures in field studies and ethnographic research (Sandy & Dumay, 2011 pp. 238).

The established interview methods can be divided into structured, unstructured and semi-structured interview methods. The structured interview includes a set of pre-established questions, to which the researcher allows the respondent only a limited amount of response categories. At the other end of the spectrum lies the informal, unstructured interview method. (Sandy & Dumay, 2011 pp. 244-245) The semi-structured interview is the most common of all qualitative research methods, and consists of a consistently and systematically prepared set of questions of the identified research themes, enabling elaborate responses. The method thus stressed the importance of the interview following a series of broad themes and subjects, which direct the conversation towards the topics and issues the researcher wants to learn about. (Sandy & Dumay, 2011 pp. 246)

Conducting successful qualitative research interviews require various skills, such as situational skills (intensive listening and note taking) but also careful planning and thorough preparation. For the researcher to be able to gather useful data for research purposes, the researcher has to have gathered extensive and relevant expertise in all relevant topic areas, so that the researches is able to ask informed questions. The interview design process includes several key topics to consider, such as who to interview, how many interviews are required, what kind of interview method is the most appropriate, and how the gathered data will be analyzed (Sandy & Dumay, 2011 pp.239). The researcher has been active in the field of e-tailer business models and technology implementations for more than two years at the point of writing this thesis and is very familiar with the topics under discussion, and it can thus be deemed justified to use the semi-structured interview approach.

The interviews took place during May 2013, and lasted between 1 and 2 hours per session, during which the interview questions were covered in accordance with the semi-structured approach. The sessions were always held privately between the respondent and interviewer and the same questions and identical routines were carried out with each individual respondent. Table 1 below specifies the details of the interviews, such as date and time and location, and Appendix 1 presents the research questions for the respondents. Appendix 2 further describes the backgrounds of the respondents and illustrates the vast expertise of respondents in the field of online business models, e-tailer business processes and technology architectures.

Table 1: Information about Interviews

Respondent	Company and Position	Date of Interview	Duration of Interview	Place
Respondent A	Case Company Plc. Online Retail Manager	20.5.2013	65 min	Helsinki
Respondent B	Case Company Plc. Online Business Service Manager	24.5.2013	60 min	Helsinki
Respondent C	Vendor Ltd. Principal Consultant	23.5.2013	85 min	Helsinki
Respondent D	Vendor Ltd. Member of the Board	23.5.2013	85 min	Helsinki

Data was also gathered from extensive document archives consisting of the case company's and technology vendor's documentations. This documentation included business model documentation, steering group memo's, specification memo's, Request for Proposal materials and responses, technology architecture documentation and more. These documents provide valuable contribution in addition to the respondents viewpoints as the complex interlinked structures of the e-tailer business model may be easier to comprehend once they have been illustrated both in written form and visual presentation. It may also be difficult for a respondent to remember by heart all the information flows and processes in the business model, or the different roles and functions of different systems in accordance with specific business model components, and due to this it was seen as a very viable option to include such sources of information to this thesis.

5.5 Validity and Reliability of the Research Design

Validity measures how accurate and trustworthy the tools, data and outcomes of the research are. Construct validity explains how correct the

operational measures for the theoretical totality are, by comparing how well the data collection questions have been aligned with the research questions of the thesis. (Al Qur'an 2010, p. 113) Construct validity was accomplished in this thesis first of all by rigorously planning and asking questions during the multiple interview occasions, which provided comprehensive understanding about the main research issues in e-tailer business model creation and the technological aspects in formulating and operating the business model. As the in-depth interviews carried out included both business- and technical staff of the case company, and further included expert interviews from both business- and technological consultants of the technology vendor responsible for aligning business processes with the business model and technology with business processes, it could be stated that a more comprehensive and rich understanding would be very hard to maintain from a case study investigating the above mentioned components. Construct validity was further strengthened by the use of several sources of data (Eisenhardt 1989, p. 538), as documents of the business model and the technical solution were analyzed in addition to conducting the in-depth interviews.

External validity explains how widely generalizations can be made from the case study research findings. As the purpose of a case study is to describe the case under analysis which has purposefully been chosen by theoretical sampling to suit the theory as well as possible and not to describe the entire population, only analytical generalizations may be applied. Analytical generalization considers if the case study can be replicated and whether the research findings remain constant in additional case studies in the same research domain. (Al Qur'an 2010, p. 114)

Single case studies have been criticized in methodological literature, for possibly not possessing equal explanatory power for generalizations compared to multiple case studies. In her study called "A Case in Case

Study Methodology", Meyer (2001, p.332-333) first states that single case studies include restrictions in generalizability and advices to include more than one case in a case study but also points out that one should avoid choosing several cases due to the fact that in such circumstances it may be impossible to gather the desired depth of data and pluralist perspective. Meyer then continues on describing one of her own case study research methodology, in which she studied two separate cases and states *"I chose two cases, which clearly does not support generalizability any more than does one case…"*, which could be seen as a direct statement towards the number of cases under study not being a matter of quantity, but rather a matter of quality. Meyer continues her statement by adding that choosing only two cases enabled a deeper study on the cases, which turned out to be a good decision opposed to the situation in which she would have been analyzing a greater amount of cases. (Meyer 2001, p.333) Based on these notions, it seems valid to draw the conclusion of a single case approach being an equally suitable discipline compared to two or three cases, as long as the single case is able to provide the researcher with rich and in-depth data.

Flyvbjerg (2006, p. 224-225) also takes a stand on the issue of single cases not having the ability to provide evidence for generalization, and deems such arguments as incorrect, since the possibility to make generalizations differs on a case by case basis and also, on how the case has been chosen. Flyvbjerg (2006, p.225-226) addresses the issue by describing the famous story about dropping two objects from the Leaning Tower of Pisa and how Galileo was able to prove that Aristotle's law of gravity was false. Galileo's experiment did not include "observations across a wide range" or "observations carried out in some numbers", but first and foremost Galileo's effort to prove Aristotle wrong consisted of a conceptual experiment and only later of a single practical study.

External validity was reached in this study primarily by conducting thorough purposeful sampling in case study selection, and by gaining access to the company operating an e-tailer business model with a state of the art technology architecture, which could be said to best provide a holistic description of both the business model and the role of information technology in business model components and the operative business processes associated with the e-tailer business model. External validity was also reached by interviewing both business- and technology consultants of the technology vendor, and these individuals have been responsible for planning dozens and dozens of e-tailer business models, operative processes and technological solutions and it is questionable whether any single individuals in the nation do possess an equally holistic knowledge and experience about the research issues of this thesis compared to these two individuals interviewed.

Reliability is the concept which describes how consistent and well the implemented research design is able to measure the theoretical concepts which it is intended to measure. It also measures whether an additional researcher would be able to repeat the research by using the same research design and to duplicate the findings of the current thesis. (Al Qur'an 2010, p. 115) In this research reliability was achieved by using the described and documented case study protocol, in which all the interviewees were asked the same interview questions. The interview questions are illustrated in Appendix 1 of this thesis. The interviews were also recorded. Furthermore, a factor increasing the reliability of this thesis is the in-depth interviews of the senior managers from both the case company's business- and IT-departments responsible for the implementation of the e-tailer business model. It could be stated that a more accurate description of the case company's motives, procedures, processes and technologies regarding the e-tailer business model could not have been maintained from any other sources of information. This information was further backed up with documentation of the business

model and technology architecture. In addition to interviewing internal representatives of the selected case study, even experienced business- and IT consultants of the technology vendor were interviewed in order to additionally describe their viewpoints of the case company's situation with regard to the research issues of this thesis. These consultants possess enormous experience of creating and operationalizing e-tailer business models in terms of concepts, process and information technology architectures which constitute to the reliability of this thesis.

5.6 Analysis of Case Study Data

Qualitative data analysis is the act of organizing, summarizing, and looking for relationships from immense amounts of words gathered from interviews ranging between several themes that have been covered in order to answer the research questions. The phases of data analysis are data reduction, data display, and concluding and verifying. Data reduction consists of coding and summarizing the collected data in order to form categories, which follow the research questions. The data should also be displayed in such fashion that the researcher is able make concluding remarks on the subjects at hand. Finally descriptive patterns should be presented from the data for verification and conclusions. (Al Qur'an 2010, p.111-112). This study follows this presented process of analysis and the following chapter will present a detailed case study report. In this case study, the within-case study analysis has been conducted by pattern matching, in which the empirically noticeable patterns are compared with the theoretical parts of this thesis. (Al Qura'n, 2010 p.112)

6 DATA ANALYSIS AND FINDINGS

The following section describes the findings of the research data acquired by interviewing Case Company executives and the key persons from the Vendor responsible for implementing the Commerce System and the overall technical solution based on Case Company business requirements. Data has also been gathered by examining vast amounts of documentation related to the business model and the technical solution, in order to get the best possible overall view about the issues described in this thesis. Data has been analyzed according to the last chapter of the *Research Methodology* section of this thesis.

The goals of the case study research is to describe how the Case Company has practically deployed and implemented the different components of the e-tailer business model presented in the theoretical parts of this thesis and further to describe the role of information technology throughout all the business model components in the Case Company business model and in its business process management- and data mining activities.

6.1 Sources of Value Creation for Product Innovation

A major source of value is that information about the product offering and also about customers is available. Respondent B described that a major part of the value offered by the online storefront both for the customer and for the Case Company results from optimized information transmission between the two counterparts. The Case Company tries to ensure in its operations, that when a consumer searches for information about the products sold by the Case Company, it will always be the source for this information. The same logic works the other way around, the Case

Company also searches actively for information about the customers, in order to be able to serve them better. All respondents referred to the fact, that the 24/7 availability of both information and the purchase opportunity serves a value creator for both the customers and for the Case Company.

"The more unique the complementary service offering, the more locked-in customers." (Respondent C)

"An e-tailer should never rely on it having an ultimate brand or physical product in the online environment. Without service, someone else will win the heart of consumers" (Respondent D)

The elements creating value for customers should include such features, which are now being managed by the customer himself. By adding such complementary service elements into the online storefront the Case Company possesses the ability to increase the customers lock-in to the Case Company's service. Examples of such value adding complementary service elements which were discussed during interviews included storing the receipts of the purchases automatically to the customer's account, so that in cases of malfunctions or fault products, the customer can rely on having the receipt being automatically stored in the online storefront and he or she does not have to worry about having lost the printed receipt. The same scenario is true with product manuals and instructions about use. Respondent C and D further described, that an e-tailer should transform from being a seller of products into being a seller of a service. This requires that the e-tailer shifts its focus from selling the product into focusing on how the customer uses the product.

6.1.1 Efficiency

The technological development enabling the operation of the Case Company e-tailer business model could be divided according to Respondent C and Respondent D into three main categories, which were issues related to infrastructure, issues related to technological development, and thirdly issues relating to applications and service innovations. Aspects relating to infrastructure, which were an enabler of the e-tailer business model, include factors such as the speed of network connections, the penetration of online network usage, and the overall development of computing power.

"A little more than a decade ago nearly all integration interfaces needed to be tailor made, which made systems integration extremely expensive to implement and further system updates became very costly and time consuming. Nowadays, nearly all interfaces are standardized and easily utilized" (Respondent D)

Technological development contributing to the e-tailer business model firstly include the development of integration technologies, which enable a cost-efficient approach to automating information flows between different actors in the value adding network, and enables bringing information form several internal and external sources to the online storefront. The technological developments enabling such procedures are the standardized software interfaces and standardized information transfer protocols making it possible for different systems and software components to "speak the same language". Further technological development enabling the operation of the e-tailer business model includes advances in server technologies, making it cost-efficient and possible to for example perform web mining procedures. Also developments in browser technologies have made available many

features and functionalities of the e-tailer business model aimed at serving the customer.

The third category enabling e-tailer business model operating include the introduction of novel applications and service innovations. Examples of applications contributing to e-tailer business model components include applications which have been developed to gather, analyze and make use of data about customers and their actions at the online storefront. Also other kinds of business intelligence tools fall under this category, as do search engine applications, marketing automation applications and tools for personalizing the elements of the online storefront according to customer preferences. Service innovations contributing to the Case Company e-tailer business model operation include for example the payment- and logistics service providers, which have bundled several service components into an overall service offering. Before, the Case Company would have been forced to build system integrations for payments individually for every single bank and payment provider, but now it can make an agreement with a single payment provider and purchase the connections to numerous payment possibilities as a single service and single systems integration. The situation is similar with logistics – the online storefront and back-end systems have been integrated with a single logistics service interface, which is capable of transferring data about orders to multiple carriers.

6.1.2 Target Group

The Case Company has defined its brands targeted customer groups very specifically. The customer groups and customer profiles are determined by the marketing function at the Case Company and Respondent B informed about the fact, that vast amounts of gathered data from several sources are utilized and analyzed in order to determine the customer

groups and profiles in detail. An important notion raised by both Respondent A and Respondent B was, that the Case Company's target customer groups differ considerably domestically and on an international basis. Domestically its products are well known and do fall under the high-end segment, but internationally it is clearly a premium brand attracting different customer groups to the domestic counterparts.

The customers who are part of the Loyalty Program have also been divided into different customer segments, and each segment is a part of the "customer journey" defined by the Case Company. The segmentation criterion does not solely consist of amounts of purchased products or other related information to the customer's purchase history, but includes also determining what kinds of actions the customer has made, which were referred to as transactions. These transactions include all kinds of actions made by the customer, which do not necessarily have anything to do with purchasing or purchase intentions. The data about these transactions are gathered from the online storefront and actions made at the Loyalty Program section, but data is also gathered from other sources, where the customer engages with the Case Company in some form.

6.1.3 Value Proposition

Respondent C and Respondent D explained that the value proposition of an e-tailer should include some statements about the service and the e-tailer should also strive to fulfill its value proposition across its e-tailer business model operations. The Respondents at the Case Company did mention that the value proposition and the set strategic initiatives are the factors, which determine what will be introduced in the online storefront, and how business operations are managed.

”Our value proposition is that we are a credible and trustworthy provider of high-quality products, many of which are made available only via us. In addition we want to provide our Customers exceptional service throughout their association with us”. (Respondent A)

The Case Company is aware of the fact that they could do much more to serve their Customers according to their value proposition of offering exceptional service to customers. Such efforts have already been planned and they have been prioritized as further development initiatives, and include aspects such as offering more personalized approaches to all the means of the customer experience. The Respondents listed such efforts to include personalization throughout the online storefront and value adding service components, and additionally more inspiring content to the online storefront.

“As we cannot compete with price, the added value to the Customer has to be provided by offering additional service elements and an extended product and service offering” (Respondent A)

“We want to introduce all kinds of service elements, which enhance the customer experience and increase the customer’s willingness to be associated with us and our brands and products. (Respondent B)

6.1.4 In-house Resources and Capabilities

The Case Company possesses resources and capabilities to operate all the functions of an e-tailer business model, but as it is in the retailing business, it has decided not to operate, develop or organize certain functions by itself. Rather, it engages closely with its partner network and

manages the outsourced functions by internal competency on the issues. On a daily basis there are tens of people working on tasks relating to operating the online storefront. The sum increases in cases of large further development projects of the technical overall solutions and in cases of season peaks, when the amount of orders drastically increases. The in-house operations have been organized through roles. For example a certain employee may have several roles, or a certain role may be operated by several employees. The scope of operations determines the amount of employees required for different activities and these can be scaled according to demand. The in-house roles include factors such as marketing, logistics, customer service, web design, operations management, analysis and reporting, IT service management, financial management, and CRM among others.

The main organizational resources and capabilities at the Case Company include the Online Retail Manager, who is responsible for the entire e-tailing operations and for the coordination of the “big picture” regarding the partner network. The Online Retail Manager closely operates with the e-Commerce Service Manager and the Operations Manager. The e-Commerce Service Manager is responsible for organizing the application management and maintenance & operating services for the e-tailing system and the Operations Manager is in charge of technology related issues such as technical ways of solving business needs and vendor selections (together with the Online Retail Manager). The Operations Manager is also responsible for vendor and partner management on the operational level, while the Online Retail Manager handles top-level issues. According to all Respondents, the Case Company should have and has so extensive competency and experience regarding e-tailer business model operations, that it is capable of managing the entire network of value-adding partners.

An Information Systems Architect actively participates in the planning of the overall e-tailing architecture, and decides the roles and responsibilities of the different software components. He further plans the required systems integrations between the software components, both from an information flows perspective and regarding the technical implementation relating to integrations. The Case Company has a dedicated Scrum Master for management of IT projects and to ensure that these projects will meet the set business objectives. Additional IT resources are available for ensuring that competency and capabilities are available undependable of the technical issue in question.

From the perspective of the IT department, the Case Company's IT strategy has predetermined what will be outsourced, for example certain IT infrastructure components will not be purchased or operated in-house, but always acquired as services. IT has also chosen certain technology and IT service management frameworks, which the partners have to comply with and which forms a part of vendor evaluations. The IT department is in charge of complying with both financial and information security regulation, and of making such technology decisions which do not interfere with the Case Company financial policies and operations. These compliancy requirements include parts of the Sarbanes-Oxley act and PCI DSS information security standard.

The IT department resources have to possess understanding about the business processes, in order to be able to execute coherent contracts management, and to find the right partners and to agree on the right issues contractually. Without this understanding, building such service level agreements, which take into consideration the right aspects of every partner's responsibilities, service level agreements cannot support the management of the e-tailer operations and the alignment of interests of different operators.

The Case Company does not have to possess competency on technological details, but rather it has to possess understanding about the totality, and understanding of business and technology architecture was considered as the most important internal IT competencies. The IT resources should be capable of taking into account all the possible aspects, activities and processes at the Case Company, which will be affected by a decision made concerning technology or for example process automation.

"We do not need to understand every technological detail of our technology solution – this is not our core competency and this is why we operate with world class technology partners across different activities, and follow how these actors are performing through monitoring the factors of service license agreements" (Respondent B)

The Case Company has made the decision to operate its warehouses by in-house resources, despite the fact that logistics has been outsourced. Customer Service operations are also operated from a centralized in-house instance, in order to ensure that the Case Company is in total control of the valuable customer service function highly appraised in the Case Company value proposition. Also decisions regarding segmentation, targeting and positioning are made by in-house resources, who analyze vast amounts of data from several internal and external sources gathered to large databases in order to reach decisions. Further the data made available by data mining (web mining) is analyzed and acted upon internally.

All product information related content and enriched product information is operated by in-house resources, although the Respondents did not see a reason why this could not be outsourced to for example freelance

copywriters. The Case Company also has its own Web Designers for producing graphics content to the online storefront, and for designing for example campaigns and communications material to campaigns. Respondent 1 further noted that even if the Case Company at the moment has a User Interface design partner, this partnership is not a strategic partnership by nature, but could in the future be operated by some other Digital Agency or by the use of in-house resources.

6.1.5 Outsourced Resources and Capabilities

The Case Company operates through a network of value adding partners, which all specialize in different areas relating to the totality of e-tailer business model operations. The operative models have been designed by a Management Consultancy focusing solely on online business. These operative models describe how the e-tailer business model is operated in practice, expressing every phase relating to a single process and the roles of different information systems in managing the business process. The management consultancy has an ongoing relationship with the Case Company regarding e-tailer business model strategies and operations.

The Case Company has chosen the Commerce Vendor to implement the online storefront application based on the Commerce System, which has been configured to meet the business needs of the Case Company to the slightest detail. The Commerce Vendor has also implemented the required integrations between different actors and systems. The overall Commerce System is capable of performing call center-, product information-, content management-, order management-, and naturally merchandizing-related activities.

All features and functionalities having been introduced or which will be introduced in the future have been or will be implemented by the Commerce Vendor. Further, the technical support for the business-critical application is being performed by the Commerce Vendor and the partner is also responsible for Hosting (technical maintenance and operations). Also search engine optimization is performed by the Commerce Vendor relating to technical operations regarding the issue.

The Commerce Vendor also offers advice and expertise relating to e-tailer business process management and provides expertise on what has to be taken into account regarding business processes and regional differences from a technical perspective. Such areas include for example managing different currencies, VAT and tax policies, and several warehouses or distribution centers from a technical perspective.

In addition to operating tightly with the Case Company, the Commerce Vendor also operates with the vendors of the ERP, CRM, Payment Service, Logistics systems, and with the User Interface partner regarding visual presentation of the online storefront. Co-ordination of business processes and technical implementations are ensured by joint planning between the Commerce Vendor, Case Company and the Management Consultancy.

The physical distribution of the products offered by the Case Company have been outsourced to a Logistics Provider focusing solely on domestic and international deliveries of physical goods. The Logistics Provider operates together with vendor of the ERP and Commerce Systems in addition to the Case Company, in order to ensure that all technical aspects relating to business process management are in conjunction with the operative ways of working.

Activities relating to payment services and payment processing have been outsourced to a vendor focusing solely on offering a service in which several payment options have been bundled to provide these options from a single instance. The Payment Service Provider operates together with the Commerce Vendor and Logistics Provider, and ensures that payments are being managed according to the operative process. The Payment Service Providers service has been integrated (automated) to the Commerce System and the charging of the customer will only happen once the Payment System has received a call from the warehouse that the package has been shipped. The Payment Service has additionally been integrated to the Case Company's financial management system.

The visual elements of the online storefront and overall visual layout has been designed by the Case Company's User Interface (UI) Partner, which focuses solely on implementing visually appealing layouts and elements for online solutions. In addition to operating with the Case Company, the UI Partner co-operates with the Marketing Partner of the Case Company and further discusses issues relating to user interfaces and layouts with the Commerce Vendor, which is responsible for desktop publishing of the visual presentation created by the UI Partner.

6.2 Customer Relationships

The Case Company sees the e-tailer business model Customer Relationship aspect to consist of three components, which are branding, the online storefront itself, and the loyalty program. These components are all managed in an integrated fashion, in order to translate the brand offerings into such online experiences, which enable customer loyalty in a global online environment. This mission is backed up with rewarding point

of sales actions, and by delivering quality and ease-of use for the customer in all aspects of the online shopping experience.

It has also defined all the business processes related to the e-tailer business model and constantly works to optimize these processes and to cut costs relating to operation of the business model, which indirectly translates to management of customer relationships, as shorter lead times of processes result in faster and more accurate deliveries. Despite all customers being offered quality service, the online storefront is designed to motivate customers to join the Loyalty Program.

6.2.1 Loyalty Program

The Case Company runs an extensive Loyalty Program designed for all customers in the countries to which the Case Company ships its products. The loyalty program informs its members about new product launches, events and complementary information about the Company and its products. The Loyalty Program is additionally planned to offer its members a place to socially interact with each other and acts as a forum for people interested in the Case Company's product offering.

In addition to overall discounted pricing, the Customers are provided with special offers and discounts every month through the Loyalty Program. The Case Company even offers frequent buyer discounts for the people who have purchased the Company's products. These buyer discounts are tiered and designed to offer larger discounts depending of the amount of money spent on the Company's products. The Loyalty Program will be additionally designed to offer its members a place to socially interact with each other and acts as a forum for people interested in the Case Company's product offering.

The Case Company has included a vast section on its storefront about the designers of its products and their backgrounds in order to inspire and provide the customer additional means of associating him or herself with the company's brand and product selection. Introducing the designers of the products and the personal story of these individuals gives the products of the Company a "face" which could strengthen the customers association with the Company and its brands.

6.2.2 Branding

The role of branding especially in the Case Company's international e-tailer operations is very large, and it is forced to build brand-related elements of the online storefront constantly and at a fast pace. Introducing the possibility of buying products from the online storefront has only been the first phase of the Case Company's plans to conduct its e-tailer business model. The plan is to focus strongly on brand-related inspiring and engaging content which is especially important in international markets. All Respondents saw brand management as a more critical operation compared with endless optimization of supply chain management processes, due to the nature of the Case Company's products.

"One of the key aspects of our e-tailing customer relationship approach is to offer rich content about the brands in order to enhance brand awareness. Especially internationally, we have to deliver our customers rich and interesting content and tell the story about our brands." (Respondent A)

“The brands are why people purchase the Case Company’s products – the online storefront has to be consistent with the image of the brands, and support the deliverance of the brand promise and brand experience” (Respondent C)

Inspiring and engaging content will be available for loyalty program customers even to a larger extent to non-registered customers. The plan is additionally to include such social elements to the online storefront, which enable the online storefront to become a community hub for the targeted customer groups, in which the inspiring content and social interaction is in the center of the online service, but additionally these people have the possibility to purchase the products simultaneously while socializing around topics of their interests which relate to the products. The shopping sections, features and functionalities should all support the brand experience and enable the introduction of an integrated service hub in which all elements have been planned to the detail to ensure a consistent brand experience, strengthening the Case Company’s position as a high-end service provider of quality products.

Treating branding and the value proposition hand in hand can best be seen, when compared the delivery options internationally and domestically. The value proposition promises the customer great service, and as the brand is a premium brand internationally, all orders are shipped directly to the customer’s home door. This is done to be consistent with the brand image of being a premium brand. Domestically the brand is high-end, but not as exclusive as internationally, and thus the customer has been granted the possibility to choose whether to pay extra for home delivery or whether to fetch the package from the nearest postal office.

The marketing communications efforts of the online storefront are currently being distributed across the digital media. In addition to search engine optimization and search engine marketing, the Case Company also engages in display marketing, and conducts to some extent affiliate partnership programs.

6.2.3 The Online Storefront

The online storefront features several value adding components for the customer complementing the initial service. The customers are given the possibility to track their orders whereabouts from the logistics providers' service. Various payment possibilities of different payment service providers have been made available for the customers, for them to choose the option best fitting their preferences. The Case Company operates through a centralized global Payment Provider, but it has bundled several payment possibilities to its service. The customer can also share information and pictures about the products offered in social media, such as Facebook, Twitter, Google+ and Pinterest. The customer is also being offered the added service of receiving their orders straight to their door, instead of having to fetch the package from a local post office or other delivery locations.

Currently the Case Company online storefront features only products from a single brand of the Company's vast product portfolio, but both Respondent A and Respondent B told about the plans to include additional Company brands to the product assortment. The Case Company offers promotions related to the customers' orders. Order level promotions are determined triggered by the information about the products in the shopping cart as a whole (order attributes), or based on rules specified to be triggered always when a customer vies his or her shopping cart. Examples of such promotions simultaneously motivating the customer to

increase the total monetary value of the shopping cart in exchange for extra service or extra offering include free gifts for orders exceeding a specific order value or free shipping when the total value of the order exceeds a certain amount. The promotions may be restricted to include or exclude certain customers or customer groups and the Loyalty Program customers are always treated differently to other customers in terms of the thresholds of promotions. Customer group based pricing is deployed at the online storefront for all products offered, one for regular customers, a discounted price presented in several occasions relating to vouchers or promotions, and the price for the customers belonging to the Loyalty Program.

The Case Company representatives were unanimous in describing the further development initiatives of the online storefront. The biggest issue was to bring inspiring and engaging brand content to the site, which would complement the selling of the physical products of the service. The respondents further noted, that a major issue in the future is to personalize the site on customer- or customer group level, but that it still remains undecided what elements to personalize and how. Introducing additional service elements to the online storefront were seen as a way of supporting the brand and in providing positive brand associations to customers. From a functional perspective, functionalities such as campaign codes, b2b vouchers, additional payment options, and replacement order-enablement, and introducing product bundles were seen as attempting new value adding components in the near future. Respondents C and D additionally mentioned product reviews and customer commenting functionalities as elements, which could add value to the customer.

6.2.4 IT-enhanced Customer Relationship Management

For the Case Company the Data Warehouse is the centralized instance of the Case Company for restoring enormous amounts of information from several systems in order to use this data for data mining purposes after the data has initially been delivered to the Data Warehouse. In technical terms, data is transmitted from the database via csv files using the sftp protocol. The Case Company gathers the following data from its e-commerce operations to the Data Warehouse: orders, replacement orders, payment transactions, payment transaction entries, customer data, return requests, refund entries, products, and order entries.

The Case Company utilizes the most popular web mining tool in order to acquire vast amounts of data about its online storefront traffic, traffic sources, conversion rates and additional user tracking. The tool provides the ability to track visitors from all associated web channels in addition to direct visits to the storefront, such as search engines, social network and linked sites. The web mining tool is designed to offer users a dashboard for daily analysis of the key metrics of the storefront and additional tools are offered for more extensive data analysis. The tool has the ability to inform the Case Company about the users' geographical location, how they landed on the storefront, and provide functionalities for visitor segmentation. It also reports different sales and performance related data which is not limited to reporting of site transactions or revenues.

At the moment there are vast amounts of data available for the Case Company to use for managerial decision support. The challenge currently is that even if the amount of data is extensive and it is gathered from several instances, this data is in silos, which do not communicate between each other, making it hard to combine and utilize data from different sources.

“The challenges of utilizing data gathered by traditional business systems is that each and every one of them focus on their specific process or activity, and disregard the need to gather and make use of data in a holistic fashion” (Respondent D)

“At the moment the Commerce System knows something, the CRM knows something, Analytics knows something, and so on, but no instance knows everything or provides information for our disposal for holistic information” (Respondent B)

The Case Company does however to some extent combine and utilize data from both the online storefront and external data sources. It for example does combine data from the ERP system and from the logistics providers operations and uses metrics to find out useful information and to optimize supply chain processes for better customer experiences due to faster lead times. The CRM system is able to inform the decision makers about what the registered customer’s actions and how they have received and interpreted marketing communications messages. The analytics tool is able to support this kind of data by offering vast amounts of information about customer behavior at the storefront and online as a whole.

Respondent B described that in the future, the Case Company should have state of the art tools for gathering and combining data from numerous sources into a centralized instance for automated analysis. This information should include online storefront data, overall online behavioral data and extensive amounts of real life data about customers, in order to be able to fully understand the customer and to act accordingly by offering customers personalized experiences. The e-commerce platform utilized by the Case Company includes enormous possibilities to connecting the

information found from data analysis and in an automated fashion make alterations to for example customer- or customer segment level aspects based on data and according to set business rules by the Case Company.

“In the future we have to possess the ability to analyze our customer base in a more holistic and detailed fashion in order to understand our customers and act accordingly” (Respondent A)

“Ii is not a question whether or not to gather and store data, it is more about how to systematically produce relevant information out of the data in a cost efficient manner and how to make alterations to the online storefront in an automated fashion based on this information and predefined business rules”. (Respondent C)

“We do analyze data from several sources in order to understand our customers and to determine actions, but at the moment not even close to the extent what could be possible with our data and our tools” (Respondent B)

All new features and functionalities brought to the online storefront for better customer experiences are based on funnel analysis, by analyzing gathered data. The Case Company is able to make hypotheses according to the findings of the analysis where after these hypotheses are tested by both A/B-testing and multivariate testing. By following this process, the Case Company can eliminate feelings-based decision making. In the future the Case Company will focus on personalizing the different elements at the online storefront and customer communications. From a technical perspective all elements of the online storefront can the personalized as long as A/B testing has proven that this personalization

result in positive marginal utility, either by increasing conversion rates or by providing desirable outcomes of some other form. Respondent C suggested from previous experience, that the most cost-efficient ways of personalizing would be to personalize the online storefronts marketing elements (such as suggested products for a customer) based on their previous order history.

The largest social media platforms offer enormous amounts of data about users for the disposal of companies. Respondent D noted that the only obstacle for utilizing this data is that it is illegal to store this data to databases, but it is not illegal to make use of such data. The Case Company representatives told that these opportunities will most probably be utilized in the future, but specific programs have not yet been designed on how to link this information to online storefront operations. The Case Company always ensures that the data gathered and utilized follows general cookie and privacy policies and that these have been stated on the online storefront.

At the moment demand forecasting, including seasonal fluctuations, campaigns and new product releases are analyzed by the use of internal data sources. However, both Respondent A and Respondent B confirmed that in the future the goal is to utilize centralized instances of external and internal data for such use cases.

The Case Company utilizes automated Commerce System generated emails related to order and registration processes to confirm to the customer the positive outcome from an action they requested. The Case Company also sends automated emails to customers who have signed up for the Loyalty Program. These emails include notifications about new

product releases, frequent buyer discounts and “Loyal Customer” shopping day invitations for special offers from the Case Company.

6.3 IT-enhanced Infrastructure and Business Process Management

All respondents agreed that technology plays a large role in e-tailer business models, but the respondents also added that, without understanding the e-tailing business, technology will not be able to single-handedly manage the e-tailer business model. Technology was seen as an enabler of the business model, but that its value could not be capitalized without the understanding of the business as a whole and the business processes relating to utilization of technology. Technology was neither seen as solely a supporting function for the core activities, but more as a value adding component throughout the e-tailer business model

“Technology has a large role in e-tailer business models, but there always has to be someone who understands what to with technology. Business is always above technology” (Respondent A)

“Technology and business operations live in symbiosis – we have to have business requirements to determine what to do with technology to capture its value. On the other hand, we cannot operate the activities and processes of our business model without technology” (Respondent B)

All respondents stressed the importance of understanding the business requirements as the factor determining what to do with technology. Technology was also seen as a source of efficiency, having the strength to

minimize manual processes. Planning the technology architecture and making decisions about technology utilization is made hand in hand with the planning of business processes. The key principal to which all the Respondents referred to was to match the technology with the planned business process, but sometimes it is more cost-efficient to make compromises and follow certain technology's best practice ways of implementation for cost-efficient approaches to technology rollouts, despite the fact that these best practices might interfere with business processes or requirements. Compromises are sometimes made, but in general business requirements and business processes determine technological decision making.

Automated information flows have been widely implemented in the Case Company solution in order to enhance efficiency and to enable real-time information sharing and communication between the actors in the Case Company's value adding network for supply chain efficiency. Figure 9 illustrates the Case Company E-Commerce Technology Architecture and Integrations between different actors and systems and provides visualization about the information flows. The architecture of the Case Company consists of the same elements and interconnections as the framework presented by Warkentin et al. (2012) and included in the theoretical part of this thesis. Respondents C and D commented on the e-tailer architecture of it including some unnecessary integration between systems, since the Commerce System could manage some activities being mastered in other systems at the moment, such as images, product information, and customer data to some extent.

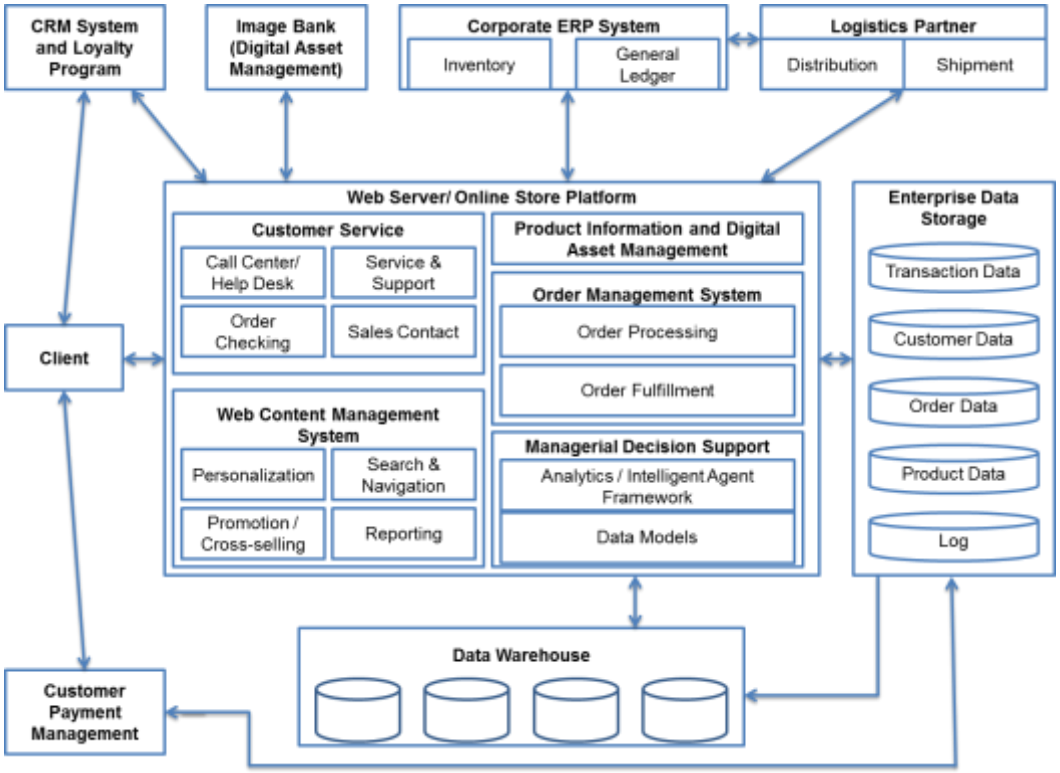

Figure 9: Case Company E-Commerce Technology Architecture

The Commerce System is the primary system for orchestrating the e-tailer business model and the other systems operating for the efficient management of the e-tailer business model are connected with the Commerce System. This core system consists of several different modules which are a unified codebase and do not require cross-modular integrations between each other. The functions it manages in the Case Company e-tailer business model include the sales and marketing tools for merchandizing (such as personalization, campaign management, promotions, and campaigns), customer service, management of all online content, centralized management of all kinds of product information (Case Company, partner, and user-generated), including all forms of digital assets, and it is responsible for controlling Order Management activities. It further includes tools for data-enhanced decision making.

The Logistics Partners System and the ERP System are primarily active in the phases of order fulfillment and inventory management and are interlinked with each other and with the Commerce System. The ERP System also acts as the master repository of product information, which is delivered for the use of the Commerce System and for the information to be enriched for it to be commercially appealing. The CRM System manages customer information and the Case Company loyalty program, but the information about customers is also stored to the Commerce system. The Image Bank provides the pictures of products, which are also stored in the Commerce System. The Case Company gathers the data form its e-tailer operations to the Data Warehouse for data mining and analysis purposes. The Payment Providers System is integrated with the Commerce System and financial management as is responsible for offering different payment options and for withdrawing the payments from the customers chosen payment option.

6.3.1 Information Flows between the Commerce and ERP system

The Case Company delivers the product offering and product information to the e-commerce system by automating this procedure between the ERP system and the Commerce System. In technical terms the data is transmitted by the ERP system by an xml file, which is fetched by from the server by the Commerce system using the sftp protocol.

Integrations between the Commerce System and ERP system further include real-time stock availability checking, in order for the Case Company to be able to avoid situations, in which it offers customers products which are out of stock and to avoid the situation in which customer dissatisfaction would occur when the customer would end up either waiting for his or her delivery for a longer time frame than expected or would receive a notification from the Case Company apologizing for not

being able to deliver the purchased product. All respondents referred to this integration as a customer service matter. From a technical perspective, the integration is implemented by using the available over webservices, in which the Commerce System calls the ERP system about the stock availability of the products currently found in the customer's shopping cart.

In order to enhance supply chain efficiency, every order made by a customer in the online storefront into the Commerce System is automatically exported to the ERP system for further processing. In technical terms the Commerce System generates an xml file and sends it to the ERP system over the sftp protocol. By automating the flow of orders between the two systems, the Case Company simultaneously can assure that its stock levels in the ERP system are updated accordingly and that they are always updated.

The Commerce System and ERP system have been further integrated for information flow automation in order to enable automated processing of returns, cancels, failed deliveries and other similar situations. In this case the stock level in the ERP system has to be increased, instead of the above described situation in which an order decreases the stock level mastered in the ERP system. In this case the Commerce System xml file containing item codes and quantities to the ERP system.

6.3.2 Information Flows between Payment Provider and Supply Chain Operators

The Case Company offers several different payment options on its online storefront via a single service provider for customers to choose the most appropriate payment option suiting their preferences. The data integration

between the systems of different supply chain operators and the Payment System processes both authorization calls and order capture and refund commands.

During the initial checkout process in the online storefront the customer is directed from the online storefront (Commerce System) to the Payment Systems Payment webpage for the customer to enter his or her credit card information. Once the Payment System has validated the credit card information, the Payment System redirects the customer back to the online storefront, and the Commerce System creates a new order to be transferred to the ERP system for further processing. In unsuccessful credit card validations the Customer is also directed back to the online storefront, without the Commerce System placing a new order.

The Payment System also plays an active role in the shipping process. Once the Warehouse Operator has collected and packed all the items of a single order, the Warehouse Operator commands the Payment System to capture the order. The Payment System retrieves' the credit card authorization record and the Payment System charge the Customers payment option. Once the capture is successful, the Warehouse Operator ships the order. The same process is operated the other way around in cases of returns and refunds to the customer.

6.3.3 Information Flows between Commerce and Logistics Systems

Once the Warehouse Operator has informed the Commerce System that the order is ready for shipment, the Commerce System calls the Logistics Providers system via webservices and the Logistics Provider starts organizing for the package to be picked up from the Warehouse. The message the Commerce System sends the logistics provider after the

payment has been captured successfully includes the entire order split into consignments based on the packaging and one consignment is handled as one parcel.

6.3.4 Information Flows between CRM and Commerce System

The Customer Relationship Management (CRM) of the Case Company acts as the master system for the entire customer database and also includes the information relating to the Case Company's widely spread loyalty program. All customer related data is further stored into the Commerce System to have a fallback storage. Data is automatically being handled in several instances between the Commerce System and CRM System utilizing SOAP service calls. When a customer logs in to the Commerce System, the Commerce System connects with the CRM system for authentication. Once the authentication is successful, the Commerce System either creates a new user account or updates an existing account suing the customer information sent by the CRM System.

A new customer is also able to register a new account at the Case Company online storefront. In this case the information provided by the customer about himself is transmitted from the Commerce System into the CRM System. Also possible customer information changes by the customer (such as address or password) in the Commerce System are forwarded to the CRM System and only then are saved to the Commerce System, once the CRM System has approved the changes.

6.3.5 Additional IT-enabled tools for process efficiency

The case company utilizes an automated voice software application in order to make warehouse picking more efficient. The software automatically tells the Warehouse Operator to his headset where he will find the next product to pick from the shelf. Once he has found this item and prepared it for delivery, he then contacts the software again, which communicates the whereabouts of the next item which should be collected. The software is integrated with other warehouse management software. The Case Company has also automated the function of printing the order labels to the packages which are to be shipped.

The Case Company and its network of value-added partners also utilize shared tools for managing and coordination joint efforts regarding planning and implementation of different aspects relating to the overall e-tailer solution. These tools include functionalities such as shared document repositories and project management monitoring.

6.4 Financial Aspects and Performance Metrics

The revenue model of the Case Company e-tailer business model is a typical merchant of record business model, in which the merchant organizes the entire service and pays the affiliated service provider for different components provided, which form the business model entity. Customers are also paying for the products and service directly to the Case Company, which takes the responsibility of providing the products and services. The Case Company is also the instance responsible for the products, services, and operations complying with the applicable laws and regulations.

6.4.1 Cost Structure

Setting up an e-tailer business model include large sunk costs to information technology in different forms, such as license fees for software, application development, systems integration, and physical infrastructure. These costs were considered by all respondents as the biggest investments of the e-tailer business model, and Respondents A and B also pointed out that these investments have a profound effect on e-tailer business model profitability for several fiscal years after introducing the online storefront to the public. The ongoing operating and further development of the technical solution also requires constant resources both internally and from the partners in the value adding network, resulting in additional IT-derived costs. Although the logistics process forms a large part of the total operative costs, it is an variable costs which is directly derived from the amount of products sold, and was not seen as a major concern by the Respondents.

The cost structure of an e-tailer business model is different to traditional retailing activities. The cost drivers of traditional retailing, such as rents for business premises and transportation costs have been replaced by higher customer service costs and higher product information management-related costs. Marketing and advertising of all kinds can be seen to be on the same level as in traditional retailing. The biggest difference between the e-tailing business model and traditional retailing operations is that very many costs, which have traditionally been viewed as fixed costs, have become variable costs, which have given the Case Company the possibility to scale its operations according to demand and seasonal fluctuations, which could not have been with traditional retail models. For example in the online environment the Case Company can scale its server capacity according to site visits, instead of having to pay for the physical store space independent of the amount of visitors.

6.4.2 Measuring Business Model Performance

The Case Company measures its online storefront and e-tailer business model performance from several different perspectives. Its performance model includes different indicators for brand-related aspects and for operational performance. The metrics which are constantly followed on a daily and weekly basis regarding the online storefront include web traffic, the amount of page views per customer, social sharing of content and products, average shopping cart totals, conversion rates, and order cancellation percentages among others. These are all followed on an overall and country-specific basis. Operational metrics include factors such as the measurement of total sales both internationally and on a country-specific basis, the sales of specific products and product groups, and what the outcomes of different promotional activities have been. Measuring the performance is not limited by any means by technology, rather being able to determine the most critical performance indicators, which support managerial decision making in a cost-efficient manner is the leading principle of the Case Company.

"Basically technology has enabled the measurement of nearly everything happening at the online storefront, but we have to carefully consider to what extent we have the tools and resources to analyze the data" (Respondent B)

"Analyzing the performance of the online storefront is only limited to the extent to which the marginal utility rate is positive" (Respondent D)

The competitiveness of internal business processes are being ensured by analyzing data and optimizing these processes, or either by externalizing business development to these internal functions, by making service level

agreements for different activities. The Case Company e-tailing business function has made an internal service level agreement with the warehouse operation, to ensure that its promises to the customers are being fulfilled and enabled by the warehouse operation.

Brand-related larger reviews and research is being conducted on a case by case basis. Such efforts include brand awareness studies. The Case Company also conducts quarterly business reviews, in which all the functions, activities, and processes of the e-tailer business model are reviewed in a more detailed fashion compared to the ongoing monitoring, and actualized performance is being compared to set quarterly objectives. During these more comprehensive analysis projects, data is being analyzed comprehensively and the Case Company also conducts funnel analysis operations in order to qualify best practices in their operations, and in order to find the points to at which further development should be made.

6.4.3 Measuring Performance of the Value-Adding Network

The Case Company has organized the management and measurement of outsourced activities by service level agreements between themselves and the value adding partners. The service level agreements measure the performance of the partner, by following how it has been able to deliver the different service components to the Case Company, and the measurement is being performed by the metrics agreed upon between the parties to the slightest detail. Service levels are being followed on a monthly basis. Service level agreements are utilized for all technology vendors and infrastructure operators, but also the logistics provider has to comply with its promises to the Case Company. Service level agreements have been seen as a best practice to align the interests of different actors

in the network and thus as an efficient managerial tool for business model efficiency and effectiveness.

7 DISCUSSION AND CONCLUSION

The objectives of this thesis were to explore the mechanisms of value creation in e-tailer business models and to determine from which components an e-tailer business model consists of. Further, this thesis aimed to address the role of information technology in value creation throughout the different components of e-tailer business models. The main goal was to provide a holistic description of the above mentioned issues for the use of both for managerial reasoning, and for further theoretical analysis by providing empirical evidence about the frameworks and research on the subject illustrated in the theoretical parts of this thesis.

The thesis initiated with a chapter describing the motives for the research and by listing previous research on the matter. The chapter further defined the key concepts and illustrated the theoretical framework of this thesis and summarized the empirical research methodology. The subsequent chapter two, three and four consisted of the theoretical examinations of the topics of this thesis. Chapter five presented the methodological modes of operations of this thesis and justified the choices made regarding research methodology. Chapter six consisted of analyzing and describing the empirical evidence provided by the respondents and the extensive documentation available relating to the Case Company e-tailer business model.

The oncoming final chapter of this thesis will unfold the key findings of this thesis and provides answers to the research questions presented in chapter one. The final section will further explain the theoretical and managerial contribution of this thesis and ultimately the limitations of the research and suggestions for further research will be described.

7.1 Key Findings

The objective of this thesis was to explore how e-tailer business models are created and to explain e-tailer business model creation from a holistic viewpoint. This thesis focused on answering the research proposition presented in chapter 1.4. To summarize, the research questions of this thesis where as follows:

The secondary research questions of this thesis:

1. How is value created in online business models?

2. What are the necessary components of a successful e-tailer business model?

3. What is the role of information technology in an e-tailer business model and how does it contribute to e-tailer value creation?

The main research problem of this thesis:

How is an e-tailer business model created?

Value is created in online business models by organizing and combining both intra- and inter-firm business activities and processes in more efficient ways, in order to serve customers in better ways than previously possible. Value created by efficient transactions include the use of information technology for automated information and process flows between actors in the value adding network, and by organizing business processes overall by such means, that efficiency is enabled. In order to operate the network of value adding partners in an efficient way, requires that the e-tailer possesses vast understanding about all the possible activities associated with the e-tailer business model regardless of

whether a certain activity or process is performed in-house or outsourced. Value provided by efficiency include enhancing information diffusion between the customer and e-tailers service offering around the clock, at all occasions when the customer is searching for information relating to the e-tailers product and service offering.

The core managerial tasks enhancing efficiency is the alignment of service level agreements of different actors in such fashion, that no conflicting objectives can be found in the network. The metrics measuring the performance of activities, actors and processes should be chosen to measure relevant sets of actions in accordance with what is important for the efficient operating of the e-tailer business model. Further, the e-tailer should constantly strive to find novel ways of enhancing process efficiency throughout the supply chain, but also regarding information processing about its targeted customers, in order to serve the customers in a more personalized and sophisticated fashion.

Value is being derived in e-tailer business models through offering the customer complementing product and service offerings to the initial products sold. Such factors may include utilizing loyalty programs to award loyal customers, inspiring and engaging online content for customers, additional service elements making the life of the customer easier in some form or by providing additional information about products or deliveries. Adding complementing product offerings to the core products, such as additional brands also adds value to the e-tailers service. Based on this research it seems that the same complementing value-adding components are the ones possessing the ability to enhance customer lock-in to the e-tailers business model. From this perspective, the e-tailer should focus on adding novel complementary product-and service offerings to its customers, which in some way make the life of the customer easier or the

consumption of the core products easier or more versatile, in order to be able to reap the benefits of satisfied and loyal customers in the long run.

When answering the secondary research question *"What are the necessary components of a successful e-tailer business model?"* the above described value creation mechanisms of the online environment should be delivered by the e-tailer through its operations. The research suggests that an e-tailer business model requires a set of different components acting in an integrated fashion delivering value to the customer. The Product Innovation component includes factors directly relating to the online product/service of the e-tailer. The e-tailer has to closely consider and determine the targeted groups of consumers, which it wishes to serve according to its value proposition. The e-tailer should further either possess such capabilities at its diposal, which enables the deliverance of the elements of the value proposition to its targeted set of customers.

The capabilities at the e-tailer's disposal are responsible for managing both in-house resources and assets and the outsourced resources and assets operated by the entire network of value-adding partners, which each complement to the value delivered to customers. The e-tailer has to possess capabilities capable of managing all the e-tailer's activities and processes and has to possess deep understanding and experience of all these elements, in order to be able to align the interests of different actors in the value adding network for the benefit of the entire network. The e-tailer should focus on its core competencies, and outsource all activities and processes, which is non-core activities to itself to operators focusing solely on these elements seen as secondary by the e-tailer itself.

In order to be able to deliver the elements of the value proposition to its targeted customers, the e-tailer has to possess deep and extensive understanding about its customers, in order to be able to align customer expectations and the elements of the value proposition. It should also take all means economically justifiable to serve the customer, meaning that it should constantly strive to find ways of making the customers life easier in some way and enhancing the customer experience, in order to attain satisfied and loyal customers. Branding plays a considerable role in e-tailing business models. The other actions and activities made in order to build customer relationships should be consistent with the e-tailer's brand and support the customer's perceptions towards the e-tailer's brand.

The e-tailer should have a clearly defined revenue model, and a detailed understanding of the cost structure associated with its business model. It should gather all kinds of financial and non-financial data to measure its online performance from several different aspects. The operators of the value adding partner network should be managed by the use of service level agreements, targeted specifically to measure the tasks performed by the external operator for the benefit of the e-tailer.

The final secondary research question, *"What is the role of information technology in an e-tailer business model and how does it contribute to e-tailer value creation?"* was set to pinpoint the role of technology in e-tailer business models. This research suggests that technology plays a considerable and enabling role throughout the e-tailer business model activities and processes. Technology is not solely supporting the business operations; rather it works in a symbiotic relationship with the business operations in which both counterparts are of no value to each other if they do not work hand in hand. All the business processes in the e-tailer business model are either technology-enabled or utilize tools and information made available by technology.

Technology has enabled the cost-efficient maneuvering of an e-tailer business model. Technological advances in infrastructure, such as the speed of network connections have made it possible to serve masses through the online channel. Advances in the technological tools widely contribute to e-tailer business models. Standardized software interfaces and data transfer protocols have made it cost-efficient to integrate different systems and operators into a coherent entity and to present information at the online storefront, which has automatically been transferred from several operators and sources to the web-layer. The rapid development of browser technologies has enabled the e-tailer to present rich content and functionalities in its online storefront. Advances in server technologies has offered e-tailers the possibility to operate its infrastructure as variable costs and cost-efficiently, enabling more dynamic responses to shifts in demand. Technology is also able to analyze enormous amounts of data rapidly to estimate demand fluctuations.

The role of information technology in e-tailer business models include the enablement of the e-tailer to operate through a network of value adding partners, further enabling it to focus solely on its core competency and to outsource all non-core activities to other actors focusing on certain aspects of the e-tailer business model. Advances in technology have enabled cost efficient means of automating information flows between different systems and operators resulting in real-time exchange of information and joint inter-firm business processes, which enhance efficiency and result in better customer experiences due to shorter lead times of supply chain processes.

The role of technology includes also offering the e-tailer a vast set of tools to analyze and to gather data about the online storefront, the online behavior of customers as a whole, and to gather data about the customers in a real life, setting and to combine the enormous amounts of data from

different sources into a centralized source, in which technology is able to automatically combine the data into useful information for managerial decision support. The collected data and technology-enabled analysis has also proven its ability to make automated alterations to the storefront based on the findings of the analysis, by acting according to different predefined sets of rules and scenarios determined by the online operators. The technological tools for analyzing data also forms as the basis for serving the customer in a personalized fashion according to individual behavioral patterns, and technology also provides the online operators with endless tools which can be personalized and made available to the customer, the only business constraint being the marginal utility of these actions.

The answer to the main research question *"How is an e-tailer business model created",* the answer is to combine all the above described answers to the secondary research questions. E-tailer business models are formed by understanding how value is being formed in the online business environment, and by organizing the e-tailers internal and external activities and resources into efficient business processes by capitalizing on the e-tailers competency and technology in order to deliver value by the help of branding to the e-tailers targeted customers according to the established value proposition.

7.2 Theoretical Contributions

The theoretical part of this thesis initiated by describing the explanatory power of traditional strategic management theories; The Resource Based View (Wernerfelt 1984; Peteraf 1993; Teece et al 1997), Schumpeterian Innovation (Schumpeter, 1934; Hospers, 2005; Zhuang, 2005), Value Chain Analysis (Porter, 1985; 2001), Transaction Cost Economics

(Williamson, 1981; 1985), and Strategic Network Theory (Gulati et al. 2000; Lau & Ka-leung 2008). The perspective was to describe how value is created in the circumstances of virtual markets. The section further described the shortcomings of these traditional approaches and described how value is being created simultaneously by all the mechanisms presented by these traditional approaches and noted, than an integrative approach to value creation would be a more consistent approach in the case of virtual markets. (Amit & Zott, 2001; Weiber & Kollmann,1998; Cartwright & Oliver, 2000)

The case study proved to be consistent with the notions presented in the first section, and the research clearly described from a practical viewpoint how none of these theories have the ability to describe the value creation mechanisms of the Case Company e-tailer business model inclusively. In accordance with the Value Chain Analysis (Porter, 1985; 2001), the Case Company has organized its internal activities into primary and secondary activities, which are able to deliver a part of the total value to the customer. However, a large part of the value created throughout the Case Company e-tailer business model operations result from actors and activities outside the Case Company's chain of activities which cannot be fully explained by applying the Value Chain-perspective. Further, the value the Case Company is able to provide is not only a result of combining the unique resources and capabilities (or the ability to further develop these capabilities or combine resources in new ways) found inside the Case Company as the Resource-Based View suggests (Wernerfelt 1984; Peteraf 1993; Teece et al 1997), but to a high degree the value is created by actors and activities not controlled or owned by the company.

The Case Company has made strategic decisions to focus on its core competencies, and outsource the operations which are not part of these core competencies to different actors focusing on specific areas of

operations required to operate an e-tailer business model. The totality results in a network of value adding partners, which each are responsible for specific activities in the totality, but these different actors work in close cooperation and even share resources to some extent with each other in order to ensure that the entire Case Company e-tailer business model operations are carried out as planned. This mode of operations is consistent with the perspectives of Strategic Network Theory, as the companies are affiliated in networks of horizontal and vertical exchange relationships with other organizations spanning across industries and countries (Gulati et al. 2000, p.203).

Similarly Transaction Cost Theory is consistent with the research in terms of utilizing technology and automating processes in order to decrease costs of transactions (Williamson, 1981; 1985), but the theory proves to be inefficient in explaining the value being added by the network of value adding partners affiliated with Case Company e-tailer business model having been organized to operate in co-operation, sharing information and resources to some extent in order for things to proceed as planned and agreed.

Strategic Network Theory falls short in explaining the role of technology in organizing resources in new ways for value creation. This research is consistent with the perspectives of Schumpeterian Innovation (Schumpeter, 1934; Hospers, 2005; Zhuang, 2005), to the extent in which value is delivered through innovations and technological development enabling novel ways of organizing and making use of available resources. Examples from empirical evidence of such factors include data integration and data mining technologies. Schumpeterian Innovations falls short in explaining the value created by the forms of collaboration, which can be explained by Strategic Network Theory.

To summarize the analysis in this chapter so far, this research is consistent with Amit & Zott's (2001) notions about both the explanatory power and shortcomings of traditional strategic management theories in explaining value creation in virtual markets. This thesis presented the "Theory of Value Creation in E-Business" introduced by Amit & Zott in 2001, which is an approach to integrate the above mentioned theories into a uniform entity. According to this model, the mechanisms of value creation comprises of four interconnected elements (Efficiency, Lock-in, Complementarities and Novelty), which are all present in the Case Company e-tailer business model, example including: automated business process management (efficiency), loyalty program (complementarity and lock-in), social media (complementarity), and unique brand identity (novelty).

The theoretical part of the thesis described the e-tailer business model framework by Dubosson-Torbay et al. (2002) in which an e-tailer business model is divided into four main components, (Product Innovation, Customer Relationships, Infrastructure Management, and Financial Aspects) and each of these include a number of subcategories. The components of the framework could easily be found by analyzing the documentation and research interviews and proves to be perfectly viable in organizing and presenting a complex structure full of interdependencies between actors and activities. From the evidence provided by this research the e-tailer business model framework could act as a managerial tool in the early e-tailer business model high-level planning and design phases.

The thesis described the role of technology in both supporting and enabling the efficient management of the various components and activities in the e-tailer business model. The theoretical part further presented the "General Agent Enhanced E-tailing Architecture" by

Warkentin et al. 2012), which presents a typical technology architecture for e-tailing business process management and making use of the immense amounts of data collected from the company's operations for managerial decision support. Despite the fact that the Case Company e-tailer technology architecture was not identical to the framework presented by Warkentin et al (2012), it contained all the same components and connected the same elements with each other. Examples of such elements include the different software components and database-data warehouse structure. From the empirical evidence gathered, it seems justified to conclude that it supports the General "Agent Enhanced E-tailing Architecture"-framework.

7.3 Managerial Implications

This thesis attempted to decribe e-tailer business model creation from a holistic viewpoint and further demonstrate the continuous all-around interplay between the management of the components of the e-tailer business model and technology. From a managerial perspective, the theoretical descriptions and empirical evidence could be used as the basis for high-level planning and designing of e-tailer business models. The main managerial contribution of this thesis is, that e-tailer business model initiatives should not be run solely by an organizational business unit or by the IT department, since an e-tailer business-model initiative is neither solely a business project, neither an IT project. E-tailer business model creation should be treated as a cross-functional collaborative project, which involves great amount of planning both the internal roles and responsibilities of different functions, and the technological tools and solutions required to maneuver the business model on the product innovation, customer relationship, and infrastructure level. Technology is present everywhere regarding e-tailing operations, either supporting the

various different processes or enabling business processes and customer relationship-related aspects.

This thesis further demonstrated the vast amount of actors operating in a network complementing to the value creation of the e-tailer business model. The Case Company focused on its set of core competencies and outsourced other activities to operators specializing in particular e-tailer business model components. The theoretical reasoning for operating in such fashion was backed up by the empirical evidence, and seems to be the most efficient way of operating an e-tailer business model. From a managerial perspective, coordinating the efforts of a large amount of actors may prove to be difficult and partner management procedures and activities should be resourced accordingly once initiating e-tailing activities. The network is a strong as the weakest link between the actors and the entire operating of the business may be jeopardized in case the different actors are not fully informed about issues they should be aware of or do not share common objectives.

The analysis of empirical data of the Case Company and the analysis of the General Agent Enhanced E-Tailing Architecture by Warkentin et al (2012) revealed an interesting issue about the roles of different systems in the future. It should be considered from a managerial perspective, what the role of current image bank systems, web content management systems, CRM systems, and ERP systems (especially product information management) are in the future in e-tailer business models, as modern commerce systems are capable of handling the roles and responsibilities of these systems to a very high extent for the purpose of operating e-tailer business models. Consolidating IT-architecures and diminishing unnecessary systems integrations has been a strategic objective for different IT departments for long, and these practices could further be applied for Commerce Systems of different businesses also.

7.4 Limitations of the Research and Directions for Further Research

The Case Company and the brand portfolio include some of the most recognized brands domestically and they are also widely recognized on an international basis. When examining the e-tailer business model and its subcomponents, it may be hard to draw righteous conclusions on the factors effecting value creation (for example customer lock-in), since this could equally be derived from the aspects relating to possessing a very strong brand which customers have very strong associations to. If this was to be righteous interpretation explaining the Case Company's e-tailer business model success, a very interesting topic for further research would be to explore how much e-tailer business models are dependent on branding, brand recognitions, and other branding related aspects.

This thesis consisted of an extensive research on a single company and its e-tailer business model operations in order to be able to analyze the extensive data to the slightest detail. This decision was made due to this approach best supporting the deliverance of a holistic description about the Case Company's e-tailer business model operations and technological aspects. Although the descriptive power of this research may not have been compromised due to this decision, a similar approach in the future analyzing a different company would provide information for benchmarking the two entities between each other and possibly strengthen the findings of this research and raise questions for additional research on the differences between the business- and technological decisions made by the similar operators.

The above described scenario about the possible effects of brand-related aspects does not have an effect on the fact that technology-enabled

automation for efficiency and information sharing should be present in all business processes related to e-tailer business model operations. However, the more actors and systems are being interlinked with each other, the more costly it is to implement the overall e-tailer architecture, which always has to be covered with additional sales to reach the critical mass in which automation is cheaper than manual processes. This research indicated that the Commerce System is capable of handling the operations traditionally being handled by the CRM system, the Content Management System, the Digital Asset Management system and could also operate some parts or all of the product management and fulfillment processes operated by the ERP System. As companies are undergoing a trend of consolidating their information infrastructure, a very interesting topic for further research would be to evaluate the roles of these systems in the future in the retailers overall information system architecture and also to explore the role of these information systems in e-tailer architectures in the future.

This research described the components of an e-tailer business model and the role of technology in the operations in the situation in which the company operates solely online through an online storefront. All the respondents interviewed referred to the “multichannel” nature of future retailing operations, meaning that business models should not necessarily be viewed by analyzing a single channel of operations (online storefront in the case of this research) but that business models should be evaluated by analyzing the overall operations and that it becomes basically indifferent from the company’s perspective from which channel the customer makes the purchase – whether it is a traditional brick-and-mortar store, mobile application, RFID code inserted to an advertisement at a bus stop or an online store. This notion clearly raises the need of extending the current research to analyze business models from a channel-agnostic viewpoint, and further to evaluate the role of branding and technology in such scenarios.

LIST OF REFERENCES

Agatz Niels A.H., Fleischmann Moritz, van Nunen Jo A.E.E. 2008. European E-fulfillment and multi-channel distribution – A review. *Journal of Operational Research,* vol. 187 pp. 339–356

Al Qur'an Marwan N. 2010. How to Use Multiple Case Studies in International Business Research: Methodological Aspects. *International Review of Business Research Papers*, vol. 6. No 2. pp. 104-119

Amit, Raphael and Zott, Christoph 2001. Value Creation in E-business. *Strategic Management Journal,* vol. 22 pp. 493-520

Amit Raphael & Zott Christoph 2012. Creating Value Through Business Model Innovation. *MIT Sloan Management Review,* vol. 53 no. 3 pp. 40-50

Attaran, Mohsen 2004. Exploring the relationship between information technology and business process reengineering. *Information & Management,* vol. 41 pp. 585–596

Baxter Pamela & Jack Susan 2008. Qualitative Case Study Methodology: Study Design and Implementation for Novice Researchers. *The Qualitative Report,* vol. 13 no. 4 pp. 544-559

Cartwright, Shawn D. & Oliver, Richard W. 2000. Untangling the value web. *Journal of Business Strategy,* vol. 21 pp. 22-27.

Chandra Akhilesh 2002. Systems Issues in E-Commerce. *The Review of Business Information Systems*, vol 6 no. 1 pp. 41-50

Chandra Sathish P. & Sunitha Dr. G. 2012. E-Tailing – The Mantra of Modern Retailer's Success. *International Refereed Research Journal,* vol. III, Iss. 2, pp- 42-48

Colla Enrico, Lapoule Paul, 2012. E-commerce: exploring the critical success factors. *International Journal of Retail & Distribution Management,* vol. 40 iss: 11 pp. 842 – 864

DeLone William H. & McLean Ephraim R. 2004. Measuring e-Commerce Success: Applying the DeLone & McLean Information Systems Success Model. *International Journal of Electronic Commerce* vol. 9, no. 1, pp. 31–47.

Doherty Neil F., Ellis-Chadwick Fiona, 2010. Internet retailing: the past, the present and the future. *International Journal of Retail & Distribution Management*, vol. 38 iss: 11 pp. 943 – 965

Doligalski, Tymoteus 2010. Strategies of Value Proposition on the Internet Perspectives of Innovations. *Economics & Business*, vol. 5 iss: 2 pp. 17-19

Draper, Alizon K. 2004. The principles and application of qualitative research. *Proceedings of the Nutrition Society,* vol 63, pp. 641–646

Dubosson-Torbay Maqali, Osterwalder Alexander, Pigneur Yves 2002. E-Business Model Design, Classification, and Measurements. *Thunderbird International Business Review,* vol. 44 pp. 5-23

Eisenhardt Kathleen M. 1989. Building Theories from Case Study. *Research Academy of Management Review,* vol. 14. no. 4, pp. 532-550

Flyvbjerg Bent 2006. Five Misunderstandings About Case-Study Research. *Qualitative Inquiry*, vol. 12 no. 2 pp. 219-245

Gable, Guy G. 1994. Integrating Case Study and Survey Research Methods: An Example in Information Systems. *European Journal of Information Systems,* vol. 3, no 2, pp.112-126.

Gordijn Jaap, Osterwalder Alexander, Pigneur Yves 2005. Comparing Two Business Model Ontologies for Designing e-Business Models and Value Constellations. 18th Bled eConference: eIntegration in Action, June 6 - 8, Bled, Slovenia 2005 pp. 1-17

Gulati Ranjay, Nohria Nitin, Zaheer Akbar 2000. Strategic Networks. *Strategic Management Journal,* vol. 21 pp. 203–215

Gupta Sushil, Koulamas Christos, Kyparisis George J. 2009. E-Business: A Review of Research Published in Production and Operations Management (1992–2008). *Production and Operations Management,* vol. 18, no. 6, pp. 604–620

Hospers, Gert-Jan 2005. Joseph Schumpeter and His Legacy in Innovation Studies Knowledge. *Technology, & Policy,* vol. 18, no. 3, pp. 20-37.

Kotler, Philip Armstrong, Gary 2006. Principles of Marketing. 11th Edition. Pearson Education Inc. pp. 397

Kumar Sameer, Eidem Jessica, Noriega Perdomo Diana 2012. Clash of the e-commerce titans: A new paradigm for consumer purchase process improvement. *International Journal of Productivity and Performance Management,* vol. 61 iss: 7 pp. 805 – 830

Lau Mei-mei, Ka-leung Moon Karen 2008. Adoption of strategic networks: evidence from the Hong Kong clothing industry. *Journal of Business & Industrial Marketing*, vol. 23 iss: 5 pp. 342 – 349

Liao Shu-Hsien, Chu Pei-Hui, Hsiao Pei-Yuan 2012. Data mining techniques and applications – A decade review from 2000 to 2011. *Expert Systems with Applications*, vol. 39 pp. 11303–11311

Loser, C., Legner, C., Gizanis, D. 2004. Master Data Management for Collaborative Service Processes, Jian Chen (Eds.): International Conference on Service Systems and Service Management, Beijing, China July 19 2004, pp. 1-6

Melville Nigel, Kraemer Kenneth, Gurbaxani Vijay 2004. Information Technology and Organizational Performance: An Integrative Model of IT Business Value. *MIS Quarterly,* vol. 28 no. 2, pp. 283-322

Meyer, Christine Benedict 2001. A Case in Case Study Methodology. *Field Methods,* vol. 13, no. 4, pp. 329–352

Murphy Richard, Narkiewicz Vince 2010. Electronic Commerce and the Value Proposition. *The Journal of Human Resource and Adult Learning,* vol. 6, no. 1, pp 99-105

Nicholls Alex, Watson Anna, 2005. Implementing e-value strategies in UK retailing. *International Journal of Retail & Distribution Management,* vol. 33 iss: 6 pp. 426 – 443

OECD 2011. “E-commerce uptake”, in OECD Science, Technology and Industry Scoreboard 2011, OECD Publishing. [www.document]. [Referred 22.9.2012]. Available:http://dx.doi.org/10.1787/sti_scoreboard-2011-64-en

Osterwalder Alexander, Pigneur Yves 2002. An e-Business Model Ontology for Modeling e-Business. 15th Bled Electronic Commerce Conference e-Reality: Constructing the e-Economy, June 17 - 19, Bled, Slovenia. pp. 1-12

Osterwalder Alexander, Pigneur Yves 2003a. Modelling Customer Relationships in eBusiness Illustrated through the Mobile Industry. 16th

Bled eCommerce Conference. eTransformation June 9 – 11 Bled, Slovenia. pp. 446-462

Osterwalder Alexander & Pigneur Yves (2003b.) An ontology for e-business models. chapter in Wendy Currie (ed) "Value Creation from E-Business Models, Butterworth-Heinemann, 2003 pp. 1-26

Osterwalder Alexander, Pigneur Yves, Tucci Christopher L. 2005. Clarifying Business Models: Origins, Present, and Future of the Concept. *Communications of AIS,* volume 15, pp. 1-40

Pant Sandra, Ravichandran T. 2001. A framework for information systems planning for e-business. *Logistics Information Management*, vol 14 no 1. pp. 85-98

Papazoglou Mike P. 2001 Agent-Oriented Technology In Support of E-Business Enabling The Development Of "Intelligent" Business Agents for Adaptive, Reusable Software. *Communications of the ACM*, vol 44 no 4. pp. 71-77

Payne Adrian & Frow Pennie 2005. A Strategic Framework for Customer Relationship Management. *Journal of Marketing*, vol. 69 pp. 167–176

Peteraf, Margaret 1993. The Cornerstones of Competitive Advantage: A Resource-Based View. *Strategic Management Journal*, vol. 14, pp. 179-191

Petter Stacie, DeLone William, McLean Ephraim 2008. Measuring information systems success: models, dimensions, measures, and interrelationships. *European Journal of Information Systems,* vol. 17, pp. 236–263

Phan Dien D., Vogel Douglas R. 2010. A model of customer relationship management and business intelligence systems for catalogue and online retailers. *Information & Management,* vol. 47 pp. 69–77

Porter, Michael 2001. Strategy and the Internet. *Harvard Business Review,* March 2001 pp. 63-78.

Porter M. E., Millar V. E. 1985. How information gives you competitive advantage. *Harvard Business Review*, vol. 63 no 4. pp. 149–160.

Rao Ashwini D. 2012. A Survey of Mining in Web Intelligence. ICACM: International Conference on Applied and Computational Mathematics, Oct 3, 2012 - Oct 6, 2012, Ankara, Turkey 2012. pp. 1-5

Ribbink Dina, van Riel Allard C.R., Liljander Veronica, Streukens Sandra, 2004. Comfort your online customer: quality, trust and loyalty on the internet. *Managing Service Quality,* vol. 14 iss: 6 pp. 446 - 456

Rindfleisch Aric & Heide Jan B. 1997. Transaction Cost Analysis: Past, Present, and Future Applications. *Journal of Marketing,* vol. 61 pp. 30-54

Rowley Jennifer 2006. An analysis of the e-service literature: towards a research agenda. *Internet Research,* vol. 16 iss: 3 pp. 339 – 359

Rygielski Chris, Wang Jyun-Cheng, Yen David C. 2002. Data mining techniques for customer relationship management. *Technology in Society*, vol. 24 pp. 483–502

Schumpeter, Joseph A. 1934. The Theory of Economic Development. Cambridge, MA: Harvard University Press.

Shapiro, Carl & Varian, Hal 1999. Information Rules: A Strategic Guide to the Network economy. Harvard Business Press Boston Massachusetts pp. 1-14

Skrinjar Rok, Trkman Peter 2013. Increasing process orientation with business process management: Critical practices. *International Journal of Information Management,* vol. 33 pp. 48– 60

Solaimani Sam, Bouwman Harry, 2012. A framework for the alignment of business model and business processes: A generic model for trans-sector innovation. *Business Process Management Journal,* vol. 18 iss: 4 pp. 655 – 679

Sorescu Alina, Frambach Ruud T, Singh Jagdip, Rangaswamyd Arvind, Bridges, Cheryl 2011. Innovations in Retail Business Models. *Journal of Retailing,* vol. 87 pp. 3–16

Soroor Javad, Tarokh Mohammad J., 2006. Innovative SCM: A wireless solution to smartly coordinate the supply processes via a web-based, real-time system. *VINE,* Vol. 36 iss: 3 pp. 304 – 340

Stavrulaki Euthemia, Davis Mark, 2010. Aligning products with supply chain processes and strategy. *The International Journal of Logistics Management,* vol. 21 iss: 1 pp. 127 – 151

Strader Troy J. & Shaw Michael J. 1997. Characteristics of electronic markets. *Decision Support Systems,* vol. 21 pp. 185-198

Teece, David J. Pisano, Gary and Shuen Amy 1997. Dynamic Capabilities And Strategic Management. *Strategic Management Journal,* vol. 18 no. 7, pp. 509-533

Trkman Peter 2010. The critical success factors of business process management. *International Journal of Information Management,* vol. 30 pp. 125–134

Tuzhilin, A. 2012. Customer relationship management and web mining: The next frontier. *Data Mining and Knowledge Discovery,* vol. 24 no. 3, pp. 584–612.

Qu Sandy Q., Dumay John, 2011. The qualitative research interview. *Qualitative Research in Accounting & Management,* vol. 8 iss: 3 pp. 238 – 264

Wang Fang, Head Milena 2007. How can the Web help build customer relationships? An empirical study on e-tailing. *Information & Management,* vol. 44 pp. 115–129

Wang Harry Jiannan, Wu Harris 2011. Supporting process design for e-business via an integrated process repository. *Information Technology Management,* vol. 12 iss: pp. 97–109

Warkentin Merrill, Sugumaran Vijayan, Sainsbury Robert 2012. The role of intelligent agents and data mining in electronic partnership management. *Expert Systems with Applications,* vol. 39 pp. 13277–13288

Weiber, Rolf, Kollmann, Tobias 1998. Competitive advantages in virtual markets - perspectives of "information-based marketing" in cyberspace. *European Journal of Marketing,* vol. 32 iss: 7 pp. 603 – 615

Weill Peter, Vitale Michael 2002. What IT Infrastructure Capabilities are Needed to Implement E-Business Models? *MIS Quarterly Executive*, vol. 1 no. 1 pp. 17-34

Wernerfelt, Birger 1984. A Resource-based View of the Firm. *Strategic Management Journal,* vol.5, pp. 171-180

Williamson Oliver E. 1981. The Economics of Organization: The Transaction Cost Approach. *The American Journal of Sociology,* vol 87, no. 3 pp. 548-577

Williamson Oliver E 1985. The Economic Institutions of Capitalism: Firms, Markets, Relational Contracting. Free Press New York pp. 15-32

Xu Li Da 2011. Information architecture for supply chain quality management. *International Journal of Production Research,* vol. 49, no. 1, pp. 183–198

Zhu, Kevin 2006. The Complementarity of Information Technology Infrastructure and E-Commerce Capability: A Resource-Based Assessment of Their Business Value. *Journal of Management Information Systems,* vol 21. no 1. pp. 167-202

Zhuang Youlong 2005. Does Electronic Business Create Value for Firms? An Organizational Innovation Perspective. *Journal of Electronic Commerce Research,* vol. 6, no.2 pp. 146-159

Zott & Amit 2007. Business Model Design and the Performance of Entrepreneurial Firms. *Organization Science,* vol. 18, no. 2, pp. 181–199

Zott Christoph & Amit Raphael 2008. The Fit Between Product Market Strategy And Business Model: Implications for Firm Performance. *Strategic Management Journal,* vol. 29 pp.1–26

Zott Christoph, Amit Raphael, Massa Lorenzo 2011. The Business Model: Recent Developments and Future Research. *Journal of Management*, vol. 37 pp. 1019-1042

APPENDICES

Appendix 1: Themes of the Semi-Structured Interview Sessions

Sources of value creation

- In what ways does e-commerce possess the ability to decrease transaction costs both for customers and the Case Company?

- Would you say that a large part of the value provided by e-tailer business models are formed by combining a number of actors into a value-adding partner network? (payment providers, application development, SEO & SEM, logistics etc.). Can this be seen also in the Case Company business model and in what way?

- In which way has technological development transformed the retail landscape and enabled the execution of the Case Company e-tailer business model?

- Is the Case Company focusing only on its core competencies when executing its e-tailer business model, and has the less crucial components of the value chain been outsourced? What are the criterion for deciding whether to in-house or outsource?

- What would you say are the main sources of value creation in e-commerce?
    - In what ways does e-commerce enhance efficiency in the Case Company business model?
    - What kinds of complementary products/ or services to the core product offering have considerable effect to the total value provided by the e-tailer business model? (for example complementary brands, loyalty programs, etc.)
    - What kinds of elements are included in the business model which enhance customer lock-in to the Case Company product/service (such as loyalty programs, frequent buyer discounts, etc.?)
    - Have novel ways of organizing business processes been introduced? What kinds of ways?

The Business Model Components

Product Innovation

- What is the value proposition of the e-tailer business model?
    - Could you describe the value proposition in detail?

  - What kinds of promises about service does the value proposition include?
  - What kinds of promises about image and quality does the value proposition include?

- What are the core activities of the Case Company e-tailer business model, which constitute to largest added value for customers?
  - Which of these core activities and operations are operated in-house and why?
  - Which of the core activities of the e-tailer business model have been outsourced or acquired as a service from value adding partners?

- Do the main managerial capabilities related to the e-tailer business model relate to management of technology and the network of value adding partners in order to transform these overall capabilities into a coherent entity to meet the set business objectives? What are the main managerial tasks in operating the business model?

- Does technology play an active role in the e-tailer business model activities and processes and how can this be seen?

- What are the main technology capabilities required to operate the e-tailer business model?

Customer Relationships

- What are the main customer groups of the e-tailer business model?
  - By which means has segmentation of customers been made?
  - What kinds of technological tools have been used for gathering customer data and following purchasing behavior etc. in order to provide information for decision-making?

- In what way does the e-tailer business model enhance customer relationships?
  - What activities have been included or coupled with the online storefront to enhance customer relationships?

- Are customer satisfaction and loyalty seen as the main goals of the e-tailer business model regarding customer relationship management?
  - What efforts have been made in practice to enhance customer loyalty and customer satisfaction?

- Is data actively/constantly being gathered into large databases regarding customers and their online behavior?
  - In what ways are information systems used to analyze the vast amount of data?

- What kinds of customer service channels have been integrated with the online storefront?
    - What kinds of activities fall under customer service? (eg: live chat and guided selling, notifications about order status, etc.)
    - What kinds of value added services are provided via the online storefront? (such as payments, order tracking etc.)

- What kinds of efforts have been made to offer customers personalized relationships?

- What is the role of branding regarding the e-tailer business model?
    - Do you see branding in this context to consist more about the overall service offering, rather than solely product offering and brand recognition of the products?

Infrastructure Management

- How many people at the Case Company operate solely in e-commerce operations?
    - What kinds of in-house resources are required to operate the e-tailer business model?
    - How many people would you estimate to be working on Case Company e-commerce operations, when the entire network of value adding partners is taken into consideration?

- What kinds of outsourced resources are required to operate the e-tailer business model?

- What are the most important resources for the Case Company business model
    - Why and how can the role of technology in the different business model components be seen in practice in the Case Company business model?

Financial Aspects

- By what financial metrics is or should the performance of the e-tailer business model be measured?

- What is the revenue model of the e-tailer business model?
    - Are partners (for example logistics, marketing automations, etc.) commissioned by revenue share per order etc.?

- What are the main cost-drivers of the e-tailer business model?
- What is the profit model of the e-tailer business model?

Technology

- In what ways has information transmission and sharing between the Case Company and its network of value adding partners been automated?
    - What processes have been automated in the Case Company solution?

- What kinds of technological tools and protocols are used in the Case Company system in order to enable the automation of information to different counterparts in the value adding network?

- What kinds of technical resources are required in order to operate the Case Company e-tailer business model?
    - What kinds of resources are in-house?
    - What is outsourced and provided by partners in the value-adding network?
    - In what ways should technical staff have vast understanding of the e-tailer business model, in order to be able to provide value to the service?

- Is business process- and information technology architecture planning and decision making made hand in hand with each other? How can this be seen in practice, when planning the business model and e-tailer architecture?

- Were business processes designed first and only then the technological decisions?

- What kinds of business intelligence tools are used at the Case Company?
    - To what purpose are they used?

- What kinds of data mining activities are undertaken to provide information for decision makers?
    - Are there web mining tools present?
    - Is external data used in addition to the data provided by the e-commerce platform, in order to perform data mining activities? What kinds of external sources?

- Are data mining activities tools included in the Case Company CRM system? What kinds of analysis can be run?

- How are data mining activities used to analyze supply chain activities?

Appendix 2: Background Information on Respondents

Respondent A: Online Retail Manager at Case Company Group

Respondent A has acquired broad experience of managing global commercial online solutions and has been responsible for planning, designing and operating a global e-tailer business model for one of her previous employers. Respondent A was recruited by the Case Company to deploy their global e-tailer business strategy from scratch and to reach the highly challenging goals for the strategic investment. Currently is responsible for all business-related aspects of the Case Company global e-commerce business model.

Competencies

- E-commerce
- Online Business Models
- Global E-commerce Processes
- Merchandising
- Retail
- International Business
- Online Merchandising
- Online Sales
- Digital Marketing
- Mobile Marketing
- Mobile Internet
- Digital Strategy
- Online Marketing
- Online Advertising

Technologies

- Online store technology Architectures
- Online storefront technology platforms
- Online merchandizing tools
- Online marketing automation tools
- Customer Relationship Management

Background

2011-present:	E-commerce and Online retail manager for Case Company
2001-2011:	Various online and online sales related roles in Telecommunication company

Respondent B: Online Business Service Manager at Case Company

Holds more than twenty years of experience in the IT industry, including several different positions across a range of solution areas. Respondent B has acquired broad experience of managing global enterprise solutions with multiple vendors. Also possesses extensive experience of IT Service Management development and actual implementation into use including several e-commerce projects both in the past and presently. Currently is responsible for all information technology related aspects of the Case Company global e-commerce technology architecture.

Solution Areas

- IT Service Management
- ITIL
- Enterprise Architectures
- Prince II
- COBIT
- Product Data Management
- Product Information Management
- Master Data Management
- PCI DSS and SOX Compliancy
- Information Security Policies
- Databases
- Intelligent Agents and Data Mining

Technologies

- Enterprise BPM Technologies
- Online storefront technology platforms
- Integration Platforms and implementation frameworks
- Business Intelligence frameworks, platforms and tools for back-end and online data mining

Background

2012 – Present:	Online Business Service Manager at Case Company
2001 – 2012:	Several positions in areas of E-commerce, Product Data Management and Service Management development at Telecommunication Company
1992- 2001:	Various Service Management and Specialist roles at Information Technology and Services company

Respondent C - Principal Consultant at Vendor

The Vendor was founded in 1999, and has since focused solely on e-commerce solutions and e-commerce expertise, including both front and back-end solutions. The Vendor is a partner for Finnish enterprise and corporate level companies, for their B2C and B2B ecommerce, globally and within Finland.

Sample of clients with personal involvement: Sanoma, Otava, Reima, Vaisala, Tamro, Kesko, Tokmanni and Seppälä.

Solution Areas

- e-commerce business models and –strategies
- Multichannel Commerce Processes
- Product MGMT, UGC, wholesaler solutions
- Master Data Management
- Product Data / Product Information Management
- Order Processes and Dropship models
- Marketing processes and marketing automation
- Multichannel Customer Relationship Management
- E-commerce Supply Chain Management
- Customer Service Processes

Technologies

- Online store architectures
- Online storefront technology platforms
- Integration Platforms and implementation frameworks
- Business Intelligence frameworks, platforms and tools for back-end and online data mining

Background

1999 – Present:	Director, Business Development at Vendor
2011 – Present:	Advisor and member of the board in an innovative and disruptive e-commerce start-up focusing on online marketing automation.
2007 – 2010:	Member of the Board at Electronic Commerce Association of Finland (ECF)
2007 – 2008:	CEO at high quality SME hosting services provider
1999:	Founder at a company focusing on e-commerce related market research.

Respondent D: Member of the Board at Vendor

The Vendor was founded in 1999, and has since focused solely on e-commerce solutions and e-commerce expertise, including both front and back-end solutions. The Vendor is a partner for Finnish enterprise and corporate level companies, for their B2C and B2B e-commerce, globally and within Finland.

Sample of clients with personal involvement: Sanoma, Kesko, Tokmanni Seppälä, Orion, Rautaruukki, Nanso Group, Itella, Metsä Group, L'oreal and the Body Shop.

Competencies

- Global e-commerce business models and –strategies
- Multichannel Commerce Processes
- Product MGMT, UGC, wholeseller solutions
- Master Data Management
- Product Data / Product Information Management
- Order Processes and Dropship models
- Marketing processes and marketing automation
- Multichannel Customer Relationship Management
- E-commerce Supply Chain Management
- Customer Service Processes
- Big Data
- Search engine Marketing and Search engine Optimization
- Mobile Commerce
- Digital Strategy

Technologies

- Online store architectures
- Online storefront technology platforms
- Integration Platforms and implementation frameworks
- Business Intelligence frameworks, platforms and tools for back-end and online data mining

Background

2013 – Present:	Member of the Board at Vendor
2010 – 2013:	Sales Director at Vendor
2004 – 2010:	Sales Manager / Key Account Manager at Vendor
2001 – 2004:	Sales Manager/ Owner at various e-tailers
1997 – 2001:	Online Services Sales and Partnerships at Fortum