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Behind the Internet Business Models:

An E-health Industry Case

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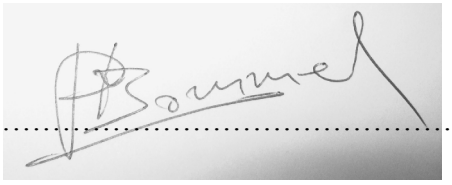
DECLARATION

This thesis does not contain any material that has been accepted for the award of any other degree or diploma in any educational institution and, to the best of our knowledge and belief, it does not contain any material previously published or written by another person than the authors of the thesis Ieva Berzina and Paul van Bommel, except where the due reference in the text has been made.

Signed: …… (Ieva Berzina)

Signed:  (Paul van Bommel)

EXECUTIVE SUMMARY

Many wonder what constitutes a business' success, whether it is a traditional business or an Internet-based venture. The business model literature has in the recent past sought to explain what constitutes a good e-business venture. As a manner of speaking, it provides the reader with the corner stones and cement of which a business is constructed. The authors of this research paper have noted that though business model literature has its merits, little has been written on how to practically apply the literature available. It also lacks the focus on the business model further evolution and innovations.

For this reason, the aim of this thesis is to provide the interested reader with a practical example of how to put business model theory to use. As the research field of this topic is rather complex and previous to this thesis does not specifically provide with methodology for business model innovation, a case study strategy is chosen in order to gain in-depth understanding of the topic. Firstly, the main lessons based on the most popular success and failure factors of eight netPhase I cases were assessed. The thesis has a special focus on exploring the intricacies of taking the often complicated structure of a business apart and stipulating success factors within a business model. Secondly, having gained a good understanding of the past and looking for future insights, the e-health industry case, as a particularly interesting area, was chosen to illustrate potential future trends and business model innovations.

Lastly, this paper comes up with assumptions on future trends and suggestions for the business model innovations within the three explored e-health sectors. The main findings help to understand what business model concept means and how it can be applied in practice. They also serve as a guidebook to online business for the ones that would like to start one or change existing business model, as well as they help to understand future innovations specifically in the healthcare industry. Despite the fact that the focus is on the pure-play Dot-com companies, the basic principles and lessons also apply to the traditional business settings.

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1. INTRODUCTION

The Internet has changed things dramatically for everyone involved. The ability of consumers to find and buy products or information online and the ability of businesses to use global connectivity, and reach new business partners or deliver new services has significantly altered entire industries and company business models around the world. Today almost all industries are experiencing this influence. Business model has been and, perhaps, is the most discussed and least understood aspect of the Internet era. There have been so many discussions on how the Internet changes traditional business models, but there is little clear-cut evidence of what this exactly means (Rappa, 2001). Ten years ago a company did not need a strategy or special competence or even any customers. All it needed was an Internet-based business model that promised big profits in some distant and ill-defined future (Magretta, 2002). Today, a good business model still remains essential to every successful organization, whether it be a new venture or an established company. The biggest change in the past years is that one can find realistically Dot-com companies and many of them are displaying healthy returns on investment. In various sectors, the Dot-com companies are getting better than their pre-Web rivals, i.e., the younger companies tend to be faster, more focused and motivated, hence, resulting in more responsive organizations with more innovative business models.

Creating a successful company in any industry is a challenge, but the unique characteristics of the Internet make it particularly difficult (Kalakota and Robinson, 1999). In the Internet business world, innovation is derived from spotting the trend before anyone else and from sophisticated exploitation of information and technologies to create value. The idea that companies succeed by creating value is a common understanding. What is new, however, is how innovative business models are delivering value. New forms of business models are reaching out of the existing business model literature and suggesting new innovative approaches that some companies have already taken today and how it can change the future of the whole industry. In several industries new business models are threatening or even replacing established companies and traditional ways of doing business. Increased competition and rapid copying of successful business models forces all companies to innovate and adapt their business model on continuous bases in order to gain and sustain their competitive edge.

The interest in business model and its innovation has also increased among the CEOs. The IBM Global CEO Study 2006 (IBM, 2006) provides results from 765 in-depth interviews with CEOs around the world, and they show that competitive pressures have pushed business model innovation much higher than expected on CEOs priority lists, viewing it as a matter of survival. Some CEOs who have not focused on business model innovation in the past now believe it is time. Cost reduction and strategic flexibility were reported as top benefits from business model innovation by over half of all innovators. Business model innovation help companies to specialize, to seize emerging growth opportunities, to become more responsive and cost efficient, leading to additional revenue generation opportunities. Companies that thoroughly understand their business model will be able to constantly rethink and redesign it to innovate before their business model is copied.

1.1 Problem formulation and research questions

Regardless relevance and a certain amount of effort that has been devoted to the subject of business models over the past ten years, there is often a lack of a more precise and shared understanding of what a business model is. Yet, such a common understanding of the concept is required to identify components of business model and understand its innovation in the future. Even though the term "business model" was first mentioned back in 1957 by Bellman et al, the popularity of the term is a recent phenomenon (Osterwalder, 2005). The rise of e-commerce, threw a spotlight on the topic, and the term was most frequently, however not solely, used in relationship with the Internet from the late 1990s and onwards. Therefore, the authors of this research focus on the Internet business models. For this reason the first research question of the thesis is formulated with an aim to explore the roots of the Internet business model concept:

> **RQ1:** ***What were the factors that determined survival and failure of the Internet business models at the beginning of the dot-com era between years 1995 - 2000?***

In answering the first research question, the authors will pay particular attention to the Internet business models at the early stage of the Internet era and lessons that can be learned from these past experiences. Through short case studies, the authors will point out factors that determine survival or failure of the early Internet business models. Those factors will help to build in-depth understanding and provide a base for assumption on what models can be sustainable and indicate the course of further evolution of the concept. Based on the first

question and the fact that business model innovations have been given little attention in the academic literature the authors have formulated the second research question with the purpose of further exploration of the business model concept by looking at the e-health case:

> **RQ2:** ***What are the future trends and emerging Internet business model innovations in the e-health industry?***

With this research question the authors set the task to narrow down the scope of the subject, by choosing an e-health segment. The e-health industry is particularly fascinating due to several reasons, for instance, significant changes in lifestyle and healthcare needs, paper-based and traditional nature of the health industry, a great ostensible potential for the Internet based ventures and innovations. The health industry is one of the industries that have been relatively slow in implementing new technologies and the Internet as a part of their daily routine, and be opened towards innovations. Traditional sectors like pharmacies and health information services were quickly captured and transformed by the online ventures during the netPhase I. However, the online medical record sector is still a new area, and it presents a great potential for business model innovations. It also arouses curiosity and gives incentives to explore how this emerging e-health sector might induce changes in customer value proposition and bring the e-health industry to another level, and what are the main challenges and limitations to future innovations. With innovations one should understand new approaches, interrelations and changes in and between the current business model elements. By identifying the main challenges, it becomes possible to see the limitations to those potential future innovations, hence, spotting the most likely ones.

The authors of this research are convinced that only by understanding the roots of the business model concept, assessing lessons from the early online ventures and taking an in-depth look at a selected industry (-ies), one can judge about the future trends and potential business model innovations. The main benefit of focusing on one particular industry is that more time can be devoted for exploring various sectors of the industry, the business models and as a result more accurate analyses and more relevant findings.

1.2 Demarcations

The focus area of this paper, i.e. the Internet business model and its innovation is rather vague and broad, and it is lacking a generally accepted understanding. Therefore, before proceeding

with the thesis any further, some main limitations have to be set. This chapter will provide not only a frame of reference for the authors in structuring thesis, but it will also facilitate the reader to better understand the topic.

1.2.1 Business model

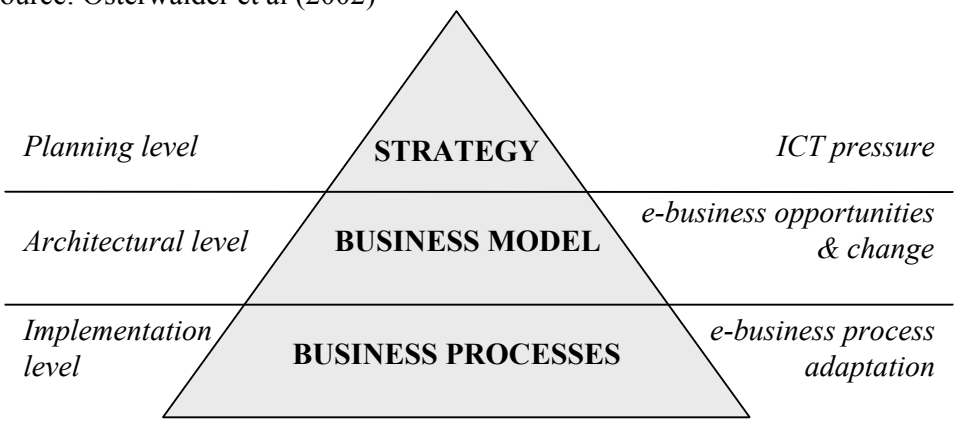
Although the main idea of a business model is to provide a simplified representation of the business concept, it is rarely described explicitly in a conceptual way. Despite all the ink spilt, words spoken and numbers of articles written, business models are still poorly understood. Among the many definitions, the authors of this paper adapt the following definition by Petrovic, Kittl and Teksten (2001), also adopted by Osterwalder et al (2002):

> *"A business model describes the logic of a "business system" for creating value that lies behind the actual processes. Therefore a business model can be understood as the conceptual and architectural implementation of a business strategy and as the foundation for the implementation of business processes".*

Business models help to capture, visualize, understand, communicate and share the business logic (Osterwalder et al, 2005). In order to distinguish between business model and strategy and to emphasize the role of a business model, previously mentioned authors have illustrated it in a business logic triangle (Figure 1). It is important to understand that a firm's business model is no substitute for its strategy. The strategy covers overarching aspirations and positioning in the industry and provides a framework for consistently making money in a changing business environment. If the business model guides day-to-day execution, the strategy should communicate how the change in the business model is intended to take advantage of shifting markets and new opportunities (Linder and Cantrell, 2001). The picture is less clear in the real life where some people use terms "strategy" and "business model" interchangeably, e.g. Magretta (2002). Another difference between the terms is that strategy includes execution and implementation, while the business model is more about how a business works as a system (Osterwalder et al, 2005).

Figure 1. Business logic triangle

Source: Osterwalder et al (2002)



Another cause of confusion in building common understanding of a business model is the fact that some people when they talk about a business model, they actually mean only some parts of a business model. The authors agree with the criticism by Osterwalder et al (2005) that an online auction is not the whole business model itself but rather a part of the business model, and accept the opinion that a business model needs to be understood as a much more holistic concept that embraces many elements, such as customer relationship, partnering and others.

1.2.2 Dot-com company

"Dot-com company" is a term that is often used throughout this paper, and, therefore, it is important to define what exactly it means. Initially, Dot-com was a generic top-level domain on the Internet.

> *Today it is a common name for a company that does most of its business on the Internet. By "most of its business" one should understand that company is purely Internet-based and its business is done online, however it still uses e.g. physical logistic systems that assist in delivering services.*

In this paper, "Dot-com company" also means the same as "Internet based company", "online company", company with the Internet business model, Internet or e-business ventures. All those terms are commonly used throughout the literature both by practitioners and academics. "Brick-and-click" is another term often used when speaking about e-business and it is also covered in this paper. It stands for companies that operate in both traditional and online

business settings competing with pure play online companies and traditional businesses. However, to set and remain the scope of the research, bricks-and-clicks are not the main focus of this paper.

1.2.3 E-health

E-health is an emerging industry providing innovative ways in business model evolution. There are only few who have tried to define this concept. Eysenbach (2001) provides the most elaborate definition:

> *„E-health is an emerging field in the intersection of medical informatics, public health and business, referring to health services and information delivered or enhanced through the Internet and related technologies. In a broader sense, the term characterises not only a technical development, but also a state-of-mind, a way of thinking, an attitude, and a commitment for networked, global thinking, to improve health care locally, regionally, and worldwide by using information and communication technology."*

This definition is rather broad and it includes both non-profit and profit services, therefore, in order to set the scope, the authors of this paper adapt the following simplified definition of the term:

> *"E-health is an emerging e-business industry providing health services and/or information through the Internet with a commercial purpose".*

The key word "commercial purpose" has been added to set limitation on the meaning of the term and emphasize its commercial scope in this research as the means to generating profits, which is a central part of a business model literature. Therefore, with the term "e-health company" in this research one should understand an Internet based company providing health services and/or information through the Internet with an interest of gaining profits. The three main e-health sectors today are: (1) online pharmacies, (2) online health information providers, (3) and online medical record providers. Those three sectors will be used further in the research to look into e-health case and to explore business model innovations.

1.2.4 Other demarcations

Time is another important dimension in this research that has to be explained. The research follows timeline of the e-business evolution and distinguishes two important phases in its development. The first research question focuses on the early Internet phase i.e. 1995-2000 by exploring selected case studies within this period of time. The reason behind setting this timeline is that the first online companies went public around the year 1995 and the year 2000 marks the Dot-com bubble burst, hence, the end of the early Internet phase. The second research question has a focus on both short- and long-term future, i.e. from today and maximum up to next ten years from now on. The last decade of the Internet evolution has experienced huge changes in all possible e-business sectors. Therefore, the objective is to point out future trends and changes rather than making a forecast.

1.3 Structure

This research paper consists of nine main chapters. Following the introduction part, the literature review guides the reader through the business model literature, its critics and explains the authors' decision on selecting the business model theory that will help to understand the key elements, analyze data and structure the main findings. The third chapter provides with the methods and research steps the authors will take in order to answer the research questions. Having read the lessons from the past and taken a look at the current market trends in the Chapter 4, the reader obtains detailed knowledge on the business model evolution and gains understanding on early business model success or failure factors. Following the funnel approach, the topic is narrowed down to the e-health industry case in the Chapter 5 and the main findings are discussed in the Chapter 6. It is followed by another three chapters that provide managerial implication of the research, directions for future research and the final conclusions.

2. LITERATURE REVIEW

This chapter represents a critical overview of the business model literature and its value at use. The objective of this chapter is to present the gained knowledge on a business model literature, critically evaluate it, spot the gap in the current literature for a further research and identify the literature that can help in carrying out this research.

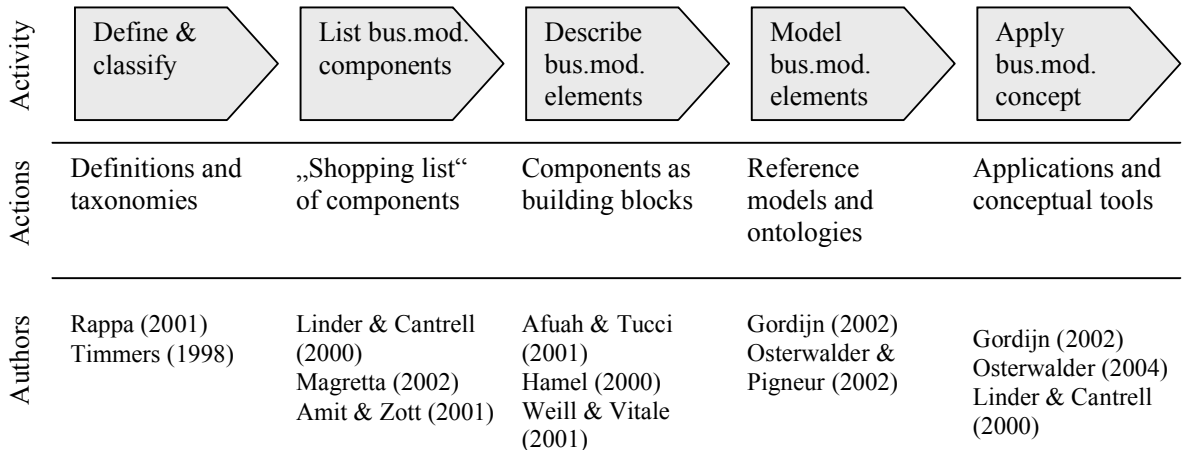
2.1 Evolution of the business model concept

Originally derived from known concepts of value creation and rooted in the transaction cost economics, the business model concept evolved the most during the netPhase I. The cheap information technology and enhanced communication opportunities made it possible for companies to create value webs due to decreased coordination and transaction costs. It also stimulated the development of entirely new business models where companies in some cases were cooperating even with their competitors, jointly offering and commercializing value to their customers, leading to redefinition of industry boundaries regardless the sector.

Chesbrough and Rosenbloom (2002), in May 2000 searching on the Internet, found 107,000 references to the term "business model". In August 2008, one can find 58,500,000 sources with a reference to this term on the Google search engine. However, the vast majority of these references do not explain what a business model actually is. One of the most recent and elaborate articles on the evolution of the business model concept is by Osterwalder et al (2005). The authors prove the fact that the literature on business model topic is often discussed superficially and frequently without any understanding of its roots, role, and potential. Based on an extensive literature review, Osterwalder et al (2005) aim to shed some light on the origins, the present and the future of the concept, and present its evolution in five phases (Figure 2). It gives a clear overview and provides a good starting point for the authors of this paper in understanding the concept's evolution, including the author names, actions and activities related to the evolution process.

Figure 2: Evolution of the business model concept

Source: Osterwalder et al (2005)



** Note: the authors account only for literature that focuses on the business model concept and not on literature merely mentioning business models.*

During the first phase, when the business model became popular, several authors suggested business model definitions and classifications. One of the first articles to define the business model and, probably, the most-cited one is by Timmers (1998), which offers a classification scheme for business models for e-commerce. Timmers (1998) is considered a pioneer in business model research and his definition of a business model is "architecture for the product, service and information flows, including a description of the various business actors and their roles". Timmers offers a classification of eleven ways of doing business. These business models are simply defined by the sort of service delivered over the Internet, and the classification is derived from Porter's value chain. Notwithstanding the clarifying definition of a business model, Timmers (1998) represents the conceptual level of the business model literature and does not provide any inside into the architecture of the various business models presented, and merely offers a few examples of companies applying the presented business models.

Further, Rappa (2001) extends the scheme by Timmers, noting that "the business model shows how a company makes money by specifying where it is positioned in the value chain." He identifies 29 different types of business model, in nine main categories: (1) brokerage, (2) advertising, (3) infomediary, (4) merchant, (5) manufacturer, (6) affiliate, (7) community, (8) subscription, (9) and utility (Appendix 1). The author emphasizes that e-commerce is giving

rise to new kinds of business models and it is also reinventing tried-and-true models, such as auctions. It is one of the oldest forms of brokering and they have been widely used throughout the world to set prices for such items as agricultural commodities, financial instruments, and unique items like fine art and antiquities. In contrary to Rappa's (2001) suggestions, Linder and Cantrell (2000), as well as Osterwalder et al (2005) suggest that, e.g., an online auction is not a business model but a pricing mechanism and online community is not a business model in itself but a customer relationship. This is the case when people speak about business models when, in fact, they mean only parts of a business model.

The authors of the second phase started to complete definitions by elaborating what elements the business model consists of but it does not reach any further than proposing simple "shopping lists" and just mentioning the components. Only during the third phase, the authors actually provide a detailed description of these components. For example, Weill and Vitale (2001) name the components of a business model and representing them by means of symbols. They propose that a company's business model is divided up into nine "atomic business models" each one of which provides the company with a method for constructing value, and of which the ones applied together form the business model. In the same work, they describe these different components of business models and depict them using a representation tool. This provides insight as it allows the authors to break business models up, and to separately analyse the underlying components that together form the overall business model. Importantly, the evolution that this phase brought forth was that authors shifted from talking about revenue generation by providing taxonomy of *revenue models* to evaluating *value creation* by business models. The authors of this paper acknowledge the relevance of both, be it that creating value by proposing a value proposition through your business model is an evolutionary process stemming from the revenue model literature.

In the fourth phase, few authors started to create ontology for the components of business models. Tapscott et al (2000) and Peterovic et al (2001) provide the reader with a methodology for business model change. The latter argue that conceptualized business models help business model designers to modify certain elements of existing business models, which helps an organisation to adapt to its competitive environment. At the same time, calibrating techniques were developed in order for business models to be evaluated. The aim of ontology is to offer a shared, formal and explicit conceptualisation of an entity, in this case a business model. One such ontology has been provided by Osterwalder (2002) that provides with a clear

conceptualisation technique for business models. The research works in the first three phases provide business taxonomies on the *revenue generation* level, which can be placed in the lowest level of the "business logic triangle" (Figure 1, Page 9). Osterwalder et al (2005), however, focus on the subject of v*alue creation.* That is, they depict the ways in which a company's business model creates value in its particular business, a subject that was neglected by previous business model studies. They do so by providing ontology, not for revenue generation but for the four main *pillars* of a business model (See Chapter 3). These are (1) the value proposition (innovative product or service), (2) customer relationships, (3) infrastructure management (4) and the financials. Each of these pillars, except for the value proposition, is composed of three elements. Together, these nine elements divided over three pillars depict the construction of the company's value proposition, and how all the elements constructing the value proposition interact. As such, the representation tool allows one to graphically represent the business model of a firm, and equally allows the representation of other possible business models. This facilitates change for corporate decision makers and as such fosters innovation in a business' value creation process (Osterwalder, 2002).

Next to the business model decomposition, Dubbosson-Torbay et al (2002) provide a new type of a business model classification. According to the authors, most of the articles suggest a limited number of basic types of business model, i.e. between five (Tapscott et al, 2000) and thirty (Rappa, 2001), and this diversity in business model classification shows inadequacy of providing a unique classification scheme. Therefore, the authors are the first ones to suggest multicategory approach and encourage accepting that a business model could be positioned with regard to several dimensions, in a web of many classification schemes. Compared to the classification by Rappa (2001), the authors of this research are convinced that the suggested dimensions do not define the boundaries between the models, therefore, it makes it more difficult to compare with the early business models, hence, depict the evolution of the concept.

Further in the phase four, Gordijn et al (2000) identify a separation between business modelling and process modelling. Where business models are workflow oriented (what is offered by whom to whom), process models integrate operationalisation issues (how it is delivered). Gordijn and Akkermans (2001) suggest that existent business model representations often "perpetuate the gap between business executives and e-business information system creators". They advocate an approach in which process modelling

approaches are unified with business processes. Their approach coined "e3-value methodology" is capable of expressing the business factors of revenue streams, value objects, customer ownership, price setting, alternative actors and partnership issues. Their approach is very detailed, providing a good insight in both business value and process modelling of a business ventures. It is particularly interesting as it recognises the value of the value chain theory in business models. Gordijn et al (2000) takes on the value chain, as proposed by Porter (1985), and elaborates on business model and value chain alteration with the advent of e-business models. Gordijn et al (2000) argues that worldwide connectivity has opened up the possibility to move from linear cross-organisational cooperation (as proposed by the value chain theory) to more complex *networked value constellations* of organisations. Within these networked value constellations, organisations jointly create value for specific customer needs (Tapscott, 2000; Gordijn and Kinderen, 2008). This concept is an evolution of the previously discussed value constellation theory proposed by Normann and Ramirez (1994).

In a seminal calibrating work, Weill et al (2005) studied the effect of applied business models on the financial performance of companies, thereby effectively testing business model value. They found that particular business models in some instances do perform better on key financial indicators, thereby demonstrating the value of the business model at use. Weill et al (2005) compared the financial results of the largest 1000 U.S. companies with their respective Business model, and remarkably found the business model concept to be a better indicator of financial success than is the company's industry. This approach bears a strong resemblance to Gordijn et al (2000) "traditional business ontology" based upon value and processes, criticized by him as not semantically representing the exchange of economic value. Although the quantitative research carried out by Weill et al (2005) provides with statistical proof of the importance of having the 'whom' and the 'what' in your business model right, the authors do indeed agree with Gordijn et al (2000) regarding his criticism on the lacking insight in value creation.

As to be seen, some theorists suffice by providing definitions of business models, proposing the taxonomy of services rendered or products offered, and depicting a dissection of business model components represented in a specific model. Tapscott et al (2000) and Peterovic et al (2001) additionally provide the reader with a methodology for a business model change. The latter argue that conceptualized business models help business model designers to modify certain elements of existing business models, which helps an organisation to adapt to its

competitive environment. Gordijn et al (2000, 2008), as to be seen and discussed earlier, breaks away from the pack by providing an ontological model, evaluation measures for the Internet business models and proposing a methodology for change. The methodology proposed by Gordijn et al (2000, 2008) is highly academic, and its functionality has yet to be supported by empirical evidence.

2.2 Criticism on business model concept

A very valid question to be asked would be to what extent a company's success can be predetermined or even explained using the business model theory. Certainly, business models are frameworks, and as such a simplified abstraction of reality. That is, far from all factors that determine a company's success or failure can possibly be depicted by means of business model studies. Seddon et al (2004) and Porter (2001) have discussed the implications of business model theory, but criticise both its functionality as its originality. Responding to the business model literature, Porter (2001) states that having a business model is an exceedingly low bar to set for building a company, and "a far cry" from creating economic value. His conception of a business model, as found in the literature, is "a loose concept of how a company does business and generates value". According to Porter (2001), a business model can be defined as an abstract representation of some aspects of a firm's strategy. As the author noted, a company's value proposition should be based on operational effectiveness or strategic positioning. As it becomes harder to sustain operational advantages in the face of the Internet business (to be discussed profoundly in the Chapter 4), Porter (2001) points out that the focus should be on strategic positioning. The concept of strategic positioning is based upon delivering a truly distinctive value proposition, and should be highly integrated in its value chain. Taking into account the broader subject of strategic positioning, it becomes clear that there are limitations to the information one can extract from a company's operations based solely on a study of its respective business model. In addition, the author states, no business model can be evaluated independently of industry structure or the environment.

In an empirical paper, Seddon et al (2004) seek to test the factors of which a business model is contrived, by studying various literary works regarding the difference between business models and strategy. The authors end to argue that the term "business model" can serve as an abstraction of a firms' strategy as defined by Porter (1996). Agreeing that the business model concept imposes rather strict limitations on the analysis of business success, Seddon et al

(2004) also identifies a positive side to business model analysis. A business model, he notes, outlines the essential details of a firm's value proposition to its stakeholders and the system the firm uses to create and deliver this value to them.

Faced with Seddon's et al and Porter's criticism on business model focus when constructing or analyzing business success factors, it becomes clear that business model and its analyses can provide a source of business success factors but one needs to consider the business environment and industry and also to what extent a firm's operational structure should be taken into account. The authors of this paper fully agree with Porter that there are limitations to insight when solely analysing a firm's business model. However, business models provide for a highly comparable way of analysing a business' processes, allowing the authors to clarify the skeleton of a business' operations. By clarifying an organisation's business model and comparing it with other business models across industries, one creates the possibility to restructure business processes, or identify business possibilities that had previously gone unnoticed.

2.3 Conclusions

Among discussed scholars, it is possible to locate a great number of differences in both the number of fields investigated in their business model research and their opinion considering the usefulness of business model theory in designing, securing and explaining the success of businesses. Due to the diversity in opinions on business model concept and its components, the authors of this research have not only gained good knowledge about the concept but also have become aware of critics and limits to the extant framework applicability in understanding and analyzing business models.

Secondly, the authors of the thesis conclude that only few authors have paid attention to business model innovations (Osterwalder et al, 2005) and have considered time as a dimension of the business model framework. Therefore, due to increasing importance of a business model in the business world and rapidly changing market condition across various industries, it is an attractive research field and can be explored. The existing literature, studied in this chapter, can assist in understanding and analyzing important components of a business model. However, one should be selective in choosing the appropriate ontology. The business model literature can be divided into the earlier stage that focused on *revenue models,* and later literature focusing on the more evolved *value creation* concept. As such, some theorists

suffice by providing definitions of business models, proposing the taxonomy of services rendered or products offered, and depicting a dissection of business model components represented in a specific model. In order to understand current business model innovations and draw potential future innovations, the authors are convinced that the literature of the late business model evolution phase is the most appropriate as it comprises both revenue model and value creation, and provides more holistic view of the concept. By setting this scope, it becomes possible to understand not only how revenues are generated but also how the value is created. This in turn helps to better estimate future trends and innovations in how the value is created and delivered to the customers as a result of their changing needs and lifestyles, as well as ever increasing and crucial role of the Internet across the industries.

Osterwalder et al (2002) e-business model ontology brings e-business model literature one step further by providing methodology that defines essential concepts or elements in the model and show relationship between them. The authors of the ontology are convinced and authors of this paper agree that this ontology gives a common understanding and helps to fulfil the main purpose of the business model, i.e. communicate and share understanding of an e-business among other stakeholders in the decision making process, use it as foundation to facilitate change, it helps to identify relevant measures to follow in an e-business, helps to simulate e-businesses and learn about them (Osterwalder et al, 2002). Considering focus on future trends and business model innovations, the authors choose to use the e-business model ontology as a framework for exploring business models, understanding and sharing the future dynamics and innovations, therefore answering both research questions.

3 METHODOLOGY

In this chapter the authors outline the chosen research philosophy, research strategy, which has guided them through the research process, as well as specific research methods, which have been applied in gathering and analysing data.

3.1 Research philosophy

The research philosophy depends on the way the authors think about the development of knowledge, and it determines the way they choose to go about doing research. There are three most common views about the research process in the literature: positivism (also called scientific), interpretivism (anti-positivism) and realism (Saunders et al, 2003). This paper is written from an interpretive stance, i.e. the authors of this research are convinced that only through the subjective interpretation of and intervention in reality can that be fully understood. They also admit that there may be many interpretations of reality, maintaining that they are in themselves a part of the scientific knowledge they are pursuing. According to Saunders et al (2003) the interpretivists argue that generalisability is not of crucial importance, and if one accepts that circumstances of today may not apply in six months time then some of the value of generalisation is lost. As the aim of this research is to gain in-depth knowledge of early Internet stage and look for new insights in the Internet business model innovations, the relevance and need for generalisability is limited.

3.2 Research approach

Related to the level of structure and the procedural requirements, one can distinguish and choose between deductive or inductive perspective. In a deduction one seeks to use existing theory to shape the approach and adopt it to the qualitative research process and to aspects of data analyses. On the other hand, in the case of an induction one will seek to build a theory that is grounded in a number of relevant cases. Followers of the inductive approach usually criticise the deductive approach for its tendency to construct a rigid methodology that does not allow alternative explanation of what is going on (Saunders et al, 2003). Therefore, this paper follows an inductive research approach as it is crucial to gain an understanding of Internet business model innovations and new insights. This approach is particularly concerned

with the context in which such events are taking place. Thus the study of small number of subjects might be more suitable than a large number, like in the deductive approach.

3.3 Research strategy

The research strategy is a general plan of how the authors have intended to reach the answers to the research questions. Yin (1994) presents two strategies for general use, i.e. one is to rely on theoretical propositions of the study, and then to analyze the evidence based on those propositions, and the other technique is to develop a case description, which would be a framework for organizing the case study. In choosing the research strategy, the authors considered the fit of the strategy across two main dimensions – the fit with the *aim* of the research and fit with *the research philosophy*. The case study was chosen after a thorough process of assessing strengths and weaknesses of a case study and other research strategies, such as, longitudinal studies, exploratory research. The main reasons that influenced this decision are summarized in the Table 1. Due to the complexity of the business model concept and authors' aim to obtain thorough knowledge on business model in the past and gain new insights of future innovations, quantitative research strategies would not lead the authors to the answers of the research questions and, therefore, they were not considered.

Table 1: Reasons for choosing case study strategy

• Case study strategy provide with a rich and sharpened understanding of complex issues;
• Case studies emphasize detailed contextual analysis of a limited number of events or conditions and their relationships;
• Case study strategy enables flexibility in selecting cases and, hence, it is possible to maximize what can be learned;
• It has considerable ability to generate answers to the question "why", "what" and "how";
• It can enable the authors to challenge the existing business model literature and provide a source for innovations (Saunders et al, 2003).

Critics of the case study method believe that the study of a small number of cases do not provide a basis for establishing reliability or generality of findings. Others feel that the intense exposure to study of the case leads to bias findings, and some dismiss case study research as

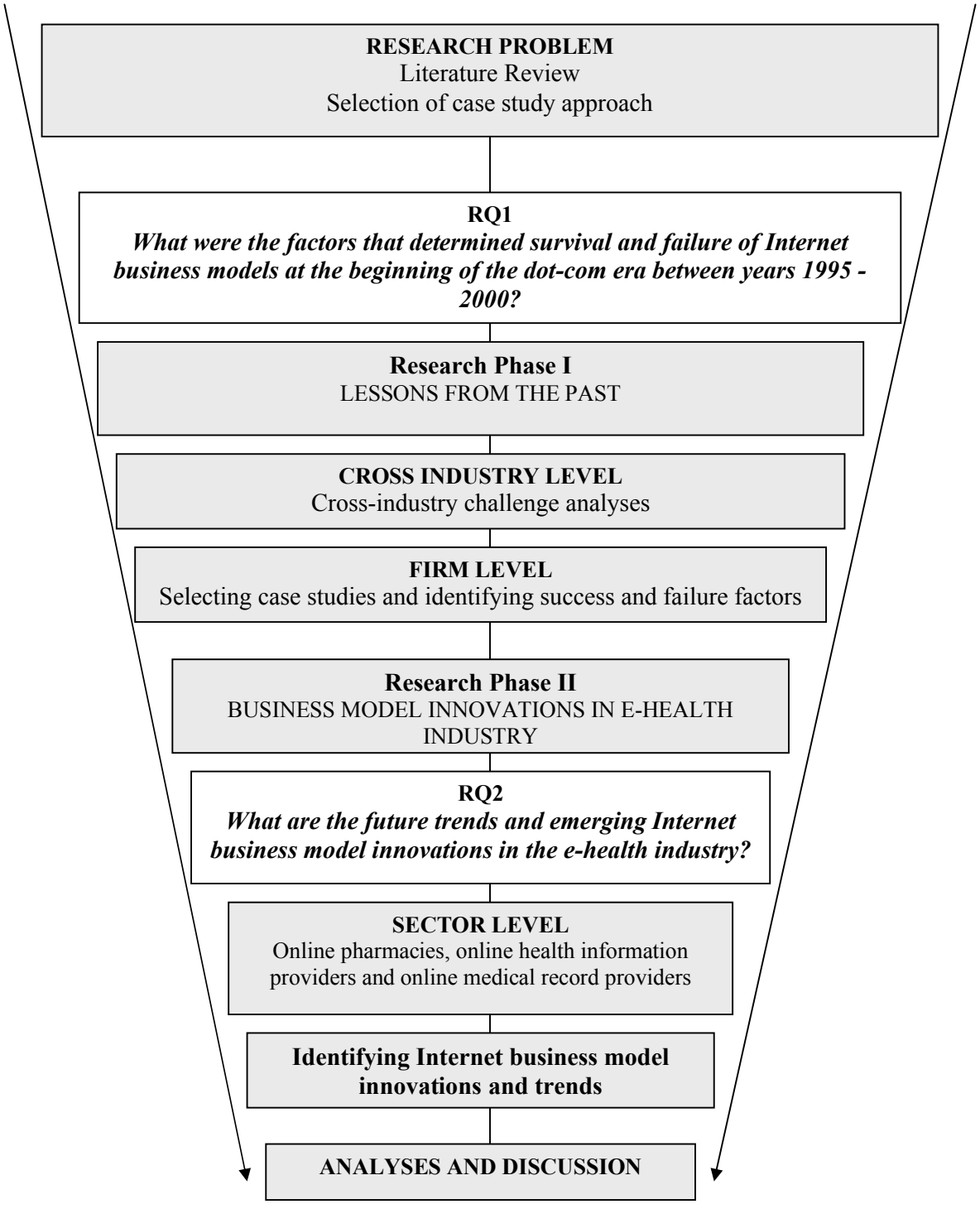
useful only as an exploratory tool. Yet researchers continue to use the case study research method with success in carefully planned and crafted studies of real-life situations, issues, and problems. The authors of this paper are convinced that when seeking to understand as much as possible about a single subject or small group of subjects, case studies provide an opportunity to specialize in "deep data", or thorough description information, based on particular contexts that can give research results a more “human face”. It also provides the necessary flexibility in selecting cases and designing the study, which in turn helps to maximize the realisations, as well as generate answers to the questions “why”, “what” and “how”. The quality of findings will be ensured by following outlined guidelines and a chosen case study framework, elaborated in the following subchapters.

3.4 Research design

The research is designed following the funnel approach and has been divided in two phases (Figure 3), i.e. starting with a general understanding of e-business in its early phase and market dynamics, then narrowing down to short cases studies and identification of the early Internet business model success or failure factors. Based on the gained knowledge during the phase one and continuing with the phase two, the authors seek to explore new insights of Internet business model innovations and trends in e-health sector. The funnel approach ensures that researchers gain solid knowledge of the subject which in turn can provide more accurate future innovation suggestions.

Figure 3: Overview of the research design

Source: Own-creation



3.4.1 Sampling

Sampling techniques provide a range of methods that enable the authors to reduce the amount of data by selecting it from a subgroup rather than considering all possible cases and elements. Sanders et al (2003) point out that when the purpose of the research is not to make statistical inferences and in the case of incapability to collect data from the entire population, non-probability or judgemental sampling is the correct sampling method. This method enables use of own judgements to select cases that will best assist in answering the research questions and to meet the objectives of the research. Furthermore, this form of sample is often used with case studies when it is important to select cases that are particularly informative. The smaller number of cases for which the authors need to collect data mean more time they can spend designing the means of collecting data and testing it for accuracy. It also enables collecting more detailed data (Saunders et al, 2003).

In order to carry out sampling, it is necessary to design a sampling frame, which in any probability sample is a complete list of all cases. Where no suitable list is available, like in this research, the researchers have to compile their own sampling frame. The authors of this paper ensure that the selected short cases studies in the Chapter 4 are relevant to the research topic by using purposive or judgemental sampling. Such samples cannot be considered statistically representative of the total population, and the sample selection method is solely based on the research questions. In the Chapter 4, the authors focus on gaining knowledge on the early Internet business models by looking at the well-known companies and understanding key success or failure factors. This paper has set the selection criteria on an even fifty versus fifty percent distribution of well-known successful cases against well-known flawed cases.

In Chapter 5, there is an e-health industry case that, unlike the Chapter 4 case studies, does not focus on particular company studies but is designed using critical case sampling strategy and framed according to the three major e-health sectors, i.e. online pharmacies, online information providers and online medical record providers, believing that those cases will provide with a good illustration and source of future suggestions. The focus of data collection is to understand what is happening and what will happen in each critical case, and eventually how it will influence the industry (the e-health case) in general.

3.4.2 Data collection and analysis

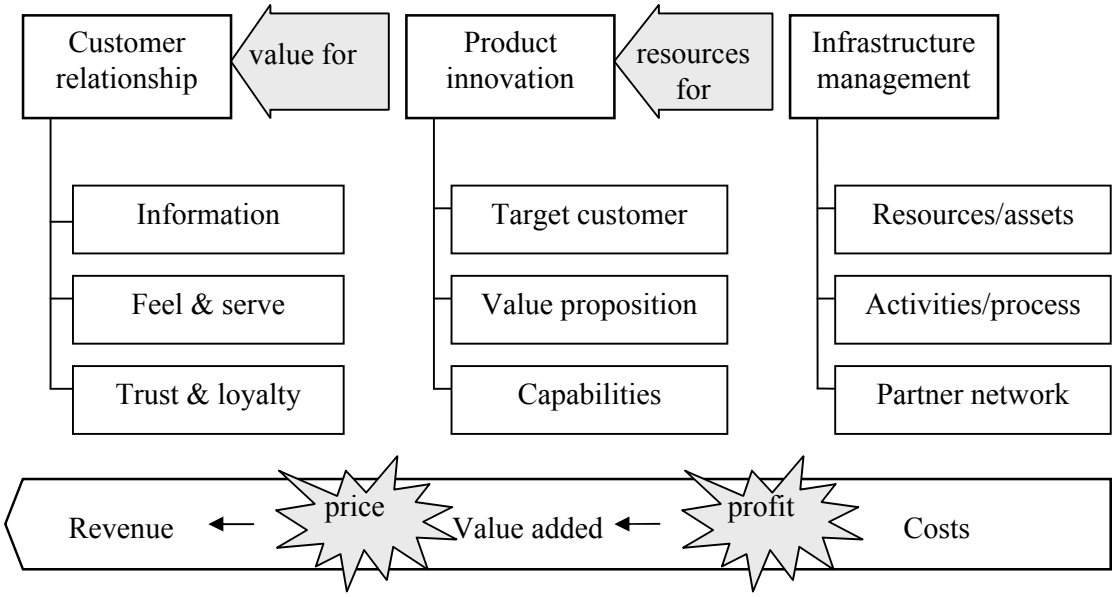
The aim of this subchapter is to illustrate which data gathering approaches and analytical strategy are used in order to carry out the case studies. The nature of qualitative data has implications for both collection and analyses. In order to capture the richness and fullness associated with qualitative data they cannot be collected in a standardised way. However, the complex and non-standardized nature of the collected data needs to be classified into categories before it can be meaningfully analysed to avoid providing impressionistic view of what they mean (Saunders et al, 2003). Therefore, having chosen to follow the holistic approach to the business model concept (Chapter 2), i.e. understanding both revenue generation and value creation as a central part of the concept, and considering critique on business model applicability, i.e. environment as an important element in valuating business models in a real-life setting, the following five categories were chosen to structure the short case studies in the Chapter 4: (1) general description, (2) revenue generation, (3) value creation, (4) industry structure, (5) and success or failure factors (according to the case). These categories are in effect codes or labels that are used to rearrange data and they provide with an emergent structure to organise and analyse data further.

The structure of the Chapter 5 and data collection frame has been created in order to find the answer to the second research question, therefore, data collection has been divided into four main categories: (1) evolution, (2) present (today), (3) main challenges, (4) and assumptions on the future trends. These four main categories ensure the sequence of a good learning flow about e-health industry, i.e. first to understand the evolution of each sector, identify the existing challenges and based on those two, to make assumption on the e-health industry's future trends, hence, answering the first part of the second research question. The second part of the second question is answered by using the business model framework by Osterwalder et al (2002). As discussed in the Chapter 2, the authors bring the business model literature one step further by providing more rigorous building-block-like methodology that defines the essential concepts in e-business models and shows the relationships between them. This e-business model framework (Figure 4) will provide a base for spotting the business model innovations and, according to Osterwalder et al (2002), it holds the following applicable benefits: (a) it helps to identify and understand the relevant elements in a specific domain and the relationship between them, (b) it enables representation and sharing of knowledge, (c) it serves as a foundation for discussion that facilitates change, (d) it helps to identify the

relevant measures to follow in an e-business, (e) it can help to simulate e-businesses and to learn about them.

Figure 4: E-business model framework

Source: Osterwalder et al, 2002



In order to collect the necessary information company annual reports have been used as a primary source, journals and books as a secondary source, and EBSCO database and the Google search engine as a tertiary source. Books provided a good source for gathering information on both business model concept and early online companies. In order to obtain most recent data, the biggest part of the necessary information was collected using the Internet. The search was done either on EBSCO database or on the Internet through the Google search engine. The company official Websites were visited to find the annual reports and to learn more about the companies.

An important part of inductively based analytical strategy is data reduction, data display, drawing and verifying conclusions. As the aim of the qualitative analyses is to transform and condense data, it is necessary to summarise and simplify the collected data. In this research categorization and self-memos are used to structure the findings. Further, it is also relevant to organise and assemble the reduced or selected data. The authors of this research use both matrices and networks to display the results. Based on the logic „you know what you display“, it is believed that the analyses of data and drawing of conclusions from these will be helped by using matrices, networks or other visual forms to display reduced or selected data

(Saunders et al, 2003). Data displays also help to recognise relationships and patterns in the data, to draw and verify conclusions.

3.5 Quality of the Research

Reducing the possibility of drawing inaccurate conclusions the authors need to pay attention to two factors on research design – reliability and validity. Saunders et al (2003) suggest that reliability can be assessed by answering three following questions: (1) will the measures yield the same results on other occasions? (2) will similar observations be reached by other observers? (3) and is there transparency in how sense was made from the raw data?

Threats to the reliability of a research project can be categorised and include participant error, subject or participant bias and observer bias. As the research input is based upon a one-way information stream from published sources to researched, the first two threats can be discarded. However, the threat of observer bias can not be completely denied.

By applying using categorisation based on the selected theory and understanding of the business model concept in Chapter 4, the authors seek to prevent the publication of bias-influenced conclusion as an outcome of the analyses. However, the above described main reason for the application of the case study strategy, the ability to "read between the lines", indubitably leaves room for prejudice in the analysis of factors contributing to the Internet business model success or failure. This threat to reliability has been reduced to a minimum by solid argumentation of identified success or failure factors and a high amount of fair and even treatment of business cases regardless the success of the business and the author's possible acquaintance with and opinion of the case subjects. The authors of this paper are convinced that if one follows previously described research design (Figure 3), considers the limitations, data collections and analyses guidelines, it will be possible to reach similar observations. Transparency in how sense from the raw data was made is ensured by elaborating on data collection and analyses process, as well as by numerous visual displays with detailed explanation followed.

Concerning the external validity or generalisability of this analysis when answering the first research question, the authors underline that short case studies have a function to deepen the knowledge on early Internet business model and the purpose is not to produce a theory that is generalisable to all populations as it is limited to businesses with similar business models and

in a similar environment at that time. Yet, those results have a high importance due to the applied sampling method and represent the most popular cases at the given period of time. The outcomes of the analysis in the Chapter 5 are considered applicable to the identified Internet business market sector, rather than to all populations in e-business or business in general. Nevertheless, they can also provide a source of innovations that could be applied in other e-business sectors.

4 INTERNET BUSINESS MODELS

One should have never expected that most or even many Dot-com companies and their business models would succeed. New technologies introduce new opportunities. Some attempts to exploit these new opportunities may yield enormous rewards, while others that seemed equally promising may lead to spectacular failures. The vast majority of Dot-com companies, as we knew them in the 1990s, proved to be less than viable business ventures. Yet there are lessons to be learned. To avoid repeating past mistakes and identifying future business model innovations, a careful analysis of the first generation is needed to discover what factors led to their failure or success of the early Internet business models. Therefore, the main purpose of this chapter is to gain a good understanding of early Internet business models and e-business evolution, and through short case studies to identify Internet business model success and failure.

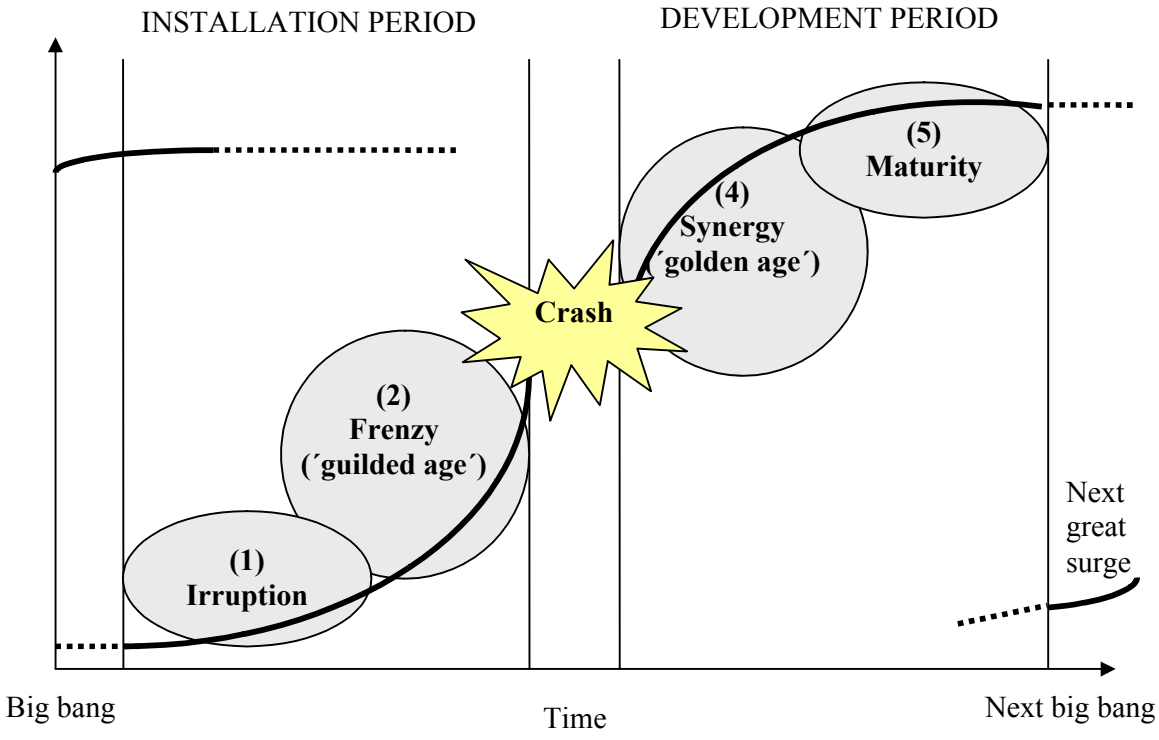
4.1 Evolution of e-business

In order to understand the Internet business models and its future trends, one should be aware of the past of e-business. It also requires an ability to comprehend the cyclical evolutions in technology itself. The Internet has changed things dramatically for everyone involved. The ability of consumers to find and buy products or locate information online has devastated entire industries and company business models. It was in early 1992 when the browser is first made publicly available. At that time access grows slowly, however, the surge came in 1993 when Marc Andreesen and Eric Bina released it to the world. They became co-founders and directors in Netscape Inc. and launched now famous Navigator browser (Groucutt J. and Griseri P., 2004). In July 1995, the Internet boom years began with the launch of Amazon.com, today's best known online retailer. The subsequent five years were characterized by great exuberance and belief in unlimited potential of the Internet.

The evolution of e-business has been described by various authors. For example, Clark and Neill (2001) distinguish between netPhase I (from 1996 – April 14, 2000) and netPhase II (after 2000 and onwards). Perez C. (Jelassi and Enders, 2005) has divided evolution of e-business into installation and development periods, specifying five phases (Figure 5). Furthermore, National Association of Securities Dealers Automated Quotations (NASDAQ) has identified four distinct periods in development of e-business (Figure 6).

Figure 5: Evolution of e-business

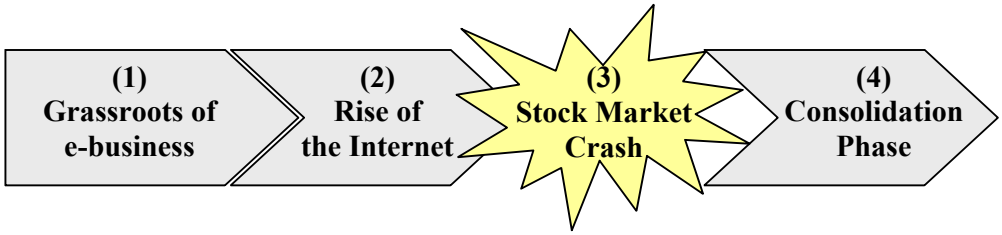
Source: Perez (2002)



The irruption phase or "the Grassroots of e-business" (NASDAQ) takes place right after a new technology is introduced to the market. The next, frenzy, phase or "the Rise of the Internet" is characterized by a sense of exploration and exuberance as entrepreneurs, engineers and investors alike try to find the best opportunities created by the technological big bang irruption. This phase usually continues until it reaches an unsustainable exuberance, such as, a bubble or mania. The installation period corresponds to the netPhase I described by Clark and Neill (2001).

Figure 6: Development of e-business by NASDAQ

Source: NASDAQ – Four distinct periods in development of e-business



According to the authors (Clark and Neill, 2001), the underlying logic for many companies during netPhase I was that the Internet was the irresistible path to future corporate performance and maximizing shareholder value and, therefore, companies that seize early advantage were poised to become tomorrow's high value champion firms of the Net age. Many companies without any credible chance of survival were brought public anyway. Not because they were outstanding businesses with tremendous prospects and high probability for future success, but merely because there was unbelievable demand for such stocks. Little advance data suggested that the underlying companies might fall. The illusion was maintained even though many of the Dot-coms were losing massive amounts of money. This investment approach during the Internet boom years became known as "Greater Fool Theory". As the stock market kept soaring, more and more people – who had seen their colleagues and friends get rich – also started investing in the Internet stocks. This meant that the chances of finding a "greater fool" were high (Jelassi and Enders, 2005).

On the 13th March 2000 the bubble started to burst. It was concluded that most of the Internet companies would run out of money in a year. During 1995-99 investors and managers had artificially inflated market sizes for Dot-com companies and overlooked a number of important issues that led to the subsequent end of the Internet boom years. Only later it became clear that three factors, such as, (1) excess competition, (2) confusing market-defined true needs with mere wants, (3) and implementation problems – all contribute to the gap between expectations and results. It was expectations that drove funding, advertising outlays while setting the general market temperament (Clark and Neill, 2001).

Transition away from emotion-driven netPhase I and toward analyses-guided netPhase II means dealing with the problem of distinguishing essential Dot-com customer needs from deferrable wants. The netPhase II by Clark and Neill (2001), the synergy phase by Perez

(2002) or the consolidation period according to the NASDAQ classification, starts right after the bubble burst. It is a phase when investors put their money into the real economy. Successful firms are not start-ups but established incumbents. The main emphasis is on how to make technology easy to use, reliable, secure and cost-efficient. In this phase growth opportunities in new and untapped markets are becoming scarcer, and with fewer innovations resulting from the new technology. Companies concentrate on increasing efficiency and reducing costs e.g. through mergers and acquisitions (Jelassi T. and Enders A., 2005). Also Clark and Neill (2001) suggested that in the netPhase II, the leaders of the Internet will emerge and become major corporations, leaving some of the victims. NetPhase II champions would consolidate segments into few strong players, while the hanger-ons would just survive.

4.2 The early Internet business models and the biggest challenges

This chapter focuses on the netPhase I and challenges that Internet businesses are facing in creating successful business models. Despite the fact that developing a Website is a relatively low cost activity compared to setting up retail stores that would cater for the same size market, insufficient attention to the actual conditions of entry and the ease of consumer switching costs led many investors to overestimate barriers to entry across different online industries.

The biggest challenges of creating a successful business model during netPhase I can be found in dealing with the physical elements of a business, fulfilling customer expectations, building trust and customer relationships (loyalty, network effects), creating valuable partnerships and dealing with a large number of competitors. Those challenges (Table 2) were identified from a large number of different articles and studies on netPhase I.

Many companies that did not perform well are those that failed to deal with the physical element of their trade. Having a perfect Website is nowhere near enough. John Hanicek, CIO of eToys, emphasizes that failure for a pure-play e-commerce retailer to properly plan system capacity is hundred times more important than it would be for a click-and-mortar company. On one hand, for a big “brick” company, the Website may represent only a small fraction of total sales and they can survive without it. On the other hand, pure-plays live and die by Website sales.

Table 2: Biggest challenges faced by the online companies during netPhase I

• Dealing with the physical element of a business
• Managing customer relationships - meeting customer expectations - thinking about customers individually - building customer trust and loyalty - locking-in enough customers to become profitable - changing customer behaviour and habits
• Creating valuable partnerships
• Choosing the right strategy
• Dealing with a large number of competitors

The Internet has also raised customer expectations of speed and service, making a difficult task even more challenging. The Internet users expect the order faster than regular mail catalogue shoppers. This was also the biggest challenge for eToys.com and other e-retailers. Lerer (2002) highlights that the Internet forces online businesses to think about the individual customer and, while it is impossible to deal with every individual, there is considerable virtue in thinking about smaller groups of customers.

Another customer relationship management related problem is building trust which for a Dot-com company is particularly hard. For instance, in case of any problems, customers cannot go to the closest branch and solve the issue face-to-face. During netPhase I, the Dot-coms were particularly reliant on their ad agencies. In some cases, the agencies lend them credibility in the investment community. They were using agencies also to go to investors and get their funding. Many Dot-coms adopted a *culture* of loose spending, and extravagances, such as, fully equipped gyms, thousand-dollar chairs, and offices in the most expensive locales possible were seen as prerequisites to being a legitimate Internet company. They also typically ploughed between 50% and 90% of venture funding into marketing costs. The apparent logic is that if a fund manager sees a nice slick network TV commercial that obviously cost big amount of money, and then he or she will envision strapping Dot-com start-ups with a brilliant future (Gay, 2000). Dot-coms could see the technological potential, but agencies could do the strategy and define the product's competitiveness. Another reason

for the tight relationship between agency and client was that the Dot-coms were new companies, and advertising was seen as the key means to establish a foothold in a new market (Newland, 2007). Many companies believed that generous spending on advertising would automatically result in increased Website traffic and, hence, increased revenue. Too often, marketing plans were approved that failed to offer adequate returns to justify their cost (Itagaki et al, 2002).

Yet another customer related challenge – many Internet businesses wanted to attract new customers quickly and build up a large sales volume. Only few Internet companies were able to lock-in enough customers to become profitable. eBay is a good example of how creating a community and network effect behind the business model can generate profits, lock-in customers and raise the entry barriers for other competitors. Having a big amount of users, both sellers and buyers only can benefit from a wide selection of products, competitive prices and large amount of members. This created a positive loop that made eBay hard to challenge. The value of the network highly depends on a company's business and its model, and it may not bring as many benefits in another setting. According to Abramson (2006), "toll collection on the information superhighway is only lucrative if customers are "locked-in" to the toll road. If there is a viable toll-free alternative, consumers will take it – leaving the toll collector with an unused new toll road and a mound of construction debt". Jelassi and Enders (2005) and Abramson (2006) suggest that as more and more customers sign up and provide information about themselves, they are less likely to switch to competitors unless the latter one offers a better deal, and the more valuable the network becomes. Large networks enhance wealth and welfare of all of their members.

The challenge of locking-in consumers manifested itself as a lack of customer loyalty and trust, even to successfully branded first movers. Consumers began to compare prices across competing sites, effectively forcing e-tailers to bid away whatever slim margins they may have been attempting to earn. Shopping "bots" emerged to help customers to compare prices by accessing the information on multiple sellers' sites and reporting it back to a consumer accessing the bot site (Abramson, 2006). The Internet users' expectations of free services, made the business environment much more challenging. Internet ventures started subsidizing customer's purchases of their products by providing e.g. free shipping and delivery. Furthermore, many customers were buying products and services online not because of an actual need but out of curiosity. After trying they went back to the traditional buying

behaviour. Also the product costs were not represented realistically due to the subsidized inputs from suppliers (Jelassi and Enders, 2005).

The next challenge that the Internet companies were facing in building their business models is ability to create valuable partnerships. With start-up requirements so modest, it is a virtual certainty that any successful Internet company will face attempts to be copied unless it can implement some form of lasting competitive advantage. Any Website built on good ideas will be copied countless times over. The only way to convert such an idea into profit is to ensure that everyone attracted to your idea works through your site rather becomes your rival (Abramson, 2006). For example, Yahoo!, built by human beings, differs from machine-generated directories and has a unique usefulness. Any potential competitor must hire thousands of employees to surf the Internet and build the directory manually. The longer Yahoo! exists, the bigger the directory gets, and the larger the capital outlay for any new competitor (Itagaki et al, 2002).

During the netPhase I, the strategic choices of Internet businesses were accompanied by several phenomena, such as, Get Big Fast (GBF), first mover advantage (FMA), herd instinct and Greater Fool Theory. Following Galbraith's definition of conventional wisdom, i.e., ideas and opinions that are generally accepted by the public as true, it can be argued that conventional wisdom held that Get Big Fast was the preferred strategic choice to exploit the commercialisation of the Internet. GBF was based on the presumption that there was a significant first mover advantage in the markets. It was believed that first movers would establish preferred strategic positions by creating sound business models, pre-empt later entrants, and thereby secure above-average long-term returns. A necessary corollary of early entry was rapid expansion. Firms following a GBF strategy tried to grow aggressively and make substantial investments to both acquire customers and pre-empt competition (Goldfarb and Kirsch, 2006). The successful business model companies did not fall into trap believing that being first in the market would be sufficient for guaranteeing lasting competitive advantage. Those who wait to explore later, or more patiently, benefit from the previous experiences. Many Dot-coms grew faster than demand, thereby creating excess capacity, which ultimately led to their demise (Jelassi and Enders, 2005).

An easy access to venture capital is another factor that triggered fast increase in number of new Internet ventures in this period. The venture capitalists played a critical role during the

Dot-com era by funding business ideas at the initial stage of the life cycle when the risk of failure is high. They found themselves with a surfeit of money as more and more investors wanted a piece of action. Since investors could not maintain their high level of screening during the fast pace of bubble years, they started making investment decisions by looking at the decisions of other venture investors (Goldfarb et al, 2007). The acceptance of half-truths or complete myths by "experts", including investment managers and venture capitalists was common. Sociologists call it mimetic isomorphism i.e. no one knows with confidence where to go and the safest path is to follow the herd. Business journalist John Cassidy attributes the crowd psychology as a reason for driving the bubble to journalism and finance that undoubtedly played a leadership role (Abramson, 2006). It rarely gives a breakthrough outcome but at least it keeps a company from being left behind. Once this process has started, it is hard to stop. According to Hong et al (2006), it could also be explained by the heterogeneous beliefs of investors resulting from overconfidence. The price of an asset exceeded the fundamental value because it reflects only the beliefs of the optimistic group as the pessimistic group simply stays out of the market because of the short-sales constraints. Secondly, investors paid prices that exceeded their own valuation of future dividends as they anticipated finding a buyer willing to pay even a higher price in the future.

Despite the fast Dot-com company growth, companies failed to gain strategic relevance in the market and, therefore, benefit from it. A recent paper by Goldfarb et al (2007) suggests that rather than having too many Internet companies, the period of the Web bubble may have had too few; at least too few of the right kind with the right business models. The weeding out has happened in every slice of the industry. With less competition, the survivors can grow. The Internet business model industry emerges again from the tech bust that wiped out nearly 5,000 Dot-coms. It is a time of tough sales, discerning customers and chances for growth (Maney, 2003).

4.3 Lessons from the past

The Internet is a tool that has provided easy entry into business. As described in the previous chapter, easy entry never meant easy or sustainable profits and most of the ventures faced great challenges. Many companies made their decisions in an experiential vacuum and worked on business models based on little more than a hunch. While entrepreneurs and venture capitalists prided themselves on their ability to predict likely successes and failures,

they turned out not to be very good at it after all. One of the famous CEOs quotes says: "I advise all of you newbies and wannabes to take a tour through the graveyard before you take a plunge. It might fix some of the misplaced arrogance and give you enough of a reality check to have a business plan you can really hang your hat on" (Richards, 2000). The main purpose of looking at the case studies is (1) to gain an overview and understanding of business model success and failure factors from selected company case studies, (2) to gain good understanding of different e-industry sectors, (3) and to use it as a source for selecting an online industry for deeper analyses.

The case studies consist of four tales of success, i.e. Amazon.com, eBay, Yahoo!, WebMD, and four failure stories, i.e. Boo.com, eToys, PlanetRX, Pets.com, and represent the most popular ventures during netPhase I (Table 3).

Table 3: Case study overview

	Amazon.com	eBay	Yahoo!	WebMD	Boo.com	eToys	PlanetRX	Pets.com
Est.	1994	1995	1994	1996 (99)	1998	1997	1999	1998
Survived (S) / Failed (F)	S	S	S	S	F	F	F	F
Sector, industry	Online retail	Marketplace, online auction	Portal and email service	E-health: healthcare information provider	Sports apparel and fashion goods	Toys	E-health: online pharmacy	Pet feeds and products
Services, products	Online book store and various retail stores	Previously owned goods and online retail stores	Web directory and Web mail, sponsor contracts	Information, Publications	Online retail	Online retail	Prescription drugs, over the counter items	Online retail
Business model	B2C, C2C, C2B, B2B	B2C, C2C, C2B B2B	B2B, B2C, C2C	B2C, B2B	B2C	B2C	B2C	B2C
Revenue (business) model (Rappa, 2001)	Merchant Brokerage Affiliate	Brokerage Affiliate	Advertising Affiliate Community	Advertising Subscription	Merchant	Merchant	Merchant	Merchant
	- Mark up - Fee based on C2C transactions	- Insertion fee - Listing fee - Final sales fee	- Advertisement on its Websites	- Advertisement on its Websites - Subscription fees	- Selling products from their Website	- Selling products from their Website	- Selling products from their Website	- Selling products from their Website

4.3.1 Success stories

(a) Amazon.com Inc.

Amazon.com is one of the companies most closely associated with the e-commerce phenomenon and its story has been repeated to the point of myth creation. The company was founded by Jeff Bezos, a computer science and electrical engineering graduate in 1995, when his company went online for the first time. Two years later, it took the company public. Jeff Bezos was one of the few people to understand the special nature of Internet retailing and e-commerce, and his vision was to build the world's most customer-centric company that would serve as a place where customers could buy anything. Although the company started out as the world's biggest online bookstore, it aimed eventually to become the world's biggest store. Books have several intrinsic benefits for Internet-based marketing such as ease of shipping, ease of advertisement (by means of editorial and customer reviews, sample chapters, table of content etc.), and having relatively low intrinsic value and hence low-risk. Furthermore, it served as a great starting point for the company's further growth and expansion.

Revenue generation. Amazon is the perfect school example of a netPhase I success story. During the early Internet stage, it was a pure-play B2C and C2C online company. In its B2C model it provided services following Merchant business model (Rappa, 2001) for its revenue generation, i.e. it was a book retailer and other related items to customers, thereby occupying the traditional business of a bricks and mortar bookstore sector. In its C2C model the company followed the Brokerage model (Rappa, 2001), allowing communication and transaction benefits between sellers and buyers by charging a premium per sold item. Further, it has been argued that Amazon.com offered a third interface, namely C2B. Amazon offered customers online reviews, posted on their Website by its own customers. In this interface, customers acted as a provider of information, and the company acted as a recipient of information (Jelassi and Enders, 2005). This function did not specifically add to revenue generation as specified in Rappa's service anatomy models. However, it significantly added to the company's product offering and thereby to its value creation process. Amazon.com was also praised for its innovative financing strategy, i.e., using a convertible bond issue.

Value creation. Amazon serves as a prime example for the analysis of successful net-based firms, as it managed to be for the book industry what the Dell Computer Company was for the

Computer industry (Jelassi and Enders, 2005), a new hungry entrant that managed to rigorously change industry dynamics by introducing a new form of value creation. Before the arrival of Amazon, the book industry was almost completely based on the traditional dispersed book-store model, which maintained relatively high prices on account of these expensive brick-and-mortar distribution channels augmenting the cost of the service delivered. In 1996, Bill Gates in a magazine interview said that he bought all his books on Amazon because he was busy and it was convenient. He also named three core value propositions that Amazon delivered to its customers: convenience, selection and service (Taylor, 1996). Amazon was able to eliminate expensive parts of the value chain, therefore effectively shifting the distribution of created value from the company offering the product to the customer receiving it. This implies a rigorous shift in industry dynamics. In terms of Porters five forces, this can be depicted by the impact their value creation process had on the far right part of his model, namely the bargaining power of channels and end users. Furthermore, Bezos decided that it was necessary to create more than just a bookstore if wanted people to come back as customers. The option of buyers to write their own book reviews was introduced, which was a huge credit to Amazon.com success. People began to look at Amazon as more of an online community and not just a place to purchase things.

Industry structure. Archaic structures in the publishing industry supply chain were the main deterrents of success in the publishing industry. The traditional value system in the trade book industry was composed of five players, namely the Publisher who got contexts from the Authors and the physical product from the Printers, and subsequently markets the bundle of these two actors through Wholesales and Retailers. Amazon.com managed to effectively cut the Wholesalers out of the value chain, dealing directly with publishers. Further, it replaced inefficient, physical retail channels with its own Internet-based business, allowing circumventing high real estate, overhead, and personnel costs.

Success factors. To the great extent the success of the company's survival is to be contributed to its founder and his unique e-business vision in a relatively early stage of e–commerce development. His vision of a customer-centric company in its traditional sense meant figuring out what the customers wanted and then figuring out how to give it to them. The innovative approach of his vision meant figuring out what customers did not know they wanted and giving it to them. A further major asset for the success of his company was the idea of personalization, i.e., redecoration of the story for each and every customer. Moreover, the

company has a highly effective distribution channel. This argument can be supported by juxtaposing the 30% book return rate to the publisher by traditional, highly dispersed traditional industry players such as bookstores and other retail outlets to Amazon.com, which had an average return rate of 3% (Laseter et al, 2000). This minimal return rate can be sustained through a highly efficient distribution channel based on the pillars of low inventory supported by direct real-time data matching between customer orders and delivery by publishers, allowing for the inventory turnaround to reach an average of 19 times a year (Amazon.com, 2002). The previously mentioned high turnover rate is a success factor that is at the heart of the Amazon.com success story. The company had difficulties during the Dot-com bubble burst but Bezos decided to recruit other companies to sell their products online through Amazon as well. The idea worked and companies such as Target, Toys R' us, Old Navy, and many others agreed to sell their items through Amazon by giving part of the sales and creating a profit for all involved (B2B - Affiliate model).

The success of a sound revenue model lies in the fact that Amazon.com focused on slow paced development at each stage and thorough testing to get all kinks ironed out for operation. Eventually as the company matured, it focused on cutting costs, dropping items that were not profitable, and changing its model, "wrestling" at every level with turning growth into profits (Steele, 2002).

(b) eBay Inc.

The second quintessential and rather renowned netPhase I success story is eBay Inc. The company was founded in 1995 by Pierre Omidyar using the name Auctionweb. Prior to founding Auctionweb, Pierre engaged in various Internet retailing activities, and worked for Apple computers as a computer software engineer. Auctionweb went public in 1998 under its current name eBay, and became an instant stock market and financial success. Interestingly, the service provided was free of charge in the early years, and started charging only to cover the Internet service provider costs.

Revenue generation. It was a pure play online company, arguably even more of a pure sang Internet company than in the previous case, as it, in contrast to Amazon.com, did not operate a distribution centre or at any time of the service offering process took possession of the products offered on its Website. This can be translated in its user interface, which is defined as both B2C and C2C. In its B2C model, it allowed businesses, often semi-professionals, to

establish contact with consumers and subsequently to set-up selling arrangements. The same service was offered to private individuals establishing contact with prospects regarding the sale of a single good. The revenue was generated by Pay-per-sale or Cost-per-sale which is the most common model and was widely followed by online retailers. Browsing and bidding on auctions was free, but sellers were charged transaction fees for the right to sell their goods on eBay. There were two kinds of transaction fees, i.e. insertion fee, when an item is listed on eBay, and final value fee. eBay also upsold its listing fees with enhanced auction features, including highlighted or bold listings, featured status, and other ways for sellers to increase the visibility of their items. Further, like Amazon.com, the company sports a value-enhancing C2B branch which allowed customers to provide feedback about the quality of the service provided by their transaction counterpart. As this service was greatly trust-enhancing, it provided auxiliary value from the consumer's side without direct revenue generation.

Value creation. In the previously owned goods market, eBay provided a platform which can be applied as a consolidation point for various customer groups that previously had limited means of contacting each other and have complete oversight of each other's product offerings. Besides from this consolidating service, it offered the provision of information sharing about the history of performance of the user's counterpart, hence augmenting trust, and provided for standard guidelines regarding payment, shipment etc. Arguably, eBay managed to create a completely new market, as the highly dispersed and undefined previously owned goods market was concentrated in one global platform. Secondly, eBay also provided a platform for professional and semi-professional retailers to distribute their products, allowing for them to keep capital investments low as compared to standard retail channels.

Industry structure. eBay has pioneered and internationalized automated online person-to-person auctioning. Previously, such commerce was conducted through garage sales, collectibles shows, flea markets, and classified advertisements. An online marketplace facilitates easy perusing for buyers and enables sellers to list an item for sale within minutes of registering**.** eBay managed to significantly increase the rivalry among competitors, mainly by greatly enhancing the scope for both the outer elements of the Porter's Five Forces model, the bargaining power of both the bargaining power of suppliers and end users and it managed to effectively lower industry entrance barriers, which relates to the upper element in Porters Five Forces model (Porter, 2001). By allowing private individuals to become semi-

professional retailers and to enter the retail industry it vastly lowered industry entrance barriers, which allowed for an influx of new market players.

Success factors. The great influence auction sites such as eBay managed to exert in the first mentioned industry was their capability to (1) gain oversight on a nearly worldwide spectrum, (2) create an environment of trust between unacquainted individuals, enabling them to exchange monetary units and goods amongst them. In the second industry, arguably the main benefit the company delivered to the new industry entrants is allowing them to keep initial capital investments, such as retail stores, and regular payments such as utilities to a minimum, therefore making the operations of the various new industry entrants more efficient. It is for this reason that many end users prefer sourcing goods on online auction places rather than through traditional retail channels, which can often not offer equally competitive prices. Furthermore, the company's success roots in its capability not only to bring customers together but also understand and fulfil their needs. For example, Butterfield & Butterfield and Cruise International Auctioneers, which was an automobile auctioneer company, were purchased with the precise goal of creating a new service online for eBay. It was designed to bring higher valued items to the site. Those are just two examples, and in each case, the idea for those purchases came from the user community because they were sending signals to the company that they were interested in listing additional higher priced items. The higher priced items were not only being listed, but they were very active in the number of bids placed on them, and then there were a very high percentage of sales taking place in that area. Increasing the average sales price was a critical component of increasing sales for eBay, as its transaction fees were based on a percentage of sales. It is also worth mentioning that the company did not subscribe to the false sense of immunity and took the traditional corporate stance of profits and earnings as measures to live by. It "applied old-school discipline," and while other Dot-coms spent lavishly, eBay invested intelligently and yielded high operating margins.

(c) Yahoo! Inc.

In January 1994, Jerry Yang and David Filo were Electrical Engineering graduate students at Stanford University. In April 1994, they launched an Internet directory dubbed "Jerry's Guide to the World Wide Web", which was later renamed "Yahoo!". Yahoo! became an almost instant success, receiving one million hits by the end of that year and grew up to become one of the greatest Web companies based on market capitalisation during Web Phase I. Although the company was one of the few big Web-based companies to survive through the bubble

burst phase, its shares plummeted from $475 on January the 3rd, 2000 to $4,06 on September the 26th, 2001. Before the stock market crash in the year 2000, it offered a Web portal and Web directory, which was diversified by adding a mail service. After the plummet of the stock market, Yahoo! added a search engine to its product offerings to deal with juggernaut in-the-making Google. It further acquired highly popular eGroups, picking up on the ongoing trend of online socialising and discussion. Further, after the stock market crash it started providing small businesses for direct customer commerce revenue models, provides services such as Yahoo! Merchant Solutions, Yahoo! Business Email, and Yahoo! Store to small business owners and professionals allowing them to build their own online stores using the company's proprietary on-line tools. In order to analyse the key success factors of the company however, the authors will focus on the activities provided during the first netPhase time period.

Revenue generation. All activities undertaken by Yahoo! were pure-play B2B, B2C and C2C based, meaning that no physical interfaces between the company and the customer were maintained. Yahoo! set up a revenue model mostly based on Click-through advertisement, charging companies to advertise on its site (Affiliate model). In the netPhase I this was a very lucrative business. In 2001, however, click-through rates had fallen to a mere 0.1% of advertisement revenue *(*Rozanski and Bollman, 2001).

Value creation. Yahoo! commenced its activities on the Internet providing a Web directory, i.e. a list of the Internet Websites offering users a "guide through the Internet", alluding to Yahoo! original name. Interestingly, regardless of the many services the company has added to its product offerings up to the current day, Internet directories have always remained a substantial part of its offerings. It has been argued that Internet portals and directories have been at the heart of the company's value proposition throughout its existence, which perhaps has become an obsolete strategy. In the early days of the World Wide Web e-commerce sales were thought to be the most important and lucrative part of Internet ventures, and portals were seen as the way to get there. Several gateway sites, among of which Yahoo! was one of the greatest, provided points of reference for people seeking for guidance through the Internet.

Industry structure. Arguably, Yahoo! operated in the industry of online advertisement space. Their entire revenue model was based on guiding large amounts of the Internet users to their preferred destinations on the Internet, or adding additional services such as its mail service, and subsequently exposing those users to advertisement. The stock market crash

notwithstanding, Yahoo! remained the largest Portal on the Web, with an incredible 76% of regular Internet users using their services in 2001, accounting for a sizable advantage. The market for Web directories was densely concentrated, with 70% of all Internet shopping customers being redirected by the three largest players in the same year, Yahoo! and its two runner-ups on the directory market, AOL and Amazon.com (Business Wire, 2000). As for its mail services, Yahoo! remained the major industry player in balance with Microsoft's Hotmail service. It was not until 2004 at the Launch of Google's mail service that the company made proactive movements in its product offering.

Success factors. One of the greatest success factors of Yahoo! during the early netPhase I was company's ability to create a truly comprehensive global brand. Regional versions of Yahoo! were developed locally in each country and created in the native language with local content and distribution partnerships, making the regional sites an integral part of the community. Its success has its roots also in expanding distribution and building user awareness through almost a million of third party Websites (Affiliate model). Yahoo! revenue generation model, as identified earlier in this section, was based on advertisement. Yahoo! has had a long history of getting the best possible advertisement to match its user's audience, and endeavours to continually improve upon it. Company earned additional revenue on sponsorship contracts for fees relating to the design, coordination, and integration of the customer's content and links into Yahoo! online properties (Yahoo!, 1997). Yahoo! continued to innovate and develop new services to expand the user base and make company increasingly essential to individuals and companies worldwide. For example, in 2000, it launched Corporate Yahoo! with a function to build customized intranet portals for businesses and turned out to be a success. The same year company introduced premium or "for pay" services and began charging for listings on Yahoo! Auction. It increased not only the quality of services but also generated additional revenues. It grew stronger through strategic alliances, as more companies got attracted by unique power and reach of global networks. The company managed to survive the Dot-com bubble burst holding strong core assets and stronger financial position, deepening customer relationships, increasing the value of personalized offerings (Yahoo!, 2000).

(d) WebMD Health Corp.

WebMD was founded by Jim Clark, the founder of Netscape. WebMD was originally called Healtheon and commenced its operations in 1996. In 1999, it acquired WebMD.com and OnHealth, both leading health portals. In 2000, it acquired another six Web-based medical

companies (Yahoo! Finance, 2002). Before the plummet of the Internet firm stock market, it was one of eight largest e-health companies, together coming to a barely credible market capitalisation $56 billion in 1999. With the fall of the stock market, seven of those would slide into bankruptcy, leaving only WebMD to survive, loosing the vast majority of its market capitalisation and dotting down red numbers in the consecutive years from 2001 to 2003.

Revenue generation. WebMD was a pure-play online company, as there was no physical contact between the customer and the service provider. Within this model, it employed both B2C and B2B interface. In its B2C model it provided services following an Advertisement model (Rappa, 2001), as it offered information and an e-health directory of sorts on its Website, generating revenue from advertisement displayed on the Website and linked to the customer group. WebMD also employed B2B model, as its incomes from licensing and issuance of contents were directed to business professionals. It distributed WebMD magazine, which was directed to physicians in the U.S. Further, it licensed parts of its content to other service providers.

Value creation. WebMD provided a range of transaction and information services, and technology solutions for participants across the entire continuum of healthcare, including physicians and other healthcare providers, payers, patients and suppliers. WebMD products and services promoted administrative efficiency and assisted in reducing the cost of healthcare and creating better patient outcomes. It also offered value-added solutions designed to increase productivity for both providers and payers, to speed healthcare reimbursements and to improve communications among healthcare participants, such as claims submission and status inquiry, eligibility and patient coverage verification, and clinical transactions, such as lab test ordering and reporting of results. From simple point-of-service devices to integrated transaction processing applications and Internet solutions, the company offered a full suite of products and services to automate key business and clinical functions.

Industry structure. As mentioned, the e-health industry soared to great levels in the time leading to the Dot-com crash. Especially in the United States, where the Health care industry was the largest national industry with a total turnover of $1.5 trillion dollars, the seemingly sky-high possibilities did not go unnoticed. Roughly, the companies making up the e-health industry as it was in place in 1999 could be divided up in 2 groups. The first were Health portals, offering greatly extended health information services to interested users. With the plunge of the Internet companies and therewith of advertisement clients, the resource base

these companies virtually disappeared as well. WebMD was the only Health portal that survived the crash. As a second important group, there were online pharmacies that sought to bypass incumbent retail channels by delivering directly to the end customer. The lion's share of these companies went bankrupt as well, failing to interpret the importance of the insurance companies, covering the health expenses, and hence prescription drugs, of virtually all North American employees. These insurance companies had existing agreements in place with pharmaceutical companies or own mail order business, which they were not inclined to jeopardize by engaging in collaborative agreements with the new entrants. Effectively, by denying refunds on prescription drugs purchased online, they were able to direct the customer's attention towards more traditional retail channels.

Success factors. The initial idea of the company's founder Clark was to create an overarching Web-based system or to use the Internet to make healthcare transactions more efficient. Instead, WebMD evolved into a company with related product lines and some successful, though not interconnected, Internet portals. On the positive side, the company achieved diversity and was positioned not only to take advantage of the government requirement that all records be digitized but of other trends in the healthcare field as well. As other netPhase I ventures, WebMD went through tremendous hardship during the plunge of the stock market. In mid-2000 the company began to reorganize, and cost-cutting measures were implemented. Struggle went on and WebMD's two largest business areas, claims transaction services and physicians, were not experiencing the kind of internal growth for which investors had hoped. Yet in 2003, WebMD became marginally profitable and proved to have employed the soundest revenue model through its comprehensive product offering, which had diversified revenue streams and thus protected itself from financial disaster if any one source of income were to disappear. Two of its core revenue sources, licensing agreements and prescriptions, i.e. transaction-based business model that required an enormous amount of connectivity and infrastructure, were relatively stable once secured, in contrast to advertising income. Their highly diversified revenue model therefore proved highly valuable to them surmounting the hardship experienced by Internet based companies (Itagaki et al, 2002, Patsuris, 2000).

4.3.2 Failures

(a) Boo.com

The Boo.com is a valuable case study for all type of businesses, as it does not only illustrate the e-commerce challenges of a clothes retailer, but also highlights the most common failure factors in business model, strategy and management that can be made in any type of organization (Chaffey, 2008). The company was started by three Swedish business partners in 1998, and is renowned for being one of the greatest Dot-com failures in history. It started off with vast quantities of venture capital ($188 million), which were burned within six months. The business idea was to market branded fashion clothing through the Web. One of the major mismatches in their strategy, has been argued, is the free return policy of products. It was a service that was highly made use of; however, Boo.com still had to pay the logistics supplier for services rendered. Furthermore, ostentatious marketing campaigns were launched, apparently having very little control over the effectiveness of the latter. Poor planning resulted into company's failure to service customers in time, wasting great amounts of advertisement dollars and disillusioning many potential customers.

Revenue generation. Boo.com was a pure-play online venture, having no physical interface between customer and the company. Further, its user interface was purely based on the B2C approach. The business model was simply to sell fashion goods over the Internet, spurred by sizable publicity campaigns, and it can be classified as the Merchant model (Rappa, 2001).

Value creation. The three entrepreneurs that founded Boo.com had the perspective to "Amazonise" the sports and fashion business. Effectively, it did offer roughly the same type of service that Amazon did in its early years, to operate the Merchant e-retailing model to deliver directly to the customer. As a difference, Boo.com started off large, wanting to sell across all language, cultural and monetary barriers from the start. In contrast, Amazon had already acquired the number One position on the online book retail market before it started reconnoitre territories overseas.

Industry structure. In their proposal to investors, the company stated that their business idea was to become the world-leading online retailer of prestigious fashion and sports brands. The many sports and fashion goods were marketed alongside each other. Sports brands were chosen as they had been identified to be more standardized than designer clothes. At the time

of their launch, virtually all apparel was sold through traditional retail channels and mail order businesses. Mail order businesses arguably engage in nearly the same type of activity as Boo.com, displaying products and allowing customers to order them without physically seeing and touching them. Customers failed to see the benefit of Boo.com over their familiar mail order catalogues though, which already had the same product offerings and free return policy in place. In the fashion industry, the "shopping experience" is of a great experience, and the traditional set-up of luxury brand retail outlets have shown that customers are not inclined to acquire such products outside of their traditional retail channels.

Failure factors. Boo.com business model did not hold and failed for several major reasons, such as overspending in marketing and advertising, lack of management capabilities in managing people, targeting customers and also forecasting revenues, as well as experiencing channel conflicts. Boo.com target market was 18 to 24 years olds who had the disposable income and the Internet usage rates but they did not tend to use mail order-based services to buy their apparel (Malmsten et al 2001). The company spent colossal amounts on marketing that did not pay off, and many products were returned, accounting for vast costs on a company that started off on a global basis. Boo.com burnt through $120 million in six months, partially due to the fashionable and expensive location in London, as opposed to a cheaper location. Also the Website, while built by three different development teams spread across the globe, was notorious for its slow load time and use of, back then less common, Flash (Butcher, 2006). Among the other severe failure factors is lack of proper management control that led to poor top-down communication. Additionally, Boo.com possessed classic channel conflicts, i.e. it was difficult to get fashion and sports brands to offer their products through Boo.com. Most of the manufacturers already had a well-established distribution network through large high street sports and fashion retailers and many smaller retailers (Chaffey, 2008). Essentially Boo.com failed because it tried to do too much, i.e. building a state-of-the-art logistics business across too many countries with an online shop front that was well beyond the capabilities of most Internet user's computers during the netPhase I (Wray, 2005).

(b) eToys.com

eToys was a start-up company in 1997 (brought public in 1999). Its mission was described as concise and compelling: to sell high-quality toys over the Internet to parents who find shopping at the big retail Toy Stores unbearable. It worked together with the investment bank

Goldman-Sachs, and its business plan and operations planning was described as well-thought through and valid (Sokolove, 2002). On the day of inauguration the company had a well-functioning Website in place and it was making considerable sales, rising to a respectable $150 million in 1999. Overhead costs made that the break-even point was at $900 million, a figure the company, despite its popularity with customers, was not likely to reach.

Revenue generation. Similar to the previous failure case, it is a pure-play B2C online company. As the latter, it did not support any physical interfaces in its business model. Similar as well was its revenue generation model, which is the Merchant model (Rappa, 2001).

Value creation. eToys value proposition was simple and clear-cut, i.e. to offer convenient shopping for customers who detested going to juggernaut retail outlets such as Toys 'R us or other great toy retailers. It managed to do so by selling quality toys through the Internet channels, and it became popular with its customers. However, the pressure from other toy retailers such as Amazon.com, Toys 'R us' Internet service and other big players in the toy industry (Consumer Affairs, 2001) with better cost structures.

Industry structure. The online selling of toys was a niche category with insufficient demand. The industry was highly concentrated during netPhase I, with the undisputed market leader Toys R' us and other greater traditional retail stores, alongside smaller e-retailers with better cost structures and higher margins than massive eToys. For example, industry niche player smarterkids.com focused on educational toys, a niche with above industry-average profit margins of 45%, where the industry standard is 20%. It survived the bubble burst sporting modest, but with black figures. Furthermore, industry giants Amazon and Toys 'R us teamed up during the days of eToys hardship to combine the toy sales (Weintraub, 2001).

Failure factors. "Get big fast" was one of the biggest mistakes of eToys.com by overextending itself with development of market share before it considered its profit, and due to the fact that its business model did not utilize the specific advantages the Internet offered, hence, ran into a debt it could not handle. The company took a series of risks early on and made some unsuited decisions that it was not ready to undertake in terms of their capital resources and the amount of debt that it would be able to make good on in the future. eToys rushed to expand and shout about themselves at every opportunity. Huge, expensive advertising campaigns and expansion, in their opinion, were necessary to be the first visible

company in the market. The company also devoted its scarce resources to acquisitions and expansions so early in the game because it was obsessed with brash attitude of the Internet economy in general senselessly rushing to grow fast (Steele, 2002). eToys also failed to realize the highly seasonal and fluctuating nature of demand in their industry and how this would affect their rate of growth.

Furthermore, many of the toys were small and not worth the shipping costs required, thus not yielding any margins but instead generating great inventory expenses and logistics nightmares. As established, the company's value proposition was based on convenience and service. Although this concept worked, it was understandably not compelling enough a reason for all consumers to switch from their familiar store to a complete new distribution channel. The idea was just to attack Toys 'R us by providing better service. A cost leadership strategy was not possible for eToys, considering the powerful position the great retailers had on cost, although it might have been a more effective strategy to take on the industry incumbents (Weintraub, 2001).

(c) Pets.com

Pets.com was founded in 1998 with the business plan to sell pet feeds and supplies over the Internet. It was an affiliate company of Amazon.com, and entered an already crowded market of online pet retailers. The company was deemed a success from the day one, and its success was supported by the popularity of the Website, which peaked at almost one million hits a day, an astounding figure.

Revenue generation. The firm can be defined as an online pure player, and it had one user interface, which was pure B2C based. Its revenue generation model was solely based on online retailing, which can be classified as the Merchant model (Rappa, 2001).

Value creation. The company lacked any kind of clear value proposition, the only difference between their offering and traditional retail channels being that orders were taking on a Website rather than in a brick-and-mortar retail store. As identified in previous examples and it is once more evidenced by this example, this is often not compelling enough to attract sufficient customers to a new business. Neither service nor prices gave incentives to switch the provider. In fact, once high shipping prices were factored into the price, products were often highly overpriced as compared to products bought through regular retail channels.

Industry structure. Despite the fact that the industry has been largely based upon traditional retail channels such as pet stores and supermarkets, there were a number of online pet retailers on the market at the time of Pets.com market entrance in 1998. Among the pure players however, nobody managed to survive the Dot-com bubble burst, evidencing that competing against the incumbent industry players was harder than anticipated, as customer habits were set and the new industry entrants delivered little additional value. Petsmart.com and Petopia.com were the two online pet companies that did manage to survive, and it has been argued that their survival was linked to the fact that they are brick-and-click firms, operating alongside their traditional retail channels.

Failure factors. The company has been incriminated of having a poor business plan, alongside with exuberant spending in its offices. It supported 320 employees, who received perks unnecessary for normal business conduct. Further, although delivering pet food and supplies directly to consumers is a convenience, that benefit is outweighed by the fact that the consumer has to wait days to receive their orders. They failed to give the consumer enough reasons to purchase pet goods via the Internet rather than their traditional source, hence the company failed at understanding and creating a customer value. Pets.com was often not even able to make a profit on its most popular items, due to high shipping prices on these items. Having negative gross profit margins essentially meant that Pets.com lost money on every item it sold (Wolverton, 2000). These are rather simple factors to anticipate, and the lack of having done so indicates serious problems in business planning and revenue model.

(d) PlanetRX

PlanetRX started operating in 1999, functioning as an online pharmacy offering a comprehensive range of prescription drugs and related items such as cosmetic products and over-the-counter products. It immediately initiated an aggressive programme of partnerships and alliances in order to attract the greatest amount of customers possible. Indeed, it managed to attract the respective amount of 1.4 million customers to its store. At its peak, the company employed 500 workers, but did rarely manage to meet its revenue targets. Like many e-retailers analysed before in this paper, it struggled with stiff competition and higher than expected costs in maintaining its virtual business. As a case in point, the company attained $36 million in sales in 2000 while having operating costs of $304 million the same year.

Revenue generation. PlanetRX applied a pure-play online business model, having no physical contact between the customer and the service provider. Within this model, it employed a pure B2C interface and generated revenues following the Merchant model (Rappa, 2001). Effectively, it can be classified as a pure online pharmacy, offering the same services rendered by traditional channels.

Value creation. PlanetRX has often been described as one of the frontrunners in the online marketing industry, together with its contemporaneously operating rival Drugstore.com, which also faltered, and was subsequently adopted by pure Internet player Amazon.com. As many B2C pure players across industries, it offered customers slightly better prices and the convenience of online shopping as its main value proposition. Their value proposition was not in the least unviable, as it had been proven for many decades before the advent of Internet commerce by the American Association of Retired Persons (AARP). The AARP had for many years been using its mail order business to provide its members with relatively economical products by means of telephone and fax order procedures.

Industry structure. As many other online pharmacies, PlanetRX underestimated the power of traditional retail channels. Firstly, slight financial benefits associated with ordering products online did not break consumers free from loosing their set habits regarding medicine procurement. In 2000, the InsightExpress study found that 93% of online consumers had never made a purchase from an online drugstore and that over three-quarters had never even visited an online drugstore Website. The complicated and sensitive nature of buying pharmaceuticals precludes widespread consumer acceptance of making such purchases online (Saliba, 2000). Secondly, and not surprisingly, incumbent brick-and-mortar retailers were not inclined to hold their breath and wait for their market share to be taken up by new industry entrants. The great industry players CVS Caremark and Rite Aid, traditional pharmacy chain operators with respective 2006 turnovers of $46 billion and $27 billion, swiftly created their own Web-based ordering system offering discounts of up to 20%. Having miscalculated the threat of competitive repercussions in the industry and not having the adequate cost structure to compete against these click-and-mortar industry entrants, PlanetRX was effectively pushed out of the industry, alongside its competitors. Interestingly, after its 2001 bankruptcy PlanetRX started up operations in a 90% downsized company, specialising on a small market niche of prescription drugs. Arguably, they sought avoiding industry repercussions by focusing its efforts on a small market segment.

Failure factors. Engaging in a viable business engagement, PlanetRX failed to realise the strength of brick-and-mortar and later click-and-mortar industry incumbents. Furthermore, their cost structure was not suitable for cost leadership competition. The company began an aggressive program of partnerships and alliance integration in an attempt to attract customers. It closed multimillion-dollar marketing deals with AOL and iVillage, and it agreed to give pharmacy management company Express Scripts $168 million in stock and $15 million annually for access to new customers. These deals were planned to enable PlanetRx to reach thousands of potential customers, but the arrangements failed to generate any significant revenues (Itagaki et al, 2002). By focusing on a niche segment in a rigorously cut down organisation, it later managed to make a restart avoiding repercussions from industry giants and controlling its cost structure. The company also lacked a strong physical world partner and eventually failed to survive as a standalone business.

4.3.3 Bricks-and-clicks

Brick-and-click, unlike previously studied pure play businesses, is a business model that combines both offline and online part of business, and it offers multiple and integrated points of shopping access. Some of the advantages of this model include, e.g. strengthening brand-name recognition, giving local customers a physical location to return or buy items right away without having to pay shipping costs, lowering promotional costs through cross-marketing and cross-merchandising opportunities, and expanding customer base. Besides, there are always consumers who enjoy the social interaction shopping provides and who are still afraid to purchase online because of security issues, and many customers prefer to "try on" items before buying (Campanelli, 2005). Especially during the netPhase I those were strong reasons for customers to choose traditional buying channels as the habit of buying things online was just evolving.

The biggest disadvantage of having a physical location is that it takes longer to recover investment than with a Web store as well as the risk of channel conflicts. They can occur when the online part of business competes with or bypasses existing physical channels. It can potentially result into cannibalisation of other sales channels and create other harmful effects, such as limited cooperation across the channels and confusion during transactions using two uncoordinated channels.

Yet there are some good examples of bricks-and-clicks that have succeeded. Tesco-Groceries made a name for itself by being one of the first greater retail organisations in the world that successfully implemented an online business model in the fast-moving consumer goods market. Tesco, Britain's largest supermarket chain started its online part of a business in 1996, offering a new distribution channel for its products by ordering from home and home delivery against an additional home-delivery fee. The Internet venture's success, it has been argued, depended on three main factors, namely (1) the strong Tesco brand name, (2) the home delivery fee, and (3) their tentative approach. Firstly, the strong name of Tesco in the British market provided a strong point of departure for its new services. Seeing that customers were already familiar with all the products offered over its online retail channel, a certain level of trust in the service was already provided. Hence, little more habitual change was necessary, i.e. to log in to their Website (which the customer may already have been familiar with) and try out the new service. As a second factor, Tesco did not try to attract a significant customer base by offering attractive home-delivery fees. Heavily interlinked with their established brand name, Tesco did not require aggressive advertisement schemes and promotional activities, which could have cost great amounts of money in the start-up phase, and would be hard to deviate from once introduced. Thirdly, Tesco started off its business in one small London region, testing the viability of such a service. Once the service was running for several months, gaining a profit, and the business model being proved, the business model was expended further to other parts of Britain.

In 2001, many online grocers were struggling to survive. It proved far harder to make a success of the Internet commerce than many imagined but not impossible. Tesco, adopting a different business model to most of its rivals, grew to become the world's biggest online grocer. In June 2001, the company announced a deal with America's Safeway group that took its Internet business into the largest grocery market in the world (Economist, 2001). But Tesco's success story went way beyond the grocery niche to be a virtual blueprint for how to use the Internet to make money. Tesco expanded internationally, but not in a world-domination, no-holds-barred, conquer-the-planet kind of way. It targeted places like South Korea, where the Internet use is high and where high-speed Web connections abound, enabling the grocer's jam-packed pages to download quickly. With Tesco, success came as a result of its sound business practices and, maybe more importantly, its respect for the customer (Regan, 2001).

4.3.4 Discussion on the main lessons from the past

Many Dot-com companies failed as they run out of money and found there is nowhere else to look for funding. But others have been around for many years after the crash. The case studies in this chapter take a better look behind the success and failure of selected most famous cases during the netPhase I. The authors have identified six main success factors (Table 4) that are evident in all four cases, and provide ground for further market trend assumptions.

Table 4: Early Internet business model success factors

• Understanding customer needs and serving them
• Early developing brand awareness and trust
• Broad scope and wide range of services
• Finding right affiliates and making acquisitions
• Responsiveness, ability to change and innovations
• Sound revenue model

The main case study findings suggest that all four success companies have made big changes in their industry sectors and have revolutionized the way customers fulfil their needs. First of all, a successful business model means creating customer value through understanding customer needs and serving them. For example, Amazon.com revolutionised the entire industry which was inefficient and archaic by offering convenience, bigger assortment and better access to books. The company was also one of the first ones to use the idea of personalisation, i.e. redecoration of the story for each and every customer that plays an important role in "feel & serve" part of the business model framework. Secondly, business models that succeeded during netPhase I were the ones that were able to create and sustain customer trust and loyalty. Yahoo! is a good example of how a company can create a truly "glocal" (global and at the same time local) brand, by making the regional sites an integral part of the community and, hence, creating brand awareness, trust and loyalty. A broad scope and wide range of services is another success factors that could best be seen in the WebMD, Yahoo! and Amazon.com cases in form of a broad scope and continuous innovation and expansion of services.

Finding the right affiliates and completing acquisitions is another important factor in the early business model success. By acquiring another company, an online venture could expand its

services in a short period of time and faster meet customer needs. For instance, eBay purchased Butterfield & Butterfield and Cruise International Auctioneers, with the precise goal of creating a new service online for eBay. In Yahoo! case, the company grew stronger through strategic alliances, as more companies got attracted by unique power and reach of global networks. These examples also highlight another success factor – responsiveness, the ability to change and innovate.

All success stories have also been successful in creating online communities and having managed to employ a sound revenue model. Online communities encourage customer interaction and emphasise feeling of belonging, thus creating customer loyalty and increasing the switching costs. In the Internet industry, for business models that did not rely on an established online community, there were no real barriers against entry of competitors who wanted to start their own Website. For example, eBay produced a hard to replicate community that made it expensive and difficult for another firm to enter and compete. Furthermore, it is interesting to note that all four presented success cases included a fee based revenue model as a main or additional source of revenue regeneration. This way, having established their customer network, companies created safe, often diversified, revenue stream and, therefore, generated resources to improve the service quality and customer value. They were also more carefully at forecasting and planning their resources, e.g. as Amazon.com matured, it focused on cutting costs, dropping items that were not profitable, and changing its model.

The failure stories, such as eToys, Pets.com, PlanetRX, Boo.com and other Internet-based companies affect us all in obvious if small ways, and also in ways that we will never know. These failures not only leave consumers with fewer choices, but they have made it difficult for today's new online-based enterprises to raise the capital. The authors of this paper have identified five main failure factors and most common mistakes of Dot-com companies during the netPhase I (Table 5).

Table 5: Early Internet business model failure factors

• Failure to understand and influence customer habits
• Difficulties in building brand awareness
• Products and services with low customer value
• Standing alone, underestimating own resources
• Neglecting profit and loss rule

Unlike the success stories, failures lacked necessary power to make a difference in the industry sector where they were operating and let themselves be misled by wrong assumptions and out challenged by the market conditions, earlier entrants and traditional setting of business. In eToys case, the company failed to understand that parents still prefer to visit shops and examine the toys themselves, and marketing activities were not effective enough to challenge those habits. Just like eToys, also PlanetRX neglected survey results, indicating that majority of potential customers find buying pharmaceuticals a sensitive thing and still prefer buying them at traditional pharmacies. The failure companies also struggled in building a brand. Successful companies like Amazon.com instead of going about it with million-dollar, lavish advertising campaigns like eToys, relied more on "positive word-of-mouth buzz" generated from customer service (Steele, 2002).

Often companies underestimated the value of partnerships. For instance, Toys R' us, also besieged by shipping concerns, unlike eToys.com, teamed up with Amazon.com and managed to survive the Dot-com bubble. The fundamental problem of eToys.com was that they tried to do everything themselves, i.e. to build their own infrastructure and distribution facilities. By having engaged into a partnership, the company would have had a chance to cut expenses and lead itself to profits. Further, unsuccessful companies failed to create and offer service that one could not have without the Web. Despite the fact that Pets.com services offered certain convenience to its customers, the company failed at giving something that customers would not be able to obtain without the Web. Convenience was outweighed by the fact that the consumer had to wait days to receive their orders, considering that pet food was available at any neighbourhood grocery and few people had a reason to shop online (Wolverton, 2000). Another example is Boo.com that created a Website, which was well ahead of time, and most of the customers, using dial-up connections, were not even able to download the Website. Successful companies waited for customers to catch up with the technology.

All four failure stories lacked a sound revenue model. Instead, they were based on wrong assumptions on market trends. For example, Boo.com due to the lack of revenue forecasting, failed at estimating number of customers and sales to reach target profits. The new business model neglected traditionally sound concepts of profitability. The Internet businesses adopted a grow-at-any-cost, without-any-revenue, claim-as-much-market-real-estate-before-anyone-moves-in approach. Besides driven by the assumption that a brand is a thing in itself, separate from the product and that it created value, failure companies overspent in marketing activities and had other unreasonable costs, which was another reason for revenue model failure. In eToys.com case too much money was invested into inventory and infrastructure that it did not pay off. Limited operating history made future forecasting of demand and net sales difficult, and limited meaningful historical financial data upon which to base planned operating expenses was scarce.

Despite the fact that the Internet can be such an efficient means of commerce, there are still some old principles that carry over from the traditional business world, i.e., customer service, knowing own product and being able to develop that product and address concerns that customers or users may have. They are also reflected in the identified main success factors of the early Internet based business models during the netPhase I. The authors agree that the Internet was a sustaining technology that provided new outlets and avenues for traditional businesses following traditional rules. There was no "new economy" magic that made Dot-coms invincible as long as they grew and spent as fast as they could; it was still the old economy, just with a new twist (Steele, 2002).

In all four illustrated failure cases, competing against the incumbent industry players was harder than companies anticipated, as customer habits were set and the failures delivered little additional value. In Pets.com case, its two biggest competitors Petsmart.com and Petopia.com were the two online pet companies that did manage to survive, and it has been argued that their survival was linked to the fact that they are brick-and-click firms, operating alongside their traditional retail channels. Also, PlanetRX lacked a strong physical world partner and eventually failed to survive as a standalone business. These findings demonstrate high relevance of traditional business settings and great importance bricks-and-clicks. It can be argued that some products probably can never be sold through a pure play venture and a physical part of a business is a requirement for success. As illustrated in Tesco.com case, some advantages of brick-and-click model include - strengthening brand-name recognition,

giving local customers a physical location to return or buy items right away without having to pay shipping costs, lowering promotional costs through cross-marketing and cross-merchandising opportunities, and expanding customer base. In 2002, Steele stipulates that the future belongs to these multichannel operations who sell merchandise in many ways at many price points. The authors of this research will further look into online business model future innovations analysing e-health industry in the Chapter 5.

4.4 Market trends, survivors and innovators today

Now that the clouds of dust have settled, and sooner than most investors have thought, it has become clear that nothing is the same anymore. One of the most striking features of competition across different e-industries is that new entrants have often been able with limited resources to undermine existing competition in an industry through use of new business models. The biggest change in the past years is that one can find very reasonably priced Dot-com companies and most of them are making money today. That is obviously a big change from the late 90's when these companies were just starting out (La Monica, 2005). In 2005, on the five-year anniversary of the NASDAQ's peak, it is worth pointing out that several Internet companies that appeared to be on the edge of extinction are now thriving. As many previously forecasted, the consolidation has helped the survivors get stronger. Competition among the Internet businesses is still fierce but the Net stocks that have survived are not battling as many rivals as they once were (La Monica, 2005)**.** More Internet companies have turned profitable and have sustainable business models, and a lot of that is due to the shakeout in the market.

4.4.1 Survivors today

Today the common ground for all success story companies, studied in the previous chapter, is still broad focus and a wide range of products and services offered to their customers. It suggests that they can deliver value to different groups of customers with different needs. To sustain their success in the market, they continue diversifying themselves by adding new services. For example, Amazon.com is not only an online marketplace but it is also running, e.g. the Internet Movie Database (imdb.com), the Web's comprehensive and authoritative source of information on more than 250,000 movies and entertainment titles, and it has introduced other Web Services (Associate Programs, 2007). The industry experts say that Amazon.com has raised the bar for the entire industry and it is well positioned to maintain a firm grip on its title as the undisputed e-commerce leader. Amazon's biggest challenge is itself

(CBS News, 2005). Amazon is always one step ahead. On the other hand, eBay is working on becoming easier and safer to use. As the Internet has evolved, the customers have become accustomed to streamlined purchasing experiences that put a premium on speed, convenience and reliability (eBay, 2007). Today the company has operations in marketplaces, payments (PayPal) and communications (Skype). eBay and Amazon have remained powerful selling platforms and can both play important roles in your e-commerce business. The interesting fact is that many online shoppers are extremely loyal to one site or the other, rarely visiting other e-commerce sites (Malta, 2008).

WebMD has built the most-visited and fastest-growing health site on the Internet and has become a leading provider of health information services to consumers, physicians and other healthcare professionals, employers and health plans. The business is organised into two main segments, i.e. online services, publishing and other services. Most of the Web traffic of WebMD has been generated through the third party Websites that indicates a high importance of creating partnerships and affiliate programs. Due to the fact that the pharmaceutical industry spends a small fraction of its $13 billion annual marketing budget online, analysts say there is room for companies like WebMD to attract more of that money. The growth rate is huge for health and pharmaceutical advertising on the Web and WebMD is a pretty large receiver of that growth (Freudenheim, 2007). WebMD the Magazine now reaches an audience of nearly 9 million consumers, connecting with the consumer right before they meet with their physician in the doctor's office. WebMD the Magazine is the only health publication to exclusively feature celebrities on every cover, each who have a personal health-related story they share with readers (Reuters, 2008).

Today Yahoo! is a leading global Internet brand and one of the most trafficked Internet destinations worldwide. Yahoo! has continually enhanced, expanded, and launched products and features to meet evolving user, advertiser, and publisher needs for technological innovation and a deeper, more integrated experience. It has attracted advertisers and publishers with the reach, effectiveness, and efficiency of marketing services as well as the creativity of the marketing solutions in more than 20 languages and 30 countries and that is built on trust. In 2007, Yahoo! entered into a multi-year search and advertising distribution agreement with WebMD. It has also expanded strategic partnership with eBay that focuses on multiple areas of cooperation including algorithmic search, payment processing, and display advertising. Through this agreement, Yahoo! serves as the exclusive third-party seller of both paid search and display advertising for eBay in the U.S. Yahoo! expect to continue acquiring

or making investments in companies, products, services, and technologies in the future (Yahoo!, 2007).

Another common feature of the success stories is at least a decade of experience and can provide expertise in what they are doing. For example, Amazon has had a decade to build up trust and loyalty that it will deliver orders on time and cheaply enough to keep customers coming back. Analysts say Amazon has won over the masses with its vast selection, a brand name everyone knows, a site that is easy to navigate and with a reputation for reliability. It developed an extremely loyal customer base, and cultivated it by continually lowering prices and adding features to their Website. It indicates that the company has managed to deal with the biggest challenges successfully.

4.4.2 Market trends and innovations

The reality is that in various sectors the Dot-com companies are getting better than their pre-Web rivals. It can be argued that the younger companies tend to be faster, more focused and more motivated, hence, resulting in more responsive organisations not bogged down by history and with more innovative business models. Some authors would call today's phenomena the "Google era". By arriving at the dawn of Web 2.0, it as in its very genes a radically new business model unique to the world of broadband Internet. Google has created a business model that other companies only dream of, i.e., a model that creates an opportunity to keep serving up one new service after another for free and to hundreds of millions of users, and in "24 hours" to become the dominant player in each new market (Malone, 2006). Dave Winer, who helped to popularise blogging, podcasting and RSS, says that "last time, everyone knew we were living in a bubble, but few got out before it was too late. This time it will be easy to tell when to head for the exits – Google stock will crash. That's how we'll know" (Quittner, 2006). This opinion highlights the strong presence and dominance of Google in the industry today and its impact on the rivals. At least for now, its business model seems unbeatable.

There are fewer barriers to entry this time around, e.g., cheaper hardware, more open-source software and one does not have to spend fortune on advertising a Website thanks to ones like Google. Compared with 1999, developing a new Web service is cheap, i.e., as low as $100,000 compared with a few million back then, thanks to low-cost hardware, free open-source software, powerful programming tools and new marketing techniques (Economist,

2007). Due to the fact that there are many new competitors who emerge with innovative value propositions, the companies must adopt new mindsets and build new skill sets within their organizations. Companies must stay connected to their customers, whether directly over the Web and/or through links to the e-supply chain. According to Groucutt and Griseri (2004), the Internet is haven of opportunities to enhance customer connectivity. Companies can capture customer preference information through store loyalty systems. Those that do use the technology to mutual customer-company benefit will increase their survival rate within a hypercompetitive marketplace.

There are a lot of untapped possibilities in the e-business today. The impact of the e-business applications in areas of healthcare, education or public sector is still not clear, but, according to Jelassi and Enders (2005), these areas find themselves still at the beginning of potentially revolutionary changes to existing models. The authors are convinced that e-business technologies have opened up even more business opportunities and also changes the way people think about the business strategies and sources of competitive advantage. There is great shift from self-contained value chain to a network of value elements and, hence, organizational deconstruction that was unimaginable before. It is believed that networks offer far greater opportunities than a single value chain, and the Internet creates unique conditions for communication links that open up creative space for new businesses to grow into.

4.4.3 Changes in the society's lifestyle

Online social networks or virtual communities, which some Dot-com companies ten years ago started to generate, today are the single most important new Web phenomenon and the most powerful new marketing tool (Malone, 2006). The generation on which venture capitalists based their prognoses did not exist back in netPhase I. Today the technology has finally matured. Broadband access to the Internet, which was widely hyped in the late 1990s, is finally a reality. It has also stimulated the fast evolution of so called "24-hour" society. The term "24/7" has become an everyday part of our vocabulary. The Internet has transformed not only the way companies do their business, but the way customer and suppliers want to do business. They have become e-customers and e-suppliers (Groucutt and Griseri, 2004). Customer expectations are being redefined and it is the technology that is enabling new marketing opportunities and capabilities. While the Internet may still seem revolutionary in increasing the range of available services, it is also part of our daily routine. And it has become second nature for many people to check out products, prices and availability online

before making a purchase (Schifferes, 2006). Unlike the netPhase I, purchases on the Internet are no longer made out of curiosity but they are based on an actual need for a particular product or service. The Internet has finally come of age to such an extent that we can trust in it to run our mission-critical business needs. The Internet now provides a platform for real business-critical tools such as online auctions, online procurement and online currency trading and exchange tools (Rae, 2006).

Today the customers have become more demanding and individualistic, less loyal and less willing to tolerate companies whose products are not meeting their requirements. Customers are also demanding better products and quicker introduction of new features, therefore shortening the product life cycles. O'Connor et al (2004) point out three main trends in customers' lifestyle: (1) cash rich, time poor – people who have money do not have much time to do things they can afford, therefore those people need convenience and speed, and feel comfortable doing things over the Internet, (2) increased leisure time – while many customer are moving towards "cash rich, time poor", others are moving to 35 hour week, while maintaining their income level, (3) and increased technology ownership – consumers are more eager to adopt new technologies, including older age groups.

Changes in the customer life-styles and preferences create many new challenges for businesses. Flexibility and ability to change fast is crucial. Electronic life encourages curiosity and heightens impatience, and it is important that the business becomes as curious and impatient for change as its e-customers. It must creatively destroy and reinvent, while maintaining common threads that ensure continuity and develop loyalty. The key to designing attractive product or service for the e-customer is to build that which (in his or her opinion) will make his or her life better. It has to be something that e-customer wants to use, buy and value (McKeown, 2001).

In terms of shopping, real space and cyberspace are not mutually exclusive. On one hand, availability of information is a great benefit for shopping online. Customers also do not need to think about traffic, parking, long lines, and poorly trained salespeople. On the other hand, when compared to the traditional store environment, shopping online is an inanimate shopping experience. Customers do not get an immediate gratification and they have to wait long time before they receive the product. Shopping online is a unique experience with its own advantages and disadvantages. Frequently, consumers use both spaces during their purchase process.

Society will be affected by the technological changes also in the future. One of the future stipulations is that wider age range of people will be using the Internet for their daily activities which in turn will give new opportunities to the Internet based companies. According to Groucutt and Griseri (2004), the world is not one homogenous group and that societies vary not only because of culture and established norms but also economic conditions in which they find themselves. The authors are convinced that successful e-businesses and related industries will be those that understand geodemographics and the lifestyle activities of their target market.

4.5 Summary

This chapter guides the reader through the evolution of e-business to the market trends, survivors and innovators today. The authors have identified main challenges that online ventures were facing and early online business model success and failure factors based on selected most popular cases during the netPhase I. These findings will further help to analyse the e-health industry and will assist in building assumptions on future trends, as well as help to understand business model future innovations.

5 E-HEALTH INDUSTRY

The Web 2.0 developments behind the new players, such as Facebook, YouTube and Wikipedia have the potential to disrupt and revolutionise healthcare. The health sector is very information intensive and advanced information and communication technologies can make healthcare systems more cost-effective, allowing more funds to be spent on healthcare, and less on administering it. What makes it more challenging and interesting is the fact that the healthcare industry is one of the stingiest spenders on IT. Nevertheless, e-health, often referred as Health 2.0 and 3.0, is emerging as an important new global industry.

Next to cost reduction possibilities, the demand for e-health services and sector's growth is stimulated by changes in people's lifestyles and a growing number of people who are looking proactively for information on their medical conditions. Health is consistently one of the most searched for subjects online, and access to online health information is something that most individuals take for granted these days. Google, the Internet search engine, has now become one of the patient's best friends, second only to the family doctor (Hawkes, 2005). E-health 2.0 applications and approaches are already challenging traditional doctor-patient relationships and placing more power in the hands of consumers. Patients want to be actively involved in decisions related to their own health, rather than simply accepting the considerable discrepancy in knowledge between themselves and health professionals. For example, it enables patients to gain broad knowledge about different health issues and be better prepared to ask physician questions about their own medical condition. On one hand, the Internet and services that have become possible provide various benefits for its users but, on the other hand, it becomes more difficult to monitor and control the quality of those services and products sold on the Internet.

Today, there are two main groups of e-health businesses, i.e. ones that provide healthcare and medical information either to individuals or medical professionals and online stores-pharmacies selling healthcare products, medicinal products and devices. Electronic medical record services are still emerging and providing basis for future innovations. The aim of this chapter is to look into previously mentioned groups of e-health companies, their business models, emerging business model innovations and its limitations.

5.1 Evolution of the e-health industry

This chapter guides through the evolution of the e-health industry by looking at the first movers, survivors and new comers, and also depicts the structure of the industry and its main stakeholders.

5.1.1 The early stage of the e-health industry

The term e-health first came into existence in the late 1990s and it was barely used before 1999. The term was apparently first used by industry leaders and marketing people rather than academics. They created and used it in line with other "e-words" such as e-commerce, e-business etc., in an attempt to convey the promises, principles, excitement around e-commerce to the health arena, and to give an account of the new possibilities the Internet is opening up to the area of healthcare (Eysenbach, 2001). Because the Internet created new opportunities and challenges to the traditional health care information technology industry, the use of a new term to address these issues seemed appropriate. It is quite clear that e-health encompasses more than just a technological development. During this time the Internet-based health service providers shot up like mushrooms, gaining enormous market capitalisation in the health industry in their heyday in the lasts months of 1999, with the aggregated all-time highs of the eight largest companies accounting for a market capitalisation of 56 billion U.S. Dollar. Most of these first generation companies demised as quickly as they emerged with the burst of the Internet bubble. Their demise can be easily revealed by their market value decline of 93,9% just three years later (Yahoo! Finance, 2002).

E-health companies emerged everywhere. Some of the businesses provided physicians and health providers with clinical information, billing, and office management services, whereas others focused directly on patients, giving them new access to information about their specific problems and concerns. All these companies used the new Internet medium to deliver products and services that they hoped would revolutionize healthcare. At that time famous companies like DrKoop.com, Drugstore.com, and PlanetRx.com rode the wave of investor optimism to Wall Street success but collapsed soon after the Dot-com bubble burst. The biggest mistake during the early Internet stage for many new ventures was the tendency to see the Internet as a unique business model, with its own set of rules. As concluded in the Chapter 4, it is merely an additional channel for communicating with customers and all the old rules that still apply. Product and service are still the primary vehicles to generate profits. The biggest challenge is to expand the old business model to accommodate this new channel of

communications, not to disregard a proven model. History books will remember this as a time of rapid excitement and innovation followed by equally rapid collapse (Itagaki et al, 2002).

5.1.2 E-health survivors and newcomers

Overall, the post-bubble e-health sector has been characterised by the formation of consumer-generated niche Websites, propelled by media advertising incentives (Swartz, 2008). As of January 2008, there were 2,070 health-information sites, reaching 0.5% of all Internet traffic. That compares with 1,047 sites, reaching 0.3% of all Internet traffic, in 2005 (Swartz, 2008). These survivors have been defined as "footnotes from the halcyon days of the pre-burst years". However, some of these are survivors of the worst stage of the Internet era, suggesting considerable merits in their business model (Swartz, 2008).

WebMD, as well as health-related Websites BabyCenter and About.com, all have carved important niches in a specialized market and are thriving in today's Web 2.0 era. They are among the last vestiges of an earlier boom that appears to be re-emerging. Next to the old "survivors", the big "players" are entering e-health industry. Microsoft has begun offering consumers a specialized health care search engine, as well as an online service for them to store their health records securely. As recent as in May 2008, Google introduced a Google Health, a Website that allows consumers to track information online and to manage its health documents online. Further, it facilitates the contact between patients and their medical institutions. It is also in the process of adding unspecified health products and services. Today, Internet based ventures and marketplaces operating in providing information services supporting the medical and health sector are changing established ways of providing customer value in this area. These and similar Internet ventures introduce to varying degrees changes in the business logic and new value propositions to their customers.

5.1.3 E-health industry's main stakeholders

The healthcare industry and relationships among healthcare players, providers and consumers are very complicated. Each of the stakeholder groups has their particular characteristics and requirements towards different healthcare processes and derived e-health services. The Internet and the market for online services are relatively new and still evolving, and the target market for e-health companies tends to fall into two broad categories, i.e. consumers (patients) and providers (physicians, hospitals, and businesses). Substantial differences exist in the economic circumstances of companies focusing on different target markets.

Figure 7: E-health industry's main stakeholders

Source: Own creation

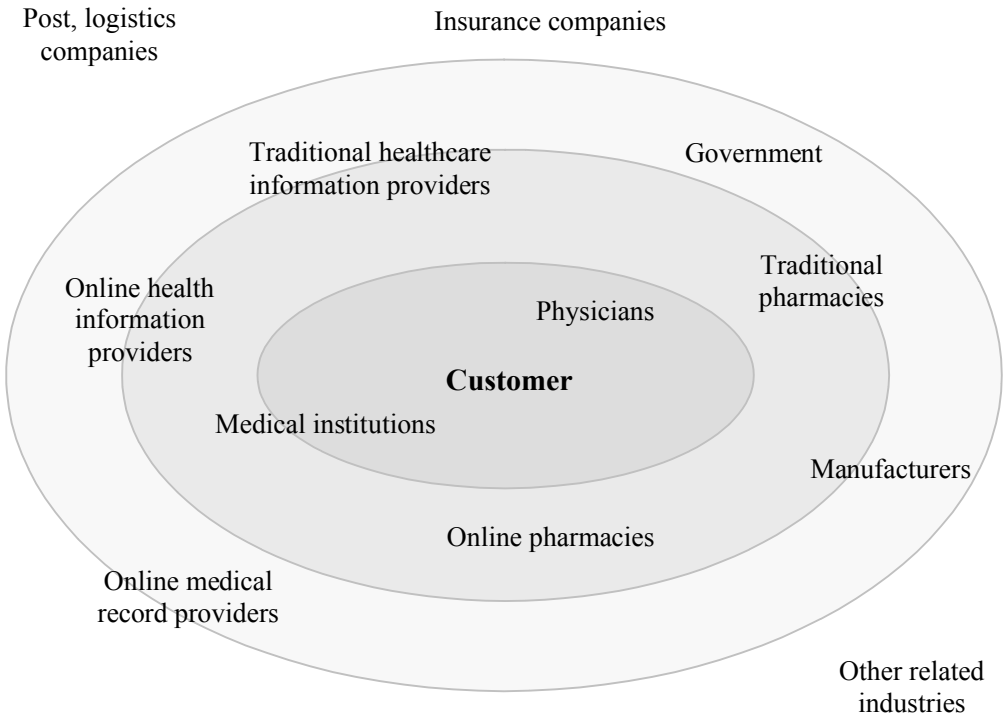


Figure 7 depicts the e-health industry's stakeholder structure. Often, the physicians and medical institutions will assist or even determine the customers' (patients') healthcare decisions and, therefore, they play a very important role in e-health sector. The next layer of stakeholders includes online and traditional health information providers, pharmacies, as well as manufacturers. Today the latter is getting closer to the customer through online pharmacies and due to the changes in the supply chain. Despite being placed in the outer layer, insurance companies and government play crucial role in the e-health industry by either stimulating or restricting health business online opportunities. Online medical record providers are still a distance away from the customers and the core of the e-health stakeholders as they are still at their early stage of evolution. Post and logistics companies are also part of the stakeholder group as their business can experience big changes with the further development of e-health industry.

5.2 Online pharmacies

One of the first e-health concepts to capture the popular imagination was the online pharmacy. This chapter will guide the reader through the evolution of online pharmacies, provide with insights on online pharmacies and their business models today, and finally, depict the future business model innovations and their challenges and limitations.

5.2.1 Evolution of online pharmacies

During the netPhase I, the common perception was that the Internet-based pharmacies, with highly efficient operations and vast economies of scale, could offer prescription drugs at lower cost than local pharmacies could. With the overall cost of prescription drugs spiralling upwards, these pharmacies seemed like an ideal niche for an e-health venture providing cheap drugs to millions at any time of the day or night. Drugstore.com and PlanetRx (See also Chapter 4.3.2) were both early entrants, and appeared initially to have all the elements necessary to become major players in the future of healthcare but turned out to be a huge failure (Itagaki et al, 2002).

Similar to failure stories in the Chapter 4, many online pharmacies on their rush to fortune and success during the netPhase I ignored the power of the consumer and neglected long-term strategy. They maintained huge operating expenses and spent heavily on marketing campaigns that did not generate returns. Loose spending soon depleted valuable cash reserves. At that time the online pharmacies did not realize alternatives and far more effective methods. Most of the online pharmacies failed in four main categories, i.e. compelling value, unambiguous revenue model, competitive barriers to entry and organizing structure for cost control.

Although it was clear that people could purchase prescriptions online, it was not clear that they should do so. The early online drugstores offered slight cost savings over local drug retailers, but they lacked the convenience of the corner drugstore and the comfort afforded by a well-known local pharmacist. Corner drugstores were available everywhere, and during netPhase I purchasing drugs online in many cases made things more, instead of less, difficult. Thus, a compelling, undeniable service value was never achieved. Changing the ingrained buying habits of consumers is a big challenge for any new venture, and convincing consumers to buy online was a challenge that the most of the first online drugstores underestimated. Furthermore, elderly people were the group with the greatest need for pharmaceuticals but

only few were using the Internet to fill prescriptions. In 2000, both PlanetRx and Drugstore.com had to spend one dollar in advertising and marketing to generate 70 cents in sales. Despite spending millions of dollars, the data highlight the difficulty in convincing customers to buy pharmaceuticals online. The online drugstores also failed in dealing with insurance companies, who had the potential to be big customers. Insurance companies did not want to cooperate with online pharmacies because they viewed them as competition for their mail-order business. By doing so, they cut off a big share of potential customers and they left the online drugstores with customers who would pay out of their own pocket for prescriptions which represent a small market segment.

Shortly after the Dot-com bubble burst online pharmacies started evolving into cohesive bricks-and-clicks, and a second generation of competitors from the more traditional drug retailers such as CVS and Walgreens entered the online business. These new entrants learned the lessons and reinforced their traditional brick-and-mortar pharmacies with online services. The main advantages were the convenience of a neighbourhood drugstore, the price savings of an online pharmacy, and choice of service interactions. Furthermore, the online services supported the physical stores by aiding in information dissemination and customer relationship management (Itagaki et al, 2002). Some early online pharmacies that survived realigned their strategy and chose alliances to improve their performance. Partnership proved to bring more consumers to a site in a cost effective manner, and help in building a sustainable business model that will not burn through cash reserves.

5.2.2 Online pharmacies today

Today one can find more than 15,300,000 results on a term “online pharmacy” on the Google search engine. Entering netPhase II, many things in this industry have changed. First of all, changes in lifestyle and increased technology ownership, i.e. consumers are more eager to adopt new technologies, including older age groups (See Chapter 4.4.3), have broadened the age group and a number of the Internet users, as well as encouraged online ventures to provide new services. In order to gain a better insight in online pharmacies today, the authors of this paper have chosen MSN Shopping Health & Wellness as a source for finding the list of online pharmacies (Appendix 2).

Table 6: Comparison of selected online pharmacies

Source: Own creation

	Online pharmacy	Num.of med. products	Product type	Product categories	Online prescrip. service	Delivery speed	Inter. delivery	Online live support	Comm. channels	Lang.	Latest news	Affil. prog.
1	4RX www.4rx.com	> 500	Generic medicines	Sexual health, hair and skin, weight loss, birth control, muscle relaxers, antibiotic/infection	×	8-15 days	✓ *	✓	Internet – email, chat	English Spanish	✓	✓
2	SelfServeRX www.selfserverx.com	5	Branded medicines	Sexual health	✓ ($60)	n/a	×	✓	Telephone Internet - email	English	×	×
3	HorizonDrugs www.horizondrugs.com	> 250	Branded, generic medicines	Many categories of medicines	×	2-15 days	✓	×	Internet – email	English Spanish	×	✓
4	Medstore International www.medstoreinternational.com	n/a	Branded, generic medicines	Many categories of medicines	×	<20	✓	×	Telephone Internet - email	English	×	×
5	American Pharmacy https://www.americanpharmacy.us	26	Generic medicines	Sexual health, antidepressants, sleeping aid, weight loss, anti anxiety, muscle relaxant	×	4-14 days	✓	✓	Online enquiry	English	×	×

On MSN Shopping Health & Wellness one can find 290 online health portals, including 39 online pharmacies and health care stores that next to the over the counter products are selling wide range of other medicinal products. Table 6 sums up the comparison of five selected online pharmacies available on MSN Shopping to illustrate the characteristics of online pharmacies today.

Online pharmacies offer wide range of products, including both over the counter (OTC) and prescribed medicinal products. In 2002, among the top ten online drugs were sexual health and weight loss products (Table 7). Similar trends still exist today. All above compared online pharmacies are selling medication for sexual dysfunction, with weight loss solutions as second.

Table 7: Top ten online medicinal products

Source: BBC News, 2002

	Product	**Category**
1	Viagra	Sexual health
2	Xenical	Weight loss
3	Phentermine	Weight loss
4	Meridia	Weight loss
5	Bontril	Weight loss
6	Propecia	Hair loss
7	Prozac	Antidepressant
8	Celebrex	Osteoarthritis and rheumatoid arthritis
9	Ionamin	Weight loss
10	Apidex	Weight loss

The number of products sold on online pharmacies varies and depends from one online venture to another. Some online pharmacies choose to focus and serve only selected patient population. For example, SelfServeRX sells only brand name sexual health medication for men. This Website offers medicine from big pharmaceutical companies like Pfizer, Bayer Healthcare and GlaxoSmithKline, dispensed by the U.S. pharmacists and prescribed by the U.S. physicians. Other online pharmacies, like 4RX.com and Horizondrugs offer broad range of products serving different target groups with different needs. 4RX.com offers over 500

generic medicinal products in six main categories. Unlike 4RX.com, some online pharmacies choose selling only branded or both branded and generic products. Generic product Websites appear to offer significant price benefit to its customers. Also delivery speed varies from one Website to another, ranging between 1-20 or even more days. In some cases online pharmacies provide only domestic shipping but with the current market trends international delivery is increasing.

Affiliate programs among the online pharmacies in becoming a trend. During the netPhase I the analytics were primitive and fewer companies offered affiliate programs. Today the industry has matured and become diversified. Essentially, any way to market online is being leveraged by affiliates. In the given case, Horizondrugs and 4RX.com have implemented affiliate programs. For example, when a customer first places an order with 4RX.com, the affiliate program bonds the customer with the referring affiliate. All future orders are registered under that affiliate ID and commissions will be credited accordingly each time the customer orders with RX4.com. Horizondrugs pay their affiliates on a weekly basis. Selling own products or services can certainly provide more rewards in the best case scenario, but then a company has got a lot more risk too. Some affiliate programs pay for the number of clicks, visits or leads generated. There are a lot of exciting opportunities out there with Web 2.0 and it is a matter of coming up with a unique angle (Associate Programs, 2007).

Main advantages of online pharmacies are convenience (24/7), easier access, lower prices and time. For rural based physicians, the Internet offers a highly effective means of communication and allows physicians to treat patients who would not otherwise have access to high quality healthcare (Table 8). It also provides convenience for people who do not want or cannot leave their house to visit a doctor. In case of certain disorders which patients find embarrassing to discuss with their personal physician, it is be better to have an online consultation, i.e. customers might give more honest and accurate answers about heir symptoms and, hence, get a better feedback and health care. Another benefit of using online pharmacy services is the opportunity to compare prices and choose the best purchase. Without leaving the house, the customer can compare several online pharmacies, their products, prices and delivery costs and make the most efficient purchase decision. Lower prices online are achieved through lower operating costs that online pharmacies have, lower advertising costs (often used advertisement type is word-of-mouth and previously described affiliate programs) and the medicines are bought from the source. Nearly all factors of production, such as

labour, land, raw materials, are less expensive in Asia. Thus, the final product can be made and sold for a lot less, including drugs because, e.g. the Indian population has a lot less income to spend on health care. Additionally, patent law in many Asian countries differs from that of the Western countries. Until January 1, 2005, pharmaceutical patents in India only protected the process by which a drug is produced, not the drug itself. This policy was aimed at promoting development and competition and reducing prices. It is a policy that several nations have used historically to encourage development, including Japan and the United States. Under 1995 WTO agreement called TRIPS, Indian manufacturers were allowed to legally reverse-engineer drugs and produce an identical product to a patented drug as long as they use a different process to produce the drug. This policy allowed India to become one of the world's leaders in generic pharmaceutical manufacturing, both in terms of quality and quantity (WTO, 2006).

Table 8: Main advantages and disadvantages of online pharmacies today

Source: Own creation

Advantages	Disadvantages
(+) Easier access	(-) Personal information security risk
(+) Higher consultation quality	(-) Lack of reimbursement opportunities
(+) Opportunity to compare prices	(-) Threat of low quality products
(+) Lower prices	(-) Incompliance with the local legislation and rules, unregulated online pharmacies
(+) Time efficiency	(-) Wrong diagnose and treatment methods
(+) Confidential and discreet packaging	(-) Lack of physical presence, interaction, and trust

Furthermore, purchasing medicine online can be a time saving activity, as the customer can get all on one Website – to check the availability of a medication, to get the professional consultation and, if needed, a prescription, to make the payment and to receive the medication

at home on average 2-15 days. Most of the online pharmacies would provide their customers with a discreet and confidential packaging ensuring privacy.

Main disadvantages of online pharmacies include personal information security risk, lack of reimbursement opportunities, threat of low quality products, wrong diagnose and treatment methods, and incompliance with the local legislation and rules (Table 8). With the virtual explosion of e-health activity on the Internet, the importance of establishing ethical practices and safeguarding the privacy of personal health information is critical to establishing consumer confidence and trust in this new medium and its services. Visitors to health Websites are not anonymous, even if they think they are. Through mechanisms, such as cookies, profiling, banner ads, and click streams, Websites are collecting information about individuals, often without their knowledge or consent. Even with the best intentions, many sites do not have adequate security in place to protect consumer information from the casual hacker or someone actively seeking to access company databases (Goldman and Hudson, 2000). Barely distinguishable visibly from reputable Web pharmacies are online drugstores whose practices and products can be risky or even dangerous. The Internet has widened access to illegally imported prescription products and hence other drug safety related problems, such as counterfeit medicines, contaminated or outdated ingredients, and improper storage. But even if the products are safe, consumers whose orders are confiscated stand a good chance of losing money. Most online stores selling imported drugs will not provide a money-back guarantee (Hickey, 2000) and not all pharmacies accept a full range of insurance. As in most cases patients will need to pay a full price out of their pocket, it creates additional challenges for online pharmacies to compete with its traditional rivals.

Another significant problem is enforcement of government legislation. The drugs are being sold to consumers around the world without any attention being paid to local regulations. Many sites will deliver drugs direct to consumers, without prescription. Online pharmacies are exposing consumers to huge risks and are creating problems for pharmaceutical companies whose products are being sold on unregulated sites. The pharmacy and prescription system exists for a reason, e.g. Viagra should not be given to men who are taking certain types of heart medication (BBC News, 2002). Despite new efforts to regulate the Internet pharmacies, 85% of sites selling controlled drugs do not require a prescription. The teen surveys and focus groups with college students suggest many obtain prescription drugs through the Internet. The Internet has become a pharmaceutical „candy store“ for teenagers

and college students, i.e. in the past few years, there has been a tripling of 12- to 17-year-olds that abuse prescription drugs. Many of them have bought drugs online. It also called on Internet search engines like Yahoo!, Google and Microsoft Corp's MSN.com to block advertisements from unlicensed and uncertified online pharmacies. In the past two years, eight of the Unites States have passed laws regulating Internet pharmacies requiring more stringent regulation of online pharmacies (Reuters, 2008)[1].

5.2.3 Challenges and limitations to the Internet business model future innovations in online pharmacy sector

Before moving further to the assumptions on business model future innovations of online pharmacies, it is worthwhile considering the challenges and limitations, and to understand the future market conditions. Next to the four main challenges, identified in the netPhase I business models of pure play online ventures, and based on the previously described online pharmacy disadvantages, the authors of this research emphasize following online pharmacy specific challenges, i.e. product safety, legislation, reimbursement and personal data security.

The United States and Indian online pharmacies is a good case to illustrate the current and upcoming challenges in this part of a sector. Today the U.S. has the highest drug prices in the world and it is one of few countries that does not control prices that drug makers charge. With the number of uninsured Americans at a record 47 million (15.8%), a growing number of U.S. consumers are buying their prescription drugs from foreign pharmacies, some as far as from India. With a help of those online pharmacies they can access the highest quality brand-name and generic drugs at up to 90% cheaper than in the U.S. Many medications in India cost 50 - 90% less than U.S. retail prices due to the drug pricing control. Furthermore, while generics can go to market quickly in India, the United States has strict drug patent protections that often prevent generics from coming to market for years. All these factors give Indian pharmacies a distinct price advantage. InternationalDrugMart.com is one of the examples. Run by an Indian businessman in India, this online pharmacy mostly serves the American customers. Every day this firm fills and mails about 250 orders to uninsured American patients, mainly 50 to 64-year olds that do not yet have Medicare coverage. Most of new business comes from word-of-mouth (Yahoo! News, 2008).

There are many online pharmacies similar to the InternationalDrugMart.com that sell products manufactured by world's largest pharmaceutical companies, e.g. GlaxoSmithKline, Merck or

Pfizer. Some are American companies and some are Asian. Most online pharmacies engage into promising that all are high quality pharmaceutical manufacturers either certified by the U.S. FDA or meet the WHO's Good Manufacturing Practices (GMP) standards. India boasts of over 80 U.S. FDA-approved plants, which is the largest number in any country other than the U.S. Despite the fact that these plants are said to be in compliance with the exacting standards set by the U.S. FDA, there is absolutely no guarantee that all India's pharmaceutical manufacturing units employ the GMP. The quality of pharmaceutical products could also be reduced due to inappropriate handling and poor storage facilities at drugstores and other retail outlets. However, it is worth mentioning that exports to the strictly regulated markets in the West are subject to approval of the manufacturing units by the respective regulators, consequently, the quality of drugs exported from India will generally be better than that sold locally (The Economic Times, 2008).

Online sales of fake, expired or gray-market drugs continue to grow as traffic to questionable sites triples and marketing tactics become increasingly aggressive. MarkMonitor, the global leader in enterprise brand protection, in their independent report on Brandjacking Index have concluded many interesting findings that potentially could affect the online pharmacy further evolution. Only two out of 2,986 online pharmacies studied were Verified Internet Pharmacy Practice Sites (VIPPS). 64% out of the given population do not secure customer data, putting consumers' identity information at risk (50% more compared to 2007) (MarkMonitor, 2008).

5.2.4 Main assumptions on future trends in online pharmacy sector

Having gained knowledge on online pharmacy evolution, survivors and newcomers, and having identified the market trends and biggest challenges, it is time to look into assumptions of the future business model innovations. There are three following assumptions: (1) Brick-and-mortar pharmacies will remain as important industry players, (2) Internet-based pharmacies will expand their target market, strive to become the industry leaders but most likely will focus on a niche product group or consolidate with other industry players, (3) Brick-and-click pharmacies have the biggest potential to grow through business model innovations.

(a) Brick-and-mortar pharmacies will remain as important industry players

Despite rapid changes in all kind of aspects, the traditional retailers are likely to hold their dominant position for some years to come. However, online pharmacies across many countries have proven that they can offer products equal to those offered by traditional channels, for vastly lower prices. As such, the authors do not consider it plausible that heterogeneous position of the traditional drugstores will remain undisturbed. It is very likely indeed that the market share of the before mentioned will erode on account of a number of products previously defined. There might be several categories of pharmaceutical products, such as such as pain killers, anti-allergics and regular over-the-counter products that will continue expanding its sales online and, therefore, somewhat reduce the market share of traditional pharmacies. Furthermore, online pharmacies offer discreetness, something that traditional pharmacies are not able to offer, and it makes it likely that, e.g. the purchase of sexual health products will be ever more common online. High mark-up, traditional brick-and-mortar pharmacies are facing a serious threat and will have to decide how to manage the situation. However, a lot will also depend on local government policies and their reaction to negative online pharmacy cases that will either promote or set limits to further online competitor expansion.

(b) Internet-based pharmacies will expand their target market, will strive to become the industry leaders but most likely will choose a niche product group or consolidate with other industry players

As analysed previously in this chapter, today online pharmacies operate worldwide, serving both domestic and foreign markets. During netPhase I, the lion's share of early online pharmacies was established domestically, mostly in the U.S. Of late however, foreign-based online pharmacies have started operating, set to avoid strict trademark regulation and making full use of the price caps on local medicine. These ventures have found stable niche in certain product groups, and growth is likely to continue as the prices of pharmaceuticals and the number of uninsured population, esp. in the U.S., gradually rises. The increasing number of purchases online pharmacies takes part of the traditional pharmacy market share and this trend potentially will continue in the years to come. It will make the market conditions for the traditional players more difficult but not impossible as there will always be customers, e.g. who are not familiar with the Internet or who need a medication prepared at a pharmacy.

Moreover, the foreign-based pharmacies that are currently lining their pockets operating in the gray area of tolerant FDA regulation have to continually be wary of the threat of sharpened import regulations. Whether or not if this will happen is highly uncertain, yet might have mayor effects on industry relations. As a second and more assessable factor currently impeding unlimited online pharmacy growth, this analysis has identified the matters of products safety, security of reimbursement and security of data management. These are matters that cannot be solved within a short time span as they are matters depending on trust, notably trust of the customer in an online pharmacy. Over time, online pharmacies might be able to increase their market share by exercising good business practice, thereby enhancing customer trust by means of mouth-to-mouth advertisement. One should not forget however, that the great behavioural change pared with the great perceived risks of possible mistakes in the purchase process is likely to lead to slow convincement of wary customers.

(c) Brick-and-click pharmacies have the biggest potential to grow through business model innovations

Taking into account the identified positive and negative aspects of online pharmacies pared with the risks and trends, one can come to a rather plausible and well-founded assumption - more and more traditional pharmacies will realise the threat constituted by online pharmacies, and respond by diversifying their retail channels, themselves constructing online pharmacy initiatives. This industry response will focus on a number of products as identified above, namely products with a high potential for the greater sales figures and figures that require certain discreetness. The pharmacies who initiate this movement will realize that they can instil the positive elements of their carefully built-up name in the customer seeking for lower prices on medicine. The click-and-brick "pioneers" are likely to be the greater traditional drugstores, with name recollection through great geographical areas. They will be able to leverage the trust factor of their name and the efficiency of online pharmacy practices to take market-share away from other, less wary traditional pharmacies, selling the above high-volume and discreetness-wanting products. These ventures, to certain extent, will also curtail the growth of the fully online pharmacies that will see the price difference of their star-products partly dissipate. If the online part of the business of these trusted traditional pharmacies is able to sufficiently reduce the price difference, many customers will prefer buying their products at their trusted-name pharmacy, to which the customer can turn if, product quality, remuneration or data security is not up to expectations. Therefore, one can

say that click and bricks could potentially provide ground for business model future innovations for a simple reason – they would be better prepared to deal with previously identified challenges, gain trust, obtain more resources and, hence, be more exposed to innovations.

5.3 Online health information providers

New applications based on social health networks and user generated content, such as reviews of doctors and hospitals, is another part of e-health industry and a source for innovations. They are predicted to rapidly evolve and challenge existing healthcare systems and create new models of healthcare delivery. The search for healthcare and medical information over the Internet is an interesting phenomenon, which developed contemporaneously with the rise of the Internet. The popularity of such information searches throughout the Internet era indicates a continuously vast citizen's interest in direct, clear-cut health information obtainable from home. Though the medical information sites have commercial intent, the authors wish to separate commercial Websites aiming to market one or more specific products, a subject discussed in the previous subchapter of this analysis. Further, institution-to-institution sharing of a specific patient's medical records will be discussed in the third subchapter of this analysis, and equally excluded from this chapter. Healthcare and medical information sharing as discussed here concerns the auxiliary provision of health-related information on the Internet. It can concern both professional-to-patient information, and professional-to-professional information, discussing clients. The revenue models of these information-based services are highly based on advertisement or subscriptions. As such, the service providers seek to capture a sizable audience of homogeneous users.

5.3.1 Evolution of online health information providers

Health information providers serve Websites that provide people with information and create a community rather than with services or goods. Health-related information is one of the most searched for topic on the Web. Already back in 1999, twenty-five million people, or 43% of all Internet users searched for health-related information in one out of nearly 15,000 healthcare Websites. Only few Web sites emerged as market leaders early on, including DrKoop.com, HealthGrades.com, and Mediconsult.com. Initially only few would give credence to reputable health information posted on the Web. Even fewer would rely on it as a primary or secondary source of medical information (Medical News Today, 2008).

Nevertheless within a short period of time, millions of people were visiting these sites, looking for information on all types of illnesses and chatting with fellow patients. However, unable to convert mouse clicks into dollars, these companies plummeted in value (Itagaki et al, 2002). Previously illustrated netPhase I success story WebMD and its history show how difficult and expensive it was to get where it is today. It had financial losses from 2001-2003, before turning around. The company has been around, and online advertising as a viable revenue model did not become popular until the latter half of this decade (Mitra, 2007).

5.3.2 Online health information providers today

With an increasing number of users going online for quality information on health, fitness, medication, and expert advice, there is a rising demand for healthcare portals. Among the most popular ones are WebMD Health, Revolution Health, NIH.gov, MSN Health, Yahoo! Health and EverydayHealth. Online health portals are experiencing rapid growth. For example, Healthline, launched in 2005, grew by 269% to 2.7 million average monthly unique visitors in the first quarter of 2007 from 0.8 million average monthly unique visitors in the same period in 2006 in the United States. QualityHealth grew by 114% to over 2.6 million average monthly unique visitors during the same period (Mitra, 2007). Recent figures have shown that the Internet share of medical information Websites has grown by a factor of four from 2007 to 2008 (Comscore, 2008). Thus, the interest in online distributed medical information is skyrocketing. According to Comscore (2008), a leader in measuring the digital world, the health information site category has grown 21% during 2008 – more than four times the growth rate of the total U.S. Internet population.

One reason for the revived success of such Websites is the interactive aspect that many information providers have included in their services. Most sites have become vibrant online communities rooted in sharing experiences and advice, rather than simply being one-way information resources for the consumer (Comscore, 2008). Interestingly, it does indeed appear that patient-to-patient and doctor-to-patient interaction has a positive influence on the popularity of health-information distributing Websites, as the three greatest U.S.-based offer highly-used information-sharing both in communities regarding a certain topic and in the opportunities to ask specific questions to subject specialists. In the Table 9 are represented recent research results on the largest healthcare and medical information Websites.

Table 9: Top ten online health information providers

Source: Comscore (2008)

	Provider	Unique monthly visitors in Jul 08	Focus
1	WebMD	17.3 million	Expert advise on diseases, topic discussion
2	Everyday Health	14.7	Expert advise on weight loss and regular diseases, topic discussion
3	Revolution Health	11.3	Expert advise on diseases, communities, doctor/hospital search, online health record storage
4	AOL Health	11.1	Food, dietary and fitness
5	About.com Health	8.7	Information regarding diseases
6	Yahoo! Health	8.5	Dietary and fitness tips, doctor-provided articles on diseases
7	MSN Health	7.8	Dietary and fitness tips, tips on prevention and treatments of illnesses
8	NIH.GOV*	7.3	News on medical research
9	RightHealth.com	6.2	Dietary and addiction tips and support
10	Quality Health Network**	5.8	Healthcare quality improvement Website

*/** nih.gov and quality health network are excluded from this analysis as they are not commercial e-Businesses

WebMD is still considered to be the number one but other three online health information providers showed a rapid growth and boosted the overall growth of the category, each attracting more than ten million visitors: Everyday Health with 14.7 million (up 63%), Revolution Health Network with 11.3 million visitors (up 182%), and AOL Health with 11.1 million (up to 88%). Everyday Health and Revolution Health Network not only achieved significant organic growth on their core Websites, but their recent partnerships with several smaller health sites, as well as some strategic acquisitions, have also contributed to their respective gains (Comscore, 2008). RevolutionHealth.com, which was recently named the Best Overall Internet Health Site by the eHealthcare Leadership Awards, offers free consumer health and medical Website expert content and online tools with the power of social

networking. It also offers premium services that enable companies to provide health content and customized online tools to their employees, an insurance marketplace and CarePages, the leading service that enables communication among family and friends when someone is receiving care (Revolution Health, 2007).

Having looked at the top ten healthcare and medical information providers on the Internet, the authors have come to the conclusion that they can be broadly divided up in two separate groups: (1) information and discussion of diseases, and (2) information and discussion on dietary and general health information. Where some Websites focus mainly on diseases (WebMD, Revolution Health and About.com Health), others focus mainly on dietary and general health (AOL and Right Health.com). Further, some offer equally important information services on both subjects, such as Everyday Health and Yahoo! Health. Indeed, research indicates that specific diseases and its treatments are of top interest among the Internet user's, directly followed by information regarding dietary and fitness subjects (Table 10).

Table 10: Most popular health topics searched online

Source: Fox, 2006

Health Topic		Internet users who have searched for info on it (%)		
		2002	2004	2006
1	Specific disease or medical problem	63%	66%	64%
2	Certain medical treatment or procedure	47	51	51
3	Diet, nutrition, vitamins, or nutritional supplements	44	51	49
4	Exercise or fitness	36	42	44
5	Prescription or over-the-counter drugs	34	40	37
6	A particular doctor or hospital	21	28	29
7	Health insurance	25	31	28
8	Alternative treatments or medicines	28	30	27
9	Depression, anxiety, stress, or mental health issues	21	23	22
10	Environmental health hazards	17	18	22

While the amount of providers and depth of information on the Internet has increased dramatically, the ability to access the right information has floundered in comparison. Contextual data retrieval is particularly critical with health information and by most accounts the Internet is a mess in this regard (Medical News Today, 2008). This leads to one of the biggest challenges and limitations to future business model innovations in online health information sector, further discussed in the next subchapter.

5.3.3 Challenges and limitations to the Internet business model future innovations in providing online health information

Next to the netPhase I challenges, the authors have identified three main sector-specific challenges faced by healthcare information providers, i.e. delivering qualitative information, creating and expanding networks and communities and value proposition. Access to online health information is something most individuals take for granted these days. Whether starting a search on Google or a visit to WebMD, most people with access to a computer have utilised the current online health tools (Medical News Today, 2008). Due to the fact that more and more Internet users are looking for health information or advice online, the quality of information and also reduced complexity in finding the right information through the complicated medical terminology become increasingly important. Providing qualitative content and creating credibility and trust is the biggest challenge and a key to success at the same time (Matthews, 2005). Only by ensuring that its business creates quality information and, most importantly, is perceived as a quality institution, a health information provider can ensure a vast visitor stream in its business future. Pew Internet & American Life Project findings emphasise this need by stating that 66% of health seekers say their last query began at a general search engine like Google or Yahoo!, and three-quarters of health seekers do not consistently check the source and date of the health information they find online (Fox, 2006).

Verifying information source and quality is essential for health information as obtaining wrong information can mislead the reader and worsen one's medical condition. Health on the Net Foundation Code of Conduct (HONcode), established in 1996 is one of the first attempts to raise the quality of healthcare information available on the Net. It is a voluntary certification system based on an "active seal" concept and a free membership, and it addresses one of the Internet's main healthcare issues – reliability and credibility of information. While primarily intended for healthcare site developers and publishers, the blue-and-red HONcode

seal on subscribing sites also helps users identify sources of reliable information (HONcode, 2006).

Furthermore, a new search paradigm known as Semantic Web may hold the promise of a better structured Web. The traditional model of Web search engines, while satisfactory in the past, has fundamentally overstretched its capacity to aid the ordinary Internet user. The average online health search is redundant, piecemeal, and highly keyword sensitive. Health topics are myriad and are defined by complicated medical terminology (Medical News Today, 2008). The current sphere of online health information challenges both the healthcare and Web development communities to find a better way to disseminate important health information across the Internet. The answer may lie in a vision for the future of the Internet called the Semantic Web. By jumping to the forefront of this new technology, health information might become the most advanced form of accurate data sharing on the Internet.

Another challenge of a great important is creating community and successful network. Similar to but more specific than customer relationships, online communities have to be managed in order to create an effective "link" with a business venture's customers and among them. The authors of this paper argue this can be done by means of establishing a community. Trust and loyalty are two factors identified to be of great importance to create a "lock-in" and community effect on a Website. Internet-based service providers must be weary of competing Websites, as successful Websites tend to be copied at tremendous speed. In order to create such "lock-in", which can be defined as a feeling of "belonging" and subsequent loyalty from the customer's perspective, one must give the customer a real interaction experience. Earlier in this paper, the "positive loop" created by eBay is discussed as a school example of a successful network and special community. By means of having great visitor numbers whom, importantly, contribute to the Website's services and each other, a Website can accommodate such feeling of belonging.

Lastly, the third challenge is creating and managing a value proposition. A company's strategy reflects its value proposition in relation to other industry players. When comparing one health information provider's offering to that of other health information providers (e.g. listed in Table 10), one will quickly realise that the offerings are very much alike among industry players. For instance, EverydayHealth's service range is very similar to the services of direct competitors WebMD and Revolution Health. All offer a broad spectrum of

information related to health, with a focus on medical and/or dietary and fitness subjects through health directories and expert opinions. Many auxiliary services, such as hospital and doctor search engines, health news items and medicine information complement the offerings. As such, the Website does not distinctively set itself apart from other medical information providers.

5.3.4 Main assumptions on future trends in online health information sector

Having gained knowledge on the biggest online health information providers and customer demand, and having identified the main challenges that companies in this sector are facing, the following main assumptions on future trends and business model innovations can be made: (1) health information Websites as specialised online communities, (2) the big health information providers will grow even bigger, (3) and evolving health information and Web systems still on hold.

(a) Some health information Websites will further develop as online communities

Creating communities and understanding network effects was one of the key success factors back in netPhase I and that is what most of the big online companies have done. Also in the future this trend will grow tremendously as more and more people are becoming proactive in their health issues, are ready to share their experience and are also looking for advice online. People can get information from Websites but online health communities help people to communicate with others who have the same or a similar problem. This can be comforting and reassuring in ways that even talking to even the most skilful and communicative physician may not be. Ensured anonymity encourages people to talk about sensitive diseases. It can be assumed that in the future a number of online communities will dramatically increase. The recent launch of Healia Communities (March 2008) confirms the assumption on this growing trend. Established by Healia, initially a health vertical search engine, Healia Communities offers free online health community services that enable people to get personal support for their health decisions from peers and experienced health professionals. Healia is expanding the notion of consumer health search by offering both an innovative search engine and an online health community. In August 2008, American Diabetes Association started collaboration with Healia Communities gaining an exclusive opportunity to communicate directly with members of Healia's online health communities related to diabetes.

Healia example not only emphasises the relevance of online health communities but it also shows that it is not all about Yahoo!, MSN and Google these days. It can be assumed that there will be more new online ventures prioritising online communities and focusing mainly on particular diseases. Given the market situation, one can also assume that the successful new ventures sooner or later might be acquired by the big players that would therefore increase their range of services and dominance on the online market.

(b) The big health information providers will grow even bigger

As previously illustrated, the big online health information providers are in the spotlight and are there to stay. Most of them have been in the industry for a while and have gained experience, as well as resources to continue either organic or, more often, growth through acquisitions. For example, the latest acquisition by WebMD is QualityHealth.com. The acquisition is expected to add performance-based marketing programmes to WebMD's extensive product portfolio and expand the breadth of its offerings to the biopharmaceutical and healthcare markets. Established in 1999, QualityHealth.com is one of the ten largest health Websites, with approximately 5.5 million unique monthly visitors, effectively delivering targeted health information and personalised programmes to its consumer members based on individual need. Due to this acquisition WebMD is expected to reach more than 48 million unique monthly visitors (Reuters, 2008[3]). As also Google and Microsoft ramp up efforts with their respective health sites, Google Health and Microsoft HealthVault, it will be interesting to see how this sector will continue to evolve (Comscore, 2008).

(c) Evolving health information and Web systems still on hold

The Semantic Web that would also increase the value of health information online and the dynamics within the sector will take some more time to be introduced. Whilst the technology to begin utilising Semantic Web architecture already exists, its complexity and lack of leadership have hampered its proliferation. It also requires a particular field to expand beyond the confines of current search methodologies. Though some fields of science are taking the initiative within their niche to create Semantic Web technology, a larger movement is necessary to greater impact the Internet landscape. Yahoo!'s recent commitment to Semantic Web technology may spark a shift towards semantic data mining across the Web. As yet there is a long way to go to make such tools intuitive to the general user, but in the future we can

reasonably expect powerful extensions to general search engines (Matthews, 2005). Meanwhile innovations will take place in other business model dimensions.

5.4 Online medical record providers

Recently, a number of greater commercial enterprises have started venturing in providing online medical record services to private individuals in the United States. Traditionally, medical records are stored by the health institutions but now it is entering commercial online platform and offering new service, and innovation opportunities. On one hand, the main benefits are improved patient care planning, increased flexibility and communication. On the other hand, systematic documentation of individual medical history and healthcare is highly personal and involves a lot of ethical, legal and privacy issues. In order to gain the required knowledge and, arguably, user confidence, all of these organisations have hitherto engaged in Joint Venture arrangements with either state-run institutions or renowned medical institutions. The familiar names pioneering in these services as well as the speed with which they have entered this new business area makes one wonder about the influence these new entrants will exert on the established medical industry.

5.4.1 Evolution of online medical record providers

The evolution of online medical record providers is at its early stage and still evolving. The concept of online medical records has been much discussed during the second and third quarters of 2008. While many governments are still rather wary of digitalising their health system's medical records (Information Management Journal, 2008), the private sector is currently busily engaged in investigating the possibilities of commercialising the private management of electronic health record. Several companies started entering this sector almost at the same time but none of them have been excessively successful so far. The health sector is highly paper-based and it will take more time until it can be entirely digitalised. Communications giant AT&T was among the pioneers in providing online medical records partnering up with the U.S. State of Tennessee, aiming at sharing patient information between all medical institutions in the mentioned state (Information Management Journal, 2008; Memphis Business Journal, 2008). Microsoft showed its interest and introduced HealtVault, engaging in electronic medical record sharing with the renowned Mayoclinics, and a number of expanding partners. The objective is to create a state-wide (U.S.) network of medical institutions sharing their medical records on one central server.

Recently, also Google has decided to venture into online medical record business. Like other big players, the Internet Juggernaut Google engaged in a similar collaborative effort with several highly regarded medical institutions and popular chemist's chains, such as the Cleveland Clinic and Walgreens, launching their online "Google Health" services. Both of these joint ventures are currently offered only within the United States, with bright prospective for international expansion. Google Health's functions are completely Web-based and it offers the online services of information tracking, database management and the facilitation of contact between patients and their medical institutions. The vision of Google Health is "for users to have full control regarding their personal health information" (Wisborg, 2008). It seeks to do so by providing the following services: (1) reference lists informing about diseases, causes and treatment, (2) fast data-sharing between the consumer's health institutions and Google Health; the user does not have to insert his health information itself; it is automatically 'imported' from these institutions, (3) the individual health information will be centrally located at Google Health; this renders it easier to track the user's full medical history, (4) physicians can have a complete oversight of the user's medical records before the customer's visit; therefore, not just that particular doctor's information will be available to him, but rather the aggregated information from all institutions, (5) potential interactions between drugs are tracked automatically every time drugs are added to your personal profile, (6) an ability to refill prescriptions online, (7) a search engine to search for doctors and hospitals by specialty and location.

These programmes have the ability to bring about great benefits for both patients and medical institutions, such as family physicians, hospitals and private clinics. These institutions will as a result not be limited to their personal health records but will rather be able to analyse all of a patient's health records from various medical institutions, thereby greatly broadening their insight in their patient's medical history. Furthermore, the integration of patients and medical institutions and health records in an overarching digital network can lead to benefits in a more advanced treatment of rurally located patients through services such as online prescription and the transfer of medical documents and images such as X-rays, MRI's and CT-scan images (Information Management Journal, 2008).

Google guarantees its users the security and privacy of their online stored medical records. It therefore states that the consumer's health information will not be used commercially, neither in advertisement, nor in combination with other services offered by Google. Further, it states

that the company has no financial relationships with any of the companies involved in its search engines (Google, 2008). It is therefore not clear what Google Health´s source of income is. The same question can be raised regarding other medical record providers as none of them has communicated how their revenue is planned to be generated. It can be assumed that the new innovative service is provided in order to expand product and service line, as well as to improve the customer's loyalty to brand and strengthen the network effect. Most likely at the later stage advertising or subscription fee introduction as a part of revenue generation could be introduced.

5.4.2 Challenges and limitations to the Internet business model future innovations in providing online medical record services

Where the central distribution of medical records has the potential to provide great improvements in the health care delivered to millions of patients throughout the world, pioneering America has faced fierce media attacks regarding the compliance of medical information sharing with its privacy act, and specific regulations regarding medical information. The sensitivity of the information content as well as personal concerns may cause restrictions to the use of e-medical record services in the U.S. and many other countries, a question that goes beyond the scope of this paper. Nevertheless, the following challenges and limitations to future innovations in business models in this sector can be identified: (1) lack of contribution from the medical institution and health organisation side, (2) privacy and personal record safety, (3) and ambiguous revenue generation.

One of the major challenges currently in the sector is a lack of main stakeholder incentives to collaborate in implementing and upgrading current medical record storage and sharing system. The whole implementation requires the clinic and hospital to redo how they do business on a daily basis. One has to realise that traditionally, each medical institution has kept its medical records to itself, wary of losing the lock-in effect achieved by making its patients dependent on the personal medical history with their institution. Though diverse medical institutions have expressed their firm interest in making medical records more easily accessible to diverse institutions, it can assumed that many medical institutions do fear a loss of proprietary information with the advent of public medical record services. After all, a highly-respected and upper-stratum medical institution would under this system be compelled to share their carefully build up medical records with medical service providers that provide

lower-priced (potentially lower quality) services. This way, medical providers on the higher strata of service quality and price are very likely to feel joining will involve sharing a vast competitive advantage, while gaining very little in return.

Microsoft brings a good example to illustrate this current challenge. As part of the new HealthVault service launch, Microsoft has announced that hospitals, insurance companies and others will be able to make online medical records available to consumers. The greatest challenge is that no major providers are committing to do so as part of HealthVault initial launch (Fried, 2007). Even convincing partners to sign up is likely to be a long battle. The initial supporters of new services are organisations such as the American Heart Association, the American Lung Association and the American Diabetes Association, i.e. not the kind of insurance companies and hospital chains that Microsoft needs to make HealthVault match its vision. Looking back at the lessons from the past, most of the innovations in online business have faced obstacles at their early stage, and timing has always been the crucial precondition for success.

The second main challenge in online medical sector is privacy and personal record safety. There are benefits to sharing personal information, and there are potential harms. A different balance of benefits and harm pertains for different people and for the same person at different times and in different places and contexts. In unexpected situations it can save somebody's life but in other cases this information can be misused for harmful purposes. Patients who are the most vulnerable to harm from malicious access to online medical records are the ones that are chronically sick, the inarticulate and mentally ill patient population. Potential benefits of online medical records in relation to patient safety and quality of care may come at a heavy price, i.d. the loss of clinical intimacy and potential erosion of patient trust across the national health systems (Careers & Lifestyle Health, 2007). One of the reasons why main stakeholder and decision making parties are still careful shifting traditional medical record platform to a digitalised one is precisely this privacy issue. With the introduction of the innovation, many wonder how safe it will be.

Most of the new entrants promise privacy and record safety, and there have been no issues with that so far. Microsoft, for example, has developed a secure and encrypted database to store the information. At this time, health insurance industries do not have access to Health Vault. But in case the health insurance companies form a partnership with Microsoft (which

could be a possibility), some may find an issue with health insurance companies having free access to potential client's health records. The privacy question still remains opened and leaves it up for considerable discussions. It certainly requires a great amount of trust from both patient and institution side to give the green light for further innovations performed by online ventures.

Last but not least, during netPhase I sound revenue generation model as a part of the overall business model turned out to be another key to success. Arguably, this could apply to any business sector but it is particularly relevant in online medical record case due to the fact that most of companies position the innovative service as something „non-commercial" and rather „for customers" and not „for sale". For example, as the new service is free to consumers and partners, such as health care providers and medical-device makers, it is unclear how Microsoft will procure revenue from HealthVault (Fried, 2007). Several times both Google and Microsoft have declared that the information in their databases will by no means be utilised in order to obtain gain by commercialising its contents (Wisborg, 2008). However, the issue remains on the table considering the fact that the Health Insurance Portability and Accountability Act (HIPAA) does not restrict the commercialisation of medical records for non-healthcare providers such as Google and Microsoft.

As previously noted, this raises a question of how these profit oriented companies are planning to make money out of this business case. Having not communicated the source of potential revenues, it is difficult to estimate the viability of the new services, products and further course of innovations in this field. This also sets certain limitations to future business model innovations and is faced as a challenge for companies involved.

5.4.3 Main assumptions on future trends in online medical record storage sector

Based on the previously discussed online medical record case, the following assumptions on future trends in the sector can be made: (1) collaboration between medical institutions and online ventures will be essential, (2) increased government activities in ensuring privacy, (3) online medical record services will stimulate patients' involvement in their own healthcare.

(a) Collaboration between medical institutions and online ventures will be essential

The initiators and organisers of electronic health records were Internet companies rather than medical institutions. The simple fact that medical institutions never made great efforts to

share information in order to achieve a higher quality of health care indicates that they have been traditionally cautious regarding the sharing knowledge that could make them lose the lock-in effect and effective power they exerted over their customer base. However, with the instigation of shared health record services, medical institutions can no longer ignore the seemingly inexorable rise of information sharing within the medical sector.

As previously identified in the main challenges, one has to consider the fact that certain higher-up medical providers do not wish to engage in sharing carefully build up information with lower-level medical institutions. Doing so, they would give away much more than they might actually gain for a collaborative agreement with other medical institutions. It is expected that those institution will react and respond in some way. For example, creating a "strategic medical group" of similar medical institutions on cost, quality, particular services and mission will offer these institutions an option to stand up against united institutions through organisations such as Google Health. Through these strategic medical groups, medical institutions could offer similar additional value regarding the sharing of medical records and limit the threat of government intervention in the control of medical records. As such, medical information could remain under control of the medical institutions that created them, eliminating both the threat of regulatory restrictions and the great risk of the information falling into the wrong hands. Despite the actions that medical institutions might take, online ventures are most likely to be part of the medical record market. Medical institutions sooner or later would realise that collaboration with online companies can offer technological know-how benefits and online experience that paper-based medical institutions do not have.

(b) Increased government activities in ensuring privacy

As mentioned, online ventures are not restricted by HIPAA regulations regarding the commercialisation of its user's medical records. Notably, the insufficient regulation regarding the safeness of non-medical companies administrating health records is a great point of dispute amongst politicians and industry specialists. A lot of work will have to be done to create trust in the new e-health services. Government will play a crucial role in this case by, e.g. creating codes of standard for delivering online medical record services. Having prioritised and set certain criteria to ensure the quality of services, as well as privacy, it will give more credibility and build trust among both medical institutions and patients.

(c) Online medical record services will stimulate patients' involvement in their own healthcare

A great power shift between the final customers and the medical service providers can take place with the opening up of medical information that was previously proprietary of each medical institutions, and traditionally used solely by the "content provider", that is, the institution itself. By creating a centralised platform for the inter-institutional sharing of such information, the customer obtains greater liberty with respect to its medical institutions. Explicitly, the customer has traditionally been bound to a particular medical institution for it personal records, for which reason the latter institution was able to restrict the customer's options in its selection of the medical institution. By applying an information sharing platform, this lock-in will disappear, giving the patient the choice to freely take their whole medical history from one institution to another. Interestingly, this seems to have been on Google's mind, as it provides auxiliary services related to location of medical institutions that best meet the customers' wishes. By means of its search engine seeking for specialists by location and specialisation, the company provides for an easy and concise way for the customer to change medical providers at demand.

5.5 Conclusions

In this chapter the authors have analysed the e-health industry by looking at its three main sectors, i.e. online pharmacies, online health information providers and medical record service providers. Having emerged in the early nineties, the term "e-health" is only now experiencing its boom with an increasing number of people around the world using services that this industry offers. Online health portals are experiencing the most rapid growth due to the rising demand for health, fitness and medication information online. This demand is stimulated by the interactive aspect of Websites where most of them have become vibrant online communities rather than one-way resources for information. Both online pharmacies and online medical record providers are receiving special attention from media and governments around the world due to data safety so important for customers, yet difficult to control. Online medical record providers are also facing resistance from traditional and old-fashioned medical institutions that are reluctant to lose their control over the medical records and, to a large extent, entirely change the way they are used to do things. It is not only traditional and paper-

based nature of this industry that makes it an interesting case but also several other challenges that companies in the industry are facing.

The authors have identified the nine most important challenges that potentially could set limits to future business model innovations (Table 11, Page 100). As concluded in Chapter 5.2, four challenges related to the e-pharmacy sector, i.e. (a) product safety, (b) international legislation, (c) international reimbursement opportunities, as well as (d) privacy and personal data safety are likely to have a considerable affect on future business models of companies offering services in the pharmaceutical industry. One of the main findings in this chapter is that the influx of hitherto moderately sized Internet-based pharmacies has the potential to permanently change the pharmacy industry's business models, be it perhaps less drastically than expected by some modernising enthusiasts.

The authors of this paper have also found that all four previously mentioned challenges are currently reinforcing, and will to a fair extent continue to reinforce the foundations of the status quo, that is, of incumbent brick-and-mortar pharmacies. Simultaneously, the limited (perceived) product safety (Table 11, Challenge a) offered by online pharmacies will open the fast lane for brick-and-click initiatives among pharmacies, as they have superior capability to lever their brand name in order to come to a credible value proposition of lower prices and safety, whilst the e-pharmacies will to a certain extent be held back by these perceived safety issues (Table 11, Assumption 1). Therefore, taking into consideration the increasing amount of rogue online pharmacies, illegal medicine trade, resulting into more stringent rules by the government bodies around the world (Table 11, Challenge b), the authors assume that brick-and-click pharmacies have the biggest potential to grow through business model innovations (Table 11, Assumption 3). It becomes more difficult for pure-play e-pharmacies to qualify as a certified online pharmacy and gain customer trust unless they increase collaboration with the responsible government bodies by communicating, understanding and fulfilling the requirements (Table 11, Assumption 7). The ones that will succeed at quality and compliance are rather expected to choose a niche sector or specialise, e.g. selling only generic products or OTC products instead of trying to compete with the range of products offered by bricks-and-clicks as it might be easier to ensure quality and gain official approval (Table 11, Assumption 2). As a further e-pharmacy specific challenge, lacking reimbursement opportunities (Table 11, Challenge c) is also likely to favour incumbent pharmacies. Last but not least, this paper has recognised privacy and personal safety issues (Table 11, Challenge d) as one of the most

important challenge faced by the e-health companies. Increased government interference in the industry (Table 11, Assumption 8), currently held back by on some accounts obsolete regulations with regard to the Internet, is likely to favour the prosperity of incumbent pharmacies and medical institutions.

A further challenge identified in this chapter is the often lacking accurateness of information provided through health portals (Table 11, Challenge e). As such, the authors have identified this issue as a major inhibiting factor for a break-through of e-Health portals and increase of their reliability. The Semantic Web that would also increase the value of heath information online and the dynamics within the sector will take some more time to be introduced (Table 11, Assumption 6). There is a long way to go to make such tools intuitive to the general user, but in the future one can reasonably expect powerful extensions to general search engines. Meanwhile it is expected that the big health information providers will grow even bigger (Table 11, Assumption 4) due to the fact that they have already established their customer network and have learned how to deal with challenges related to creating and sustaining network of users (Table 11, Challenge f).

As an overall realisation, the paper has pointed out the surprisingly few differences found in the value propositions offered by mainly online health portals, and to a certain extent by online pharmacies (Table 11, Challenge g). The service and information offerings of health portals, for instance, are astonishingly similar in the services offered, which seems to reinforce the previously stated argument of a need for sustained diversification in a market in which services are copied without great effort. This low variety of product offerings between health information providers, combined with the before mentioned challenge of 'locking-in' customers, will most likely have a positive effect on a few greater service providers (Table 11, Assumptions 2, 3, 4, 5). These will come to lead the markets of online pharmacies and online health providers, with room only for a certain amount of small, specialised service providers filling up the niches.

For medical record providers, the key challenge is to involve medical institutions in collaboration and new online medical record service creation (Table 11, Challenge h). If medical record providers are able to act as a bridge between medical institutions, creating trust amongst them and create value for all, a new business model can offer an integrated solution that can truly revolutionise the industry (Table 11, Assumption 7). Furthermore, the

challenge to set valid regulation for the new phenomenon of online medical record providers as well as to gain consumer trust is likely to bring about greater government interference in this new aspect of health care services (Table 11, Assumption 8). Further, in the new business model for medical record providers the consumer will have greater control over its information, practically stimulating consumers to actively participate in a search for better health care (Table 11, Assumption 9). In order to manage all these challenges and complexities, it is necessary to be a well established online company (Table 11, Assumption 4). However, it is still unclear how the online medical record providers are going to generate money, which might be challenging (Table 11, Challenge i).

Having assessed and understood these challenges, it becomes possible to make more accurate assumptions on how business model or their elements might evolve in the future, and what innovative solutions and services could be offered to the customers (discussed in the Chapter 6).

Table 11: Interrelation between the identified challenges and assumptions on future trends and business model innovations

MAIN IDENTIFIED CHALLENGES IN E-HEALTH INDUSTRY	MAIN ASSUMPTIONS ON FUTURE TRENDS AND BUSINESS MODEL INNOVATIONS
(a) Product safety offered by online pharmacies (1; 3; 7)	1. Brick-and-mortar pharmacies will remain as important industry players;
(b) Legislation worldwide (1; 2; 7)	2. Internet-based pharmacies will expand their target market, strive to become the industry leaders but most likely will focus on a niche product group or consolidate with other industry players;
(c) Reimbursement opportunities (1; 3)	3. Brick-and-click pharmacies have the biggest potential to grow through business model innovations in the sector;
(d) Privacy and personal data safety (online pharmacies and online medical records) (1; 7; 8)	4. The big health information providers will grow even bigger;
(e) Information quality and credibility on health portals (6)	5. Some health information Websites will further develop as online communities;
(f) Creating and expanding the community or network (4)	6. Evolving health information and Web systems still on hold;
(g) Lacking value proposition (2; 3; 4; 5)	7. Collaboration between medical institutions and online ventures will be essential;
(h) Lack of contribution from the medical institution and health organisation side (7, 8, 9)	8. Increased government activities in ensuring privacy;
(i) Ambiguous revenue generation by online medical record providers (4)	9. Online medical record services will stimulate patients' involvement in their own healthcare.

Note: Numbers in the brackets in the left column represent an assumption in the right column; interrelations described in the text.

6 DISCUSSION ON MAIN FINDINGS

The main findings show that challenges identified during netPhase I, as well as success and failure factors are relevant learning points in today's business environment. Compared to netPhase I, online ventures are much better at understanding customer needs and serving them. Through affiliate programmes, today's online companies are more successful at building brand awareness and establishing partnerships. Furthermore, companies are more focused on planning revenue generation than the early online ventures and there are a lot more profitable online ventures this time around. The online business environment has changed a lot ever since, and now companies are facing new challenges and opportunities to innovate that did not exist before. E-health has provided an excellent example.

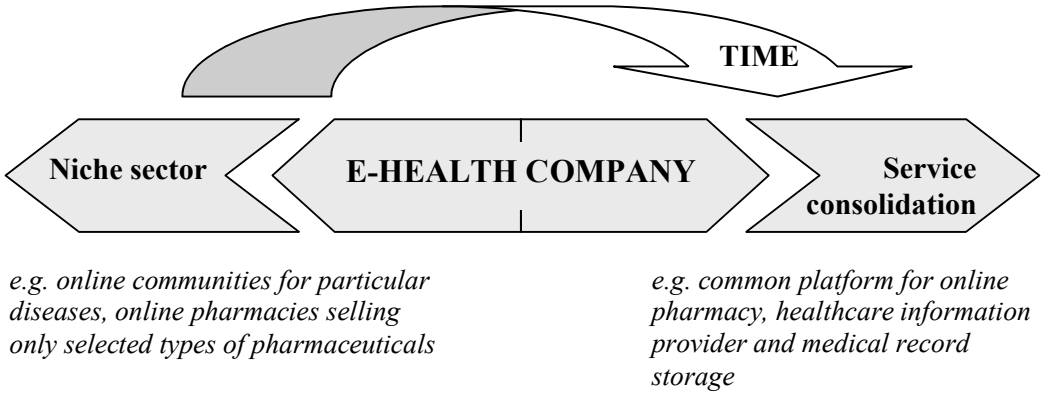
The potential for the medical industry on the Internet is boundless. E-health has evolved and emerged in many forms, e.g. prescription refills, appointment scheduling, online billing, online medical records, and patient provider communications. Among other marketable e-health applications, the use of e-health information has proliferated and has been presented in the form of content-only health gateways, physician directories, physician-only sites, and online pharmacies. The Internet as an e-health medium has caused both traditional and e-healthcare providers to rethink and experiment with innovative ways of providing healthcare services. While the Internet may still seem revolutionary in increasing the range of available services, it is also part of a daily routine for many people today. Along with the easy access to health information and services online, arise higher customer expectations. Consumers now expect health care providers to offer the same levels of customer service and access to information that are available in other industries, hence, challenging the traditional means of the health industry. The industry has responded, at least from an informational perspective. As discussed previously, the first ones to offer new online solutions and innovate in e-health were not medical institutions but online ventures that are most likely to generate the biggest innovations and induce great changes also in the future.

Looking back at the history of the biggest Dot-com success stories (Chapter 4), there is one clear distinction between those players and the rest – they all left big changes in the parts of the industry they were operating and, in some cases, revolutionized the way business is done, and how value to the customer is delivered. In trying to project business model future trends,

the authors of this research suggest that the main trend in the e-health market is moving towards the consolidation of various services and market players. Already in 2001 Clark and Neills (2001) suggested that during netPhase II the leading Dot-coms would merge, become major corporations and consolidate segments into few strong players, while the hang-ons would be left just to survive.

Figure 8: Further evolution of e-health business models

Source: Own creation



The Figure 8 depicts two distinct directions that e-health companies may initially follow, i.e. moving towards niche markets (smaller e-health companies) or consolidation of current services emerging into new value proposition (by the big Dot-com companies) (Figure 8). While the first ones will serve selected group of customers, the latter one has a potential to become/remain the biggest success story of the future. In the niche side, one can consider, for instance, a number of online pharmacies, selling only one type of pharmaceuticals (e.g. weight loss medication), or online health information providers dealing only with one type of disease. The other extreme will include consolidation of all three previously described e-health sectors offering new value proposition to its customers. Given that all three sectors have their leaders, their competencies and strong assets, consolidation or collaboration in creating a common platform and merging their competencies is necessary to create new value proposition in the shortest possible time.

Furthermore, considering previously mentioned directions for business model evolution in the e-health industry (Figure 8), as well as scale and capacity that netPhase I survivors and today's Web giants have showed, with the pass of time successful niche players most likely will become part of consolidation platform. For instance, a successful online community that

has initially developed into the niche sector with well established user network will potentially be acquired by one of the big players and will become part of the common platform that provides wide range of services. Yet, it is important to point out that despite the consolidation trend, the niche players will always be an important part of the e-business world by focusing and serving certain group of customers and their needs, hence, ensuring e.g. higher expertise, specialised experience or better offers. The consolidation trend shows dynamics and processes where online companies with different expertise and experience (maybe initially niche players) will aim to deliver as many services as possible to offer new value proposition. By offering great diversity of services and developing a network where all transactions will be interrelated, the consolidated service platform will accommodate different customer needs and satisfy increasing user expectations, and demand for even more convenience and advancement. By connecting all main stakeholders, including patients, insurance companies, doctors, and healthcare providers, to conduct business and exchange information more efficiently, a medical community that ultimately helps people get the care they need more easily and effectively could be created.

Having identified main e-health industry's trends, and in order to depict the areas of innovations by the e-health sectors, it is necessary to look at the business model framework. As it was concluded in the literature review, understanding and using e-business models is essential in an increasingly dynamic and uncertain business environment. First of all, it helps identifying and understanding relevant elements in a specific domain and relationship between them. In this case, it also enables knowledge representation, communicating and sharing the main findings of the research. Furthermore, mapping e-business models as a foundation for discussion allows the authors to focus on certain parts of the model and to identify areas of innovation and change in the future.

In the Figure 9, based on challenges and assumption on the e-health industry, the e-business model ontology framework developed by Osterwalder et al (2002) is used to illustrate e-business model areas where innovations in the e-health context are most likely to take place in the future. The figure represents innovative trends in all three e-health sectors, discussed further in detail.

Figure 9: Identifying business model future innovation areas

*Note: **A** – Brick-and-click pharmacies, **B** – Online health information providers, **C** – Online medical record providers*

(a) Relationship capital

Customer relationship is an important asset that, managed well, can lead to a great success. Trust and loyalty are probably the most crucial element of customer relationship in a business world that is increasingly virtual and that has less face-to-face-contact. As a general rule, it is much cheaper to incite existing customers to do repeated business than to acquire new customers. This was a very common mistake among the early online ventures but in the future the companies cannot afford to make these mistakes. This element is tremendously important in the e-health case as right information, advice and qualitative product are essential for a patient's life. The main findings of this research have demonstrated that trust is a challenge that most of the e-health companies are facing today and will face in the future. For example, online health information must be accurate given the severity of the consequences, thus policies need to be devised to protect consumers around the world. Innovative approaches similar to the previously described, existing HON logo, which verifies that Websites adhere to eight ethical standards (e.g. disclosure of funding sources), is a step in the right direction, but there is still much that can be done (Cline and Haynes, 2001).

Online pharmacies – bricks-and-clicks. As one of the authors' main findings, the pre-eminence of brick-and-click pharmacies during the years to come has been predicted, i.e. the main business model innovation displaying the potential to construct considerable positive factors through restructuring is an integration of the Internet-based and brick-and-mortar based distribution in the pharmacy industry. Information dissemination will be considerably enhanced by the continuous information portal offered by an interactive Website available to the customer. This Website should be complementary to face-to-face information delivered in the traditional pharmacy, and based on interaction between the customer and a specialist. A practical implication of this would be a portal for simpler product and use related questions that can be swiftly answered that does not require the customer visiting a retail outlet. The feel and serve aspect is considerably enhanced as opposed to online pharmacies, as the customer always knows he/she has the option to visit a retail outlet for the face-to-face consultation. The option of visiting a physical outlet as well as a familiar name in the pharmacy-sector positively influence the trust a customer experiences towards its pharmacy, enhancing piece of mind and loyalty.

Online health information providers. Within this sector, this paper has introduced two main factors that are likely to greatly influence future business model innovation. Firstly, the potential brought forth by positive loops of users generating collective value through integrated customer networks. Secondly, and strongly related, the growth of the greater Websites, through both acquisitions and organic growth. The dissemination of information should evolve from largely specialist or site-to-user based information to user-generated information, created through forums established by the very users of the health information providers. Supporting these, specialist information on health subjects should subsist as an official reference point for the user, as well as the often already provided physician-to-user forums. As illustrated by the case studies in the Chapter 4 (Amazon.com, eBay), integrated networks of users can greatly improve the value proposition of a Website by incorporating and sharing the tacit knowledge of the users. As well, it provides for an often insurmountable barrier to fend off competitive pressures. The use of site information services and physician advice combined with user-generated content and integrated user networks can to a great extent generate a central focus point for the information-seeking user, enhancing trust and loyalty to users that hitherto swiftly shift from one information provider to another. Social networks related to certain ailments for instance, can induce the user to pose questions to trusted individuals in the networks, effectively bonding the user to the specific information provider.

Online medical record providers. Online medical record providers are the most recent of the three e-health business sectors presented in this research paper. The business model as currently applied by the Internet juggernauts Google and Microsoft are highly innovative, and intelligently use a knowledge-sharing system between medical institutions and patients that has the potential to be a true industry-innovator.

Online medical records brilliantly exploit existent medical information by making them accessible to users. As such, the customer (patient) now has the opportunity to access information that was previously not accessible and freely moveable for them, effectively functioning as a massive lock-in of patients to a particular medical institution. No need specifying the effect this lock-in has had on the inherent immobility, opacity and lack of competition in the medical industry. As such, the information-sharing aspect of the current business models of medical health record providers has already been thoroughly innovative and a vital aspect in its future operations. However, two important innovative aspects have

been identified in this paper. The implementation of these two initiatives has the potential to further develop the chance of success of these business initiatives. Firstly, services currently provided by the health information providers should be integrated in the medical health record business sector. This should preferably be done by means of a strategic partnership or a merger with a renowned health information provider, to provide high-quality information to the users of online medical record providers. This integrated information-providing service combined with a network of C2C forums will build a fundament of well-informed patients that are sapient of medical practice, and hence are better prepared be a pro-active rather than passive participant in the medical sector. Secondly, this patient-to-patient interactivity should be used to integrate personal feedback of patients voting on the quality of certain services of medical institutions. In the Chapter 4, the authors have identified the success factor implemented by among others eBay, whose integrated patient feedback has provided a major stimulant in the "trust and loyalty" building block of its business model. The implementation of health information forums would build upon vital C2C information, enhancing the provision of information on best medical practices. This customer feedback on the quality of services should be divided up to specific quantifiable and most importantly, comparable services provided by medical institutions to provide true added value to the patient.

(b) Products and services

Value proposition is the central element of a business model as it determines with what value proposition a firm is attracting and retaining its customers. It is also the element that has the greatest impact on the rest of the elements in the business model. Often a new value proposition will induce changes in infrastructure and partner network as it requires new resources, i.e. the range of capabilities that underpin the proposed value. As mentioned previously in this chapter, the future belongs to a consolidated e-health service platform where few of the biggest online companies in collaboration with medical institution and other relevant organizations will deliver a set of various healthcare services online. Already today many online health information providers serve also as online pharmacies. With the increasing presence of online medical record providers, one can expect new collaborations between various industry players and innovative value proposition, e.g. by obtaining an online prescription, a customer can get it transferred to his/her online medical record storage that later can be accessed by a general physician anywhere in the world where the need for such information will arise. This will tremendously increase convenience and also ability to track

all online transactions (prescriptions and drug purchases) and improve disease management. The big players, such as Google, Yahoo! or MSN have the capacity, network and financial resources to build up new innovative services and once again make a difference, and revolutionize the online world. The key is to creatively destroy and reinvent, while maintaining common threads that ensure continuity and develop loyalty.

Online pharmacies – bricks-and-clicks. The brick-and-click pharmacy has the potential to diversify products through different customers. High-volume, trusted name products needing little additional consultation can be distributed based on a considerably better cost structure over the Internet. Furthermore, customers have the option to purchase other medicine over the Internet as well as to buy the product in person. Standard discounts should be offered to the customer in order to induce making use of more cost-effective distribution. The specific capabilities of this business approach are as simple as they are effective. It allows the company to target both customers prone to cost-effective shopping and service-craving customers. Moreover, the customer has the choice to choose one or the other from purchase to purchase, effectively receiving better serving according to its specific needs. The upside of a trusted brand name and according service and economical products when needed is the value proposition at offered.

Online health information providers. The target customer this business model is focused on is looking for a trusted environment to gather information. Trust is the general issue in e-health information services. Site-provided and physician content should be supported by the users giving feedback on the objective information and create their own content on their personal findings and experiences. This customer interaction combined with great numbers of users creates a strong value proposition. The capability of the health information provider is to unite people of similar interests and provide them with the tools for them to improve the value proposition of the information portal.

Online medical record providers. This renewed business model provides for true innovation through a new approach of information dissemination, as well as an industry revolution of patient mobilization between medical institutions. Integrated with the health information providers and C2C networks, it effectively has the power to provide a value proposition that has the potential to be ground-breaking in the industry. Users will be informed, share information with each other on best industry practices and will have the possibility to become

an active participant in the industry. This new-found mobility of patients has the potential to increase competition in the industry. Also, the users' feedback on the best-practices will have the effect of medical institutions specializing on the practices they provide best, rather than providing a wider range of services based on earlier industry conditions of immobile patient. This will have considerable downward effects on the cost structure of an industry characterized by inflated pricing and opaque pricing structures.

One of the examples of areas which are still untapped and present a great potential for future innovations is corporate online healthcare packages, which, customized for individual companies or organizations, will deliver healthcare services to their employees. This B2B business model will be a result of collaboration between big or medium enterprises, online companies and medical institutions. This requires not only corporate partners to be willing to implement and pay for this new service but, most importantly, it needs medical institution incentives to collaborate.

(c) Infrastructure and network of partners

This is the third pillar of the business model framework, and it describes the value system configuration that is necessary to deliver the value proposition. Partner network is the most essential elements of this pillar as it might take too much time and turn out to be too expensive to build own knowledge or network. Looking back at the lessons from netPhase I, a lack of partnerships was one of the main failure factors. E-health case has illustrated a great example. The complexity and dynamics in the industry, and a large number of stakeholders involved, requires collaboration in order to gain success. Therefore, future innovations in building and managing partner network should include all the most crucial stakeholders.

Online pharmacies – bricks-and-clicks. The strength of the infrastructural system lies in the inherent possibilities to set up direct-distribution agreements with the pharmacies' suppliers and/or manufacturers. The high mark ups calculated by incumbent pharmacies largely stem from the costs of their physical distribution outlets. Through a partnership in the new business model, physical outlet cost as a proportion of turnover can be diminished as products can be directly shipped to the customer, improving both cost of distribution and time of delivery. Furthermore, the main strength of the company's activity lies in the separation in services delivered, between high mark-up specialty products purchased in the physical pharmacy and high-volume, lower-mark up products delivered over the Internet.

Online health information providers. The main asset within this business model is sheer quantity of users. The positive loop or "snowball" effect, a large quantity of users on a great variety of health-related subject brings with is a lock-in of users that cannot find a similar source of user-generated information at any other health information site. It is therefore the authors' opinion that the main asset should be the size of the users' network, effectively becoming the largest within the industry. Few large quantity overall health information providers are expected to arise/remain, leaving to subsist only a number of highly specific smaller service providers successful in their respective niches. The activities/processes building block of the infrastructural pillar of the business model should consist of a well-structured system that can accommodate easy and large-quantity networks, providing for a skeleton that induces the creation of user-generated forums and content. As a temporary or lasting strategic alternative to acquisitions, partnership agreements with other e-health information providers can create accumulation of user-based content and ward off competition.

Online medical record providers. One of the greater assets of this business model will be the considerable user base already using Google's and/or Microsoft's online services. As earlier in this paper stipulated under the health information provider business model, great user groups are key to success. Integrating a great amount of users and locking them into the platform by means of a trusted C2C feedback system on quality of medical practices creates a barrier to entrance that competitive forces will find hard to penetrate. Regarding the processes carried through by the company, the vast experience these companies have in virtual infrastructure will greatly enhance their capability to manage integrated information sharing platform, integrated customer feedback system and online medical record platform. The partnership network medical record providers have in place is already the single strongest point of the business model. The partnership between medical record providers and medical institutions creates great value for the customer, as full insight and mobility is generated between the business' partners. The strike of genial underlying the generation of partners is the fact that medical institutions could potentially damage their image and value created by not participating. A further participation of medical information providers has the potential to create more value through integrated C2C and specialist subject-related information provision. A partnership with a medical health information provider will be of the utmost importance for the success of this business model. Users should at all times be well-informed

by a trustworthy medical information provider, which will create the fundament for pro-active users that are provided the tools to revolutionize the way the health industry is structured.

(d) Financial aspects

Financial aspects constitute the bottom pillar of the business model framework. This pillar is influenced by the other three pillars, and it is composed of a revenue model and cost structure. The revenue model translates customer value proposition into money. This is where a lot of netPhase I companies failed. All four presented success cases had a fee based revenue model as a main or additional source of revenue regeneration. Successful companies created safe, often diversified, revenue stream. They were also more carefully at forecasting and planning their resources. Among the most common revenue models employed by the online pharmacies and online health information providers today, one can find merchant, advertisement, affiliate, community and subscription revenue models. Ambiguous revenue model is one of the main challenges in the online medical record sector. Trying to look into future and assuming the revenue source, subscription based fees and advertisement seems to be the most realistic. Having entered the online medical record market and created various unique services related or additional online medical record services, the businesses can start charging subscription fees or, as previously suggested, offer corporate online healthcare packages. The financial aspects are further not divided into the e-health sectors and discussed in detail as the underlying cost issues have already been included in the previous three pillars of the business model framework.

7 MANAGERIAL IMPLICATIONS OF THE THESIS RESULTS

While the focus of the thesis is on the Internet business models and with an illustration of the e-health case, the thesis offers valuable input and reveals relevant implication for a manager of any Dot-com company regardless the industry. The authors of the paper suggest the following main implications:

- As previously noted, the business model term has been widely used but poorly understood. The thesis helps to understand what business model concept means and how it can be applied (from something very abstract to hands-on exercise).

- The thesis can serve as a Guidebook to the online business for the ones that would like to start one or the ones that would like to change the existing Internet business model. The Chapter 4 case studies illustrate well-known success and failure stories of the early Internet stage, and they encompass the main lessons from the past that can be learned.

- The paper is also a good source of information and tools for a cross industry benchmark. A similar analysis can be carried out based on another e-industry or the main findings of the e-health case can be applied to an industry with similar settings.

- The Dot-com companies that are struggling to sustain their business and, therefore, looking for the potential business model failure factors, can use Chapter 4 findings to rethink their business models and Chapter 5 to find inspiration for innovations or innovative approaches.

- Even though the main focus is on the Dot-com companies, one of the findings suggests that the basic principles and lessons from the online business also apply to traditional business settings. Hence, traditional business can use this material not only for gaining a better understanding of the business model concept and its applicability but also to rethink the way Internet is being used for sustaining the traditional business operations and to gain an insight in changing customer needs and habits.

- Everyone who is involved in the healthcare business can use the Chapter 5 findings to understand the future innovations in the healthcare industry and, specifically, in the e-health business context.

8 DIRECTIONS FOR FUTURE RESEARCH

The research area provides ground for further exploration of the topic for various reasons. First of all, e-business is a highly dynamic business sector and it has gone through enormous changes since the early days of the Internet. Secondly, due to a rapidly changing market environment and intense competition across various e-industries, the Internet business models will always continue evolving. Although, the e-health industry's roots can be found during the early stage of the Internet, it has not matured yet and is still developing. Furthermore, this paper focuses mainly on the pure-play Dot-com companies. This gives an opportunity to look at the topic from a different perspective. Based on those reasons, the following directions for the future research are suggested:

- To carry out interviews with the market players – the information collected in this research and used for the short case studies is mainly based on the secondary and tertiary resources on the Internet and company annual reports. Carrying out interviews would provide more insight into underlying issues and reflect company's point of view about the future innovations but it would also limit the number of the cases that could be explored in such a detail;

- To look more into bricks-and-clicks – one of the main findings in this paper suggests that in the online pharmacy sector, bricks-and-clicks probably have the biggest potential for future innovations. Therefore, it could be valuable to include brick-and-click case studies and/or to compare them with the pure-play rivals;

- To carry out the customer questionnaire – this would provide more insight into the customer habits and needs; therefore, it can be an excellent source of potential future innovations driven by the customers;

- To expand the scope of the topic - next to the business models, also consider the strategy;

- To repeat the research after a certain period of time – this would give an opportunity to reflect on the suggested innovations and trends, and to see what held through and what are the new future projections;

- To compare the future trends and Internet business models across different e-industries – this paper has illustrated only the e-health industry case and it would be interesting to make a cross-industry comparison to identify trends in the e-business in general.

9 CONCLUSIONS

In this paper, the authors have taken a step toward the Internet business model future trends and innovations. As a result of the critical literature review, the authors have decided to choose a holistic approach to the business model concept and follow the theory of the latest stage that includes both revenue and value creation aspects, and identifies the main elements and interrelation between them.

In Chapter 4, the authors have used a case study methodology to identify the main success and failure factors of well-known Dot-com during netPhase I (1995-2000). In this analysis, four successfull and four failed case studies have been performed. By analysing not only these case studies' respective revenue models and business models, but also their particular industry characteristics the authors have been able to identify a number of solid realisations. Particular industry particularities have been integrated within these case studies because a business model has to be considered in its context. That is, a business model is seen as a piece of a puzzle, on every side surrounded and connecting with the greater puzzle. Significant failure factors identified are the failure to understand and influence customer habits, difficulties in building brand awareness, providing low customer value, underestimating the need for resources and neglecting basic profit and loss rules. In juxtaposition, the success factors identified are understanding and serving customer needs, developing brand awareness and trust, providing a broad scope and range of services, finding the right affiliates, being responsive, and applying a sound revenue model. The authors naturally by no means consider this list to be exhaustive. However, it provides with a sound basis for learning of the past in e-business ventures, creating a soldid fundament for creating future business models. In fact, many learnings from netPhase I case studies have inspired or even been directly applied to the e-health case in Chapter 5.

As such, the first research question has been successfully answered. The industry choice proved rather apt for the carrying out of the beforelying research, as the e-health industry is considered in a somewhat seminal state, which leaves considerable possibilities for exploring future innovations. Having mapped out the e-health industry, the thesis delivers hands-on examples for innovation in the three main e-health sectors considered to be predominant in the contemporary e-health environment.

This paper presents a number of higly applicable and well-grounded implications for future innovation in the e-health industry. The main realisations gained in this paper are in the practical methodology. The argument made is that in order to come to well-considered, proactive innovation within an e-business venture, one has to carefully consider past realisations, as well as to have a clear understanding of the status quo. Based on a break-up of the building blocks of the currently applied business models, the paper proposes a methodology for innovating business models by not solely transgressing sector barriers, but rather searching for best practises in the building blocks of *any* industry. Applying business model methodology, one can actively rejuvenate a business model, leaving it well prepared for the future, and actively setting out to influence the way business will be conducted within it in its future.

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Appendix 1. Internet-based business model classification

Source: Rappa, (2001)

Model	Description	Type	Examples
Brokerage	Brokers are market-makers: they bring buyers and sellers together and facilitate transactions. Brokers play a frequent role in B2B, B2C and C2C. Usually a broker charges a fee or commission for each transaction it enables.	Market exchange, Buy/Sell fulfilment, Demand collection system, Auction broker, Transaction broker, Distributor, Search agent, Virtual marketplace	*eBay, Priceline.com, PayPal, Amazon*
Advertising	It is an extension of the traditional media broadcast model. The Web provides content and services mixed with advertising messages on the form of banner ads. They can be the major or sole source of revenue for the broadcaster. This model works the best when the volume of traffic is large or highly specialized.	Portal, Classifieds, User registration, Query-based paid placement, Contextual advertising, Content-targeted advertising, Intromercials, Ultramercials	*Yahoo!, Google, NYTimes, Monster.com*
Infomediary	Data about consumer and their consumption habits are valuable. This model functions as infomediary assisting buyers and/or seller understand a given market.	Advertising networks, Audience measurement services, Incentive marketing, Metamediary	*DoublieClick, Nielsen*
Merchant	Wholesalers and retailers of goods and services. Sales may be made based on list prices or through auction.	Virtual merchant, Catalogue merchant, Click and mortar, Bit vendor	*Barnes&Noble, Amazon, Apple iTunes Music Store*
Manufacturer (direct)	It is predicted on the power of Web to allow manufacturer to reach buyers directly and compress the distribution channel. This model can be based on efficiency, improved customer service, and a better	Purchase, Lease, Licence, Brand integrated content	*Dell*

	understanding of customer preferences.		
Affiliate	This model provides purchase opportunities wherever people may be surfing by offering financial incentives (% or revenue) to affiliated partner sites. It is a pay-for-performance-model, i.e., if an affiliate does not generate sales, it represents no costs to the merchant. Its variations include banner exchange, pay-per-click, and revenue sharing programs.	Banner exchange, Pay-per-click, Revenue sharing	*Barnes&Noble, Amazon*
Community	The viability of this model is based on user loyalty. Users have a high investment in both time and emotion. Revenue can be generated from the sale of ancillary products and services or voluntary contributions; or revenue can be tied to contextual advertising and subscriptions for premium services. Today the Internet is suited this model and it is one of the more fertile areas of development, as seen in rise of social networking.	Open source, Open content, Public broadcasting, Social networking services	*Wikipedia, Friendster, Facebook, Flickr*
Subscription	Users are charged a periodic fee to subscribe a service. It is not uncommon for sites to combine free content with "premium" content. Subscription and advertising models are frequently combined.	Content services, Person-to-Person networking services, Trust services, Internet services providers	*Listen.com*
Utility	"On-demand" model, based on metering usage, or a "pay as you go" approach. Unlike subscriber services, metered services are based on actual usage rates.	Metered usage, Metered subscription	*Slashdot*

Annex 2. Online health care stores and pharmacies on MSN Shopping

Source: MSN Shopping Website (2008), assessed on 15.06.2008

	Company name	Business type
1	4rx	Online pharmacy – generic
2	A. Herbalfinest	Herbal remedies
3	ALL PILLS RX	Online pharmacy – generic
4	American Pharmacy	Online pharmacy – generic, brand
5	AmericaRx.com Health Shop	Health care
6	AxelPharma	Online pharmacy – generic, brand
	Bluepillsfinest	Herbal remedies
8	Budget Medicines	Online pharmacy – generic
9	DispensaryMeds	Online pharmacy – generic, brand
10	DrugsHome.com	Online pharmacy – generic, brand
11	ED Discount	Online pharmacy – generic
12	ePharma SuperStore.com	Online pharmacy – generic, brand
13	ExpressDelivery	Online pharmacy – generic
14	First Aid Monster	Health care, first aid supply
15	genericpharmacy	Online pharmacy – generic
16	GENRX4LESS.com	Online pharmacy – generic
17	Gssstore.com	Health care, first aid and safety product supply
18	Harriet Carter	Health care
19	Hocks.com	Online pharmacy – medical supply
20	Horizon Drugs	Online pharmacy – brand, generic
21	iHerb.com	Online pharmacy - herbal products
22	iMed.com	Health care, medical supply
23	Jandrugs.com	Online pharmacy – generic, brand
24	Jansen Medical Supply	Health care, medical supply
25	Kwikmed.com	Online pharmacy - brand
26	Medstore International	Online pharmacy – generic, brand
27	My-Pharm	Online pharmacy – generic, brand
28	Myquickdrugs	Online pharmacy – generic, brand
29	Pharmstore	Online pharmacy – generic, brand
30	ProgressiveRx.com	Online pharmacy – generic
31	Rx-easy-pharmacy	Online pharmacy – generic, brand
32	RxOnlineStore.com	Online pharmacy – generic, brand
33	Rxtrue.com	Online pharmacy – generic, brand
34	SerlServeRx.com	Online pharmacy - brand
35	Trustedtablets	Online pharmacy – generic, brand
36	US Generics Online	Online pharmacy – generic
37	ValleyVet.com	Pet Drugstore
38	World Remedium	Online pharmacy – generic, brand
39	XL Pharmacy	Online pharmacy – generic, brand

TOTAL: 8 – health care stores, medical supply, 1 - pet drugstore, 30 – online pharmacies (2 – only brand, 9 – only generic, 19 – mixed)