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**THE STRATEGIC DECISION-MAKING BEHIND THE  
EVOLUTION OF SOFTWARE FIRM'S BUSINESS  
MODELS**



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## ABSTRACT

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This research aims to analyze and explain the strategical decision making behind the evolution of business models of software firms. The impact of strategy in business model evolution is a lesser studied subject highlighting the importance of more knowledge in the field. The case studies presented in this research explore two software firms and how their business models have evolved in their lifetime. Following this, the changes in the business models are explained by using three theories of strategy and subsequently using this understanding to build a model that highlights the impact of strategy on the business model evolution process. This model together with the findings in the analysis of the changes provides scholars further understanding on the business model evolution process and moreover on the strategical decision behind the evolution.

Keywords: Business model, business model evolution, strategy, game theory, opportunity creation, opportunity discovery

## TIIVISTELMÄ

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Tämä tutkielma pyrkii analysoimaan ja selittämään strategista päätöksentekoa ohjelmistoyritysten liiketoimintamallien kehittymisen taustalla. Liiketoimintamalli on keskeinen osa yritystä, mutta strategian vaikutusta liiketoimintamallien kehittymiseen ei ole tutkittu vielä paljoa. Tästä syystä lisää tutkimustietoa aiheesta tarvitaan. Tässä tutkimuksessa esitellään kaksi case yritystä ja selvitetään miten niiden liiketoimintamallit ovat kehittyneet yritysten elinkaaren aikana. Tämän jälkeen liiketoimintamalleissa havaitut muutokset selitetään kolmella esitellyllä strategian teorialla ja tämän seurauksena syntynyttä ymmärrystä käyttäen rakennetaan malli, joka kuvaa strategian vaikutuksen liiketoimintamallien kehitysprosessissa. Tämä malli edistää tieteellistä tutkimusta ja ymmärrystä liiketoimintamallien kehitysprosessista ja erityisesti strategisten päätösten vaikutuksesta tähän prosessiin.

Asiasanat: liiketoimintamalli, liiketoimintamallien kehittyminen, strategia, peliteoria, mahdollisuuksien luominen, mahdollisuuksien löytäminen

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# 1 INTRODUCTION

Every business in the world operates through a business model, whether conscious about it or not. Furthermore, business models are essential for the success of an organization be they old or new as they answer the fundamental questions regarding the business such as: Who is the customer? What does the customer value? How does the business make money? and it also explains the economic logic behind delivering value to the customer. (Magretta, 2002.)

As the business model is of such an importance to the businesses, they are equally interesting to research. In this research the evolution of business models is studied with focus on the strategic decisions behind the changes in business models of software firms. Software firms were selected to be the focal point due to the rapidly changing information technology environment and new innovations that are constantly under development, as these do have impact on the business models and as such facilitate changes in them.

The aim of the master's thesis is to understand the changes in the business models of software businesses and the process involved. This is expected to be achieved by utilizing game theory and opportunity discovery and creation theories to analyze the decision making of managers in software firms when making adaptations to their existing business models. Finally, a model describing the business model evolution process of software firms will be drafted with the impact of strategy highlighted in it.

To be able to create the aforementioned model, first in this research existing literature regarding business models is examined. Moreover, a framework of business model's key components is established to facilitate the analysis of empirical material in the master's thesis. Furthermore, the theories of strategy needed to explain the decision-making progress behind the evolution of business models are explained. Following that, the case materials are explored to build understanding on the business model evolution in the case firms. Finally, the case material is analyzed through the examined literature and subsequently the model explaining the business model evolution process and the impact of strategy is created.

Thus, the research aims can be summarized through the following two questions:

1. Explaining the evolution of business models through theories of strategy.
2. Analyzing the strategic decision making behind the changes in business models, creating a model to explain the process.

The first question aims to create understanding on the topic of business model evolution and how theories of strategy can explain it. The second question delves deeper into the subject and strives to analyze the strategic decision-making process as a whole.

The literature review part of this research was conducted following the guidelines provided by Templier and Paré (2015) and using the cumulative form of literature review. In cumulative literature review, the author compiles evidence from existing research cumulatively to identify emerging patterns and to draw conclusions (Templier & Paré, 2015). This literature review aims to clarify the concept of business models with a summary and subsequently generate a theoretical framework of the key aspects of business models to be used in analyzing the empirical data in the following master's thesis.

However, it is not feasible to try to probe out the sheer size of the business model literature and cram in as much literature as possible, something cumulative literature review according to Templier and Paré (2015) should do, and thus the pooled summary portion is narrowed down to follow more the narrative style of literature review, also by Templier and Paré (2015), which suits the needs of this thesis better.

The literature was collected from appreciated and peer-reviewed journals from the fields of information technology, business and strategy. To search for the literature, the journals' own search functions were used primarily. In addition, Google Scholar was used to streamline the search process, though additional care for the selection criteria were paid when looking through Google Scholar's search results.

The key words used in searching for the literature were: "business model", "why do business models matter", "business model in information technology", "business model definition", "business model concept", "change in business models", "business model evolution", "strategy", "game theory", "opportunity creation" and "opportunity discovery." These key words and some combinations of them were put into the search engines of both the appreciated journals and Google Scholar to accomplish the goals of this literature review.

Several criteria were used to decide whether to include found articles and researches into this research or not. Firstly, the literature in question had to be relevant to this research. To elaborate, the primary criteria was that the articles revolved around business models, their concepts, uses and definitions. Secondly, only articles from well-known and appreciated peer-reviewed journals were included to ensure the quality of the sued literature. Thirdly, articles with more citations were generally preferred over ones with fewer as the number of citations tends to indicate the academic acceptance of an article further implying quality.

This paper is organized followingly: following this introduction the literature review process is described shortly. In chapter 2 the concept, key elements and finally evolution of business models are examined. Chapter 3 provides understanding on the three theories of strategy used in analyzing and explaining the case findings. Chapter 4 provides information on the theoretical background and methods used in this study. Chapter 5 is dedicated for the case material and in it the business models of the two case firms are described with the case material. Chapter 6 analyzes the case findings through the theories of strategy and subsequently utilizes the results in creating the model that explains the impact of

strategy on the business model evolution process as well as further examines the strategic decision-making in the evolution process. In chapter 7 the whole paper is summarized in a concise manner and concluded. Following the conclusions are the references and finally appendix.

## 2 BUSINESS MODELS

There is a plethora of different views and interpretations about what are business models and the different components they consist of. Thus, in the following section the most prominent of these views and interpretations are discussed and subsequently expanded upon. First, the importance of business models is underlined to emphasize the importance of this topic. Second, the definition and concepts of business models in general are explored and discussed after which the business models are tied into more specific context of information systems industry and the evolution and changes in them are reviewed.

### 2.1 Why do business models matter?

In every industry, every company is aiming for competitive advantage over its competitors to not only survive but also profit. The key question then is, naturally, how to attain competitive advantage over rivals?

As business models explain how the business operates and generates revenues, a good business model can help in creating competitive advantage. However, for it to do so, the business model must be either unique and hard to duplicate, meaning that the competitors can't simply copy the business model without any difficulties, or utilized in a unique way. For example, if every actor in the industry uses resellers to sell their products and a new actor enters the market but decides to sell directly to the customers, the new actor can skip a costly middle-man and thus sell more cheaply to the customers. However, the other actors can't copy this business model, should it prove to be successful, with ease due to their reliance of the resellers as trying to cut the resellers out would generate distrust and disrupt their existing delivery channels severely damaging their operations for a long while. (Magretta, 2002.)

Teece (2010) also notes that the business model must be honed to meet specific customer needs for it to generate competitive advantage. Furthermore, a common reason for great technical achievements to fail commercially is the lack of attention paid to designing the business model that takes the said technological achievement to the market (Teece, 2010).

Focusing on business models promotes an outside-in approach engaging the firm more with changing customer needs (McGrath, 2010). This view is strengthened by Al-Debei and Avison, 2010. Furthermore, focusing on business model design helps in discerning the weaknesses of given models thus prompting a search for better alternatives, which in turn can help create competitive advantage. (McGrath, 2010.)

## 2.2 What is a business model?

Now that the importance of business models has been emphasized, it is necessary to understand the concept of business models more deeply. Thus, a literature review delving into the definitions of it was conducted and is discussed next.

### 2.2.1 The concept of business model

Perceived at a very high abstract level, business models are stories that explain how businesses work. Thus, creating a business model can be seen as writing a story for the enterprise starting from the customers and what they perceive as valuable to how that perceived value is generated and delivered to the customers. For a business model to be successful, it has to pass two critical tests, the narrative test and the numbers test. The narrative test, as the name suggests, can be passed if the 'story' of the business model makes sense. To clarify, the business model is not based on faulty expectations about customer or supplier interactions for one and the 'plot' of how the company makes money is logical and plausible. The numbers test refers to the monetary numbers of the company. Simply put, to pass this test the company's revenues need to be higher than the costs. For example, if a company's costs of creating the product, marketing it and delivering it to the customer continuously exceed the amount the customers are willing to pay for the product, the company operates at a loss and thus can't continue operating. (Magretta, 2002.) Due to the high level of abstraction this perception can't be used as a basis for future research but it offers an understanding on what business models are about. As such, it is a good point to begin in understanding business models.

However, more substantial and defined descriptions of business models are needed to advance the research. Osterwalder et al. (2015), examined literature regarding business models in an effort to clarify and clearly define the concept of business model. According to Osterwalder et al. (2005) on a semantic level business model can be interpreted as a conceptual tool with objects and their relationships to the business logic of a given firm. The objects of a business model are then divided into nine (9) building blocks which are further categorized into four (4) pillars. The pillars are product, customer interface, infrastructure management and financial aspects. Value proposition is the only building block of the product pillar, while the customer interface pillar holds target customer, distribution channel and relationship blocks. The infrastructure management pillar holds the value configuration, core competencies and partner network and finally the financial aspects are cost structure and revenue model. (Osterwalder et al., 2005.) The Table 1 provides an overview of these pillars, building blocks as well as a short description of them.

Table 1 The building blocks of business models (Osterwalder et al., 2005).

PILLAR	BUSINESS MODEL BUILDING BLOCK	DESCRIPTION
<b>PRODUCT</b>	Value Proposition	Gives an overall view of a company's bundle of products and services.
	Target Customer	Describes the segments of customers a company wants to offer value to.
<b>CUSTOMER INTERFACE</b>	Distribution Channel	Describes the various means of the company to get in touch with its customers.
	Relationship	Explains the kind of links a company establishes between itself and its different customer segments.
	Value Configuration	Describes the arrangement of activities and resources.
<b>INFRASTRUCTURE MANAGEMENT</b>	Core Competencies	Outlines the competencies necessary to execute the company's business model.
	Partner Network	Portrays the network of cooperative agreements with other companies' necessary to efficiently offer and commercialize value.
	Cost Structure	Sums up the monetary consequences of the means employed in the business model.
<b>FINANCIAL ASPECTS</b>	Revenue Model	Describes the way a company makes money through a variety of revenue flows.

The value proposition describes the services and products of the firm, how they are packaged and offered to the customers to fill their needs. The target customer part discusses the preferred customer segments that the company is targeting for its products or services to be offered to. The target customers can be identified via geographical or socio-demographic nature. For example, one company might target only individuals of age 40 to 60 that live in a certain country due to perceived needs that these individuals have and the company can fulfill. The distribution channel on the other hand describes the different ways and links the company uses to deliver the value proposition to the targeted customers. The relationship part on the other hand describes the nature of interaction with the customers and what kind of links the company wants to establish to maximize customer equity, or in other words, the acquisition, retention and continuous profitable relationship with the customer. (Osterwalder & Pigneur, 2004.)

The value configuration explains the necessary activities and resources required to create a product or service, the value proposition of the company, while the core competencies describe the capabilities and competencies needed to ex-

cute the business model. The partner network holds within all the necessary partnerships for the successful execution of the business model. These include suppliers and distributors as well as other possible parties, accounting for one, that are deemed necessary. (Osterwalder et al., 2005.)

The cost structure sums all the costs included in creating, marketing and distributing the value proposition. To clarify, the costs of every aspect included in the business model. The revenue model on the other hand describes the positive cash flows be it from direct sales or from distributors or other sources. (Osterwalder & Pigneur, 2004.)

Teece (2010) argued that business model is a conceptual, rather than financial, model that explains the business logic of value creation and delivery while also outlining the infrastructure and revenue streams and costs involved. These notions are similar to the building blocks defined by Osterwalder et al. (2005) although more simplified versions as Teece's goal was not to define business model's components but rather the significance of them and connections to strategy, innovation management and economic theory. Nevertheless, these provide further academic evidence backing the contributions made by Osterwalder et al., 2005.

In 2010, Al-Debei and Avison created a hierarchical taxonomy for the concept of business model. As a basis, they reviewed prominent existing literature including the Osterwalder et al. (2005) article. This taxonomy is divided into four facets which are then further divided into different classes. The first facet includes the dimensions of business models; Value proposition, value architecture, value network and value finance (Al-Debei & Avison, 2010). They are based on the articles of Amit and Zott (2011), Magretta (2002), Osterwalder et al. (2005), Timmers (1998) and Venkatraman and Henderson (1998) among others. In these four classes are included all the building blocks defined by Osterwalder et al., 2005. In other words, and noting that Osterwalder et al. (2005) has been used as a reference, this first facet encompasses the components of the business model while the following three facets extend beyond that to describing the nature, reach and different functions of business models.

The second facet, the modeling principles, notes the conceptual nature, multi-level sides with products and business units etc., the dynamic nature of change due to adaptations, granularity and coherence, or in other words dividing the business concept into manageable elements and taking into account the interlinks between different aspects of the business, of business models. (Al-Debei & Avison, 2010.) Some key references that Al-Debei and Avison based these on are Haaker, Faber and Bouwman (2006), Hedman and Kalling (2003), Kallio, Tinnil and Tseng (2006), Magretta (2002), Osterwalder et al. (2005), and Shafer, Smith and Linder (2005).

The third facet discusses the reach of business models and has an intermediate layer as its only class. This intermediate layer links the strategy and ICT-enabled business processes to the business model. Specifically, how these two intersect with the business model. (Al-Debei & Avison, 2010.) Key references that

contributed to this facet are Morris, Schindehutte and Allen (2005), Shafer et al. (2005), Kallio et al. (2006) and Rajala and Westerlund (2007).

The last facet encompasses the different functions of business models and has three classes in it. These are alignment instrument, interceding framework and knowledge capital. The alignment instrument is a theoretical tool for harmonizing the strategy and business processes and the supporting information systems. The interceding framework is a construct or a framework that connects achieving strategy and economic value with potential technology. The final class, knowledge capital, is an asset of information for supporting strategic decision-making. This asset is useful in generating sustainable competitive advantage. (Al-Debei & Avison, 2010.) The key references here were Osterwalder et al. (2005), Chesborough and Rosenbloom (2002) and Venkatraman and Henderson (1998).

Ojala (2016) also examined business models and existing literature in an effort to simplify the business model components so that analysis and subsequent theory-building would be much more achievable. Ojala came to the conclusion to include the product/service, the value network, the value delivery and the revenue model as the key components of a business model. (Ojala, 2016.) Compared to the Osterwalder et al. (2005) and Al-Debei and Avison (2010) similarities arise immediately. The four key components conceptualized by Ojala (2016) are almost identical in nature to the four classes of business model dimensions crafted by Al-Debei and Avison (2010). The product/service is similar to the value proposition, value networks match and revenue model matches the value finance. Only the value delivery and value architecture differ in nature, as Ojala emphasizes the delivery of value to the customer while Al-Debei and Avison give more weight to the architecture of the company regarding the creation of the product/service. Furthermore, they can indeed, as Ojala notes, be seen as simplifications of the four pillars of business models that Osterwalder et al. (2005) came up with.

Table 2, presented in the next page, provides a summary on the business model literature discussed through a comparison between the key aspects of the business models introduced and giving a short description.

Table 2 Summary of Business Models

KEY ASPECTS OF BUSINESS MODEL	SHORT DESCRIPTION	AUTHOR(S)
<b>CUSTOMER VALUE, TARGET CUSTOMER, VALUE DELIVERY, ECONOMIC VALUE</b>	Tells a story of how a company does business.	Magretta, 2002
<b>PRODUCT, CUSTOMER INTERFACE, INFRASTRUCTURE MANAGEMENT, FINANCIAL ASPECTS</b>	Conceptual tool expressing the company's business logic	Osterwalder et al., 2005
<b>VALUE PROPOSITION, VALUE ARCHITECTURE, VALUE NETWORK, VALUE FINANCE</b>	Unified framework including not only components but modeling principles, reach and functions	Al-Debei & Avison, 2010
<b>PRODUCT/SERVICE, VALUE NETWORK, VALUE DELIVERY, REVENUE MODEL</b>	Business model positioned within the structure of an industry	Ojala, 2016

Comparing the key aspects of business models presented in the literature, similarities between them become apparent. Of course, some of it is due to the authors of latter works referencing the former papers but as these are, besides Magretta's (2002) article, content analyses aiming to understand the concept of business model and, in the case of Ojala (2016) using this gained knowledge to understand a phenomenon. These articles all build on the articles existing prior them thus enabling us to see the evolution of the concept of business model. This in turn highlights the aspects of business models that have remained relatively unchanged through the years. These are the focus on customer, product, infrastructure, partners and finances even though they are expressed with varying headlines. If these are changed into questions they would be: Who is the customer and what is valuable to him/her? How do we create this value and deliver it to the customer? Who are the partners needed to achieve this? How can money be made with this?

### 2.2.2 Business models in Information Systems field

Now that the general concept of a business model has been explored to reasonable lengths, what about business models specifically in the industry of information technology? Why should software businesses, which operate in the information systems field, be at the focal point of the subsequent research?

The basic concept of business model remains the same in different industries while the contents of them vary from model to model even within a single industry. Thus, it is not feasible nor useful to examine the contents of business models of firms in the field of information systems but rather focus on what separates the field from others or simply makes it interesting to study in this regard.

As such, in the following paragraphs the field of information systems is examined in an attempt to understand the characteristics of the field that might affect the companies and their business models.

New technologies not only emerge in a rapid fashion but are also difficult to predict all the while forcing existing technologies to become extinct (Adomavicius, Bockstedt, Gupta, & Kauffman, 2007; Adomavicius, Bockstedt, Gupta, & Kauffman, 2008). Especially in the information systems industry, these changes in technology impact the business models of enterprises operating in the field. Adapting the business model to respond to these changing requirements is essential in enhancing one's competitive position. (Al-Debei & Avison, 2010.) Even successful business models might need to be adapted to face new realities as, for example, was the case with Microsoft's software licensing business model it was forced to allow renting software and offer stripped version of Office for free due to the emergence of free Web alternatives (Teece, 2010).

As stated, business models of enterprises in the field of information systems are subject to continuous adaptation due to the fast pace of technology evolution. This kind of fast paced change is unlike most industries face and makes it more important to study as the companies in the field must go through the adaptation process more often than others thus making understanding all there is to it even more important.

### **2.3 Definition of the key elements of business models**

The goal of this study was not only to understand the concept of business models but also to figure out the key elements or components of them the change in which can then be observed and analyzed in the upcoming research. To achieve the latter goal, the understanding gained by the business model literature review must be utilized and the key components to observe defined.

In Table 2 the similarities between the concepts of business models in the examined literature are compared revealing common themes of key aspects between them making the Table 2 the natural starting point to this endeavor. Additionally, the study by Ojala (2016) is fundamentally similar to that following this literature review and as such provides an example of what the business model components of interest can look like. First, the key aspects of business models presented in Table 2 are listed here:

1. Customer Value, Target Customer, Value Delivery, Economic Value (Magretta, 2002)
2. Product, Customer Interface, Infrastructure Management, Financial Aspects (Osterwalder et al., 2005)
3. Value Proposition, Value Architecture, Value Network, Value Finance (Al-Debei & Avison, 2010)
4. Product/Service, Value Network, Value Delivery, Revenue Model (Ojala, 2016)

With analyzing the key components of business models listed above and keeping in mind the similarity of aims between the follow-up research to this paper and Ojala's (2016) article, the key components of a business model in this research are defined as Value proposition, Value network, Value architecture and Revenue model. Value proposition encompasses the perceived value to the customer, as in the product/service, and the business logic involved. The Value network includes the partners required in creating and delivering as well as the targeted customers. Value architecture considers the technological architecture and the organization's infrastructure, the capabilities of the organization that are needed in value creation in the business model. The Revenue model describes how the firm makes money in the form of revenue streams and cost structures.

## 2.4 Evolution of Business Models

Finally, the evolution of business models is explored in this chapter based on the organizational capabilities that enable this evolution process.

Business models within existing businesses can rarely transform in an extreme fashion without complete commitment and major financial assets. This is due to the elements of the business models needing to be internally aligned and coherent, which a drastic shift to one way or another is likely to disrupt. Such a disruption is difficult for the management and organization to deal with disheartening the endeavors. As such, smaller adjustments and business model transformations fitting the existing model are simpler to implement and thus more likely to occur. (Teece, 2018.)

Adapting business models includes both economic and cognitive challenges as the managers must grasp the cause and effect relationships between different components of business models while retaining or improving the economic impact of them. Organizations need to have sufficient dynamic capabilities to enable sensing, seizing and transforming of new opportunities and threats to their business models. Sensing means identifying customer needs and opportunities, seizing is about the capture and use of resources and transforming is all about changing the business model to fit the sensed new needs and captured and mobilized resources. (Velu, 2016).

The strength of the firm's dynamic capabilities is in key role in determining how well the firm can transform its business model. The goal of business model transformation is naturally to align the business model to meet the changing needs and aspirations of the customers in order to generate a steady revenue stream for the company. Continuous sensing and seizing cycle with periodical organizational transformation are needed to proactively meet the needs of the customers as well as combat emerging threats. A firm can have strong dynamic capabilities only if all three types of the dynamic capabilities are strong in relative areas and in relation to competitors. For example, should a company be extremely good in sensing new opportunities but completely lack the means to seize them, the firm is unable to take advantage of the new opportunity and thus

is unable to transform, or is exceedingly slow in transforming, its business and is much more likely to lean on past investments and existing organizational processes when evolving business models. (Teece, 2018.)

Figure 1 highlights the dynamic capabilities' impact on the business model's evolution process.

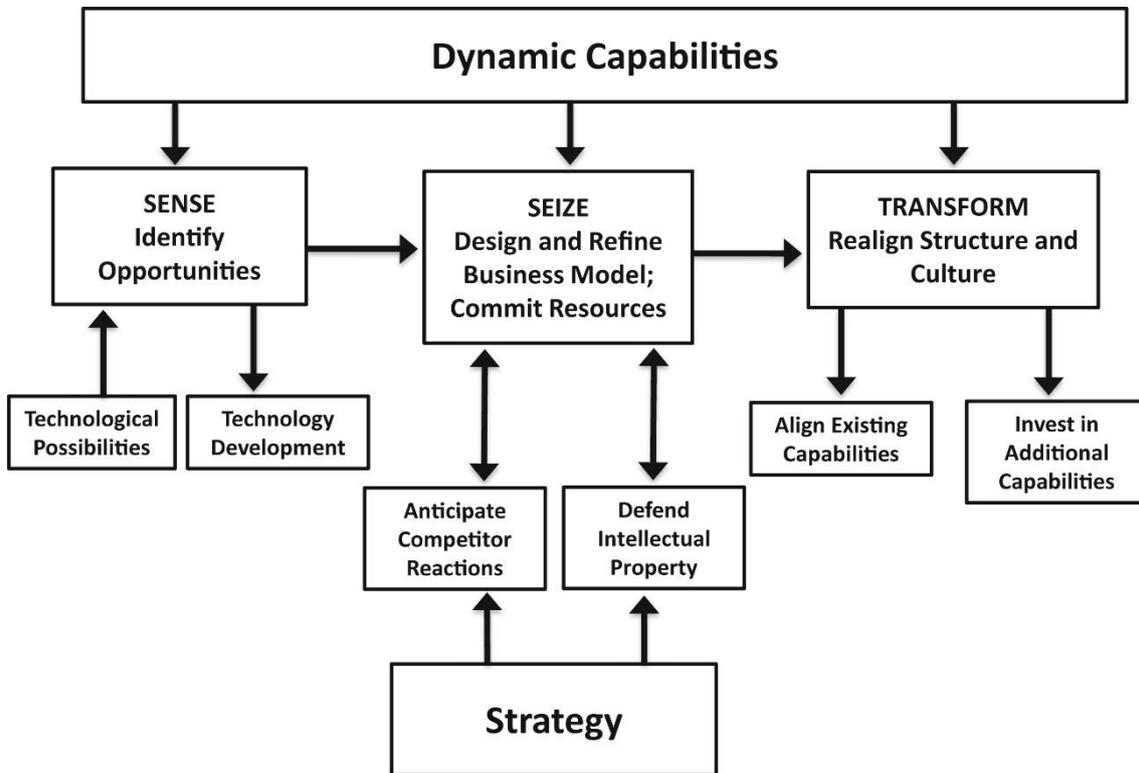


Figure 1 Impact of dynamic capabilities (Teece, 2018).

Velu (2016) found out that the organizational capabilities that enable business model evolution are balanced redundancy, requisite variety and cognitive discretion. Balanced redundancy involves having overlapping resources and skills in order to mobilize them in a way that allows experimentation of new initiatives. However, balanced redundancy is also about keeping excess resources to a minimum, hence the balanced term, and finding the equilibrium of increased deployment speed given by redundant resources and the costs of those resources. (Velu, 2016.)

Requisite variety involves the acquisition and interpretation of information relevant to the organization and can be divided into two categories, component knowledge and architectural knowledge. The component knowledge means the deep understanding of the components in the business model of the organization. Understanding the component enables the organization to see the flaws of the current version of the component thus facilitating the beginning of the evolution

process. The architectural knowledge is a broader concept and illustrates the organizational ability to gather and connect information from multiple sources. The combined information then enables the evolution process of business models. (Velu, 2016.)

The cognitive discretion encompasses the thought process behind the evolution of business model. It's also divided into two sections, deductive and inductive logic. Deductive logic is the process of deduction based on the information gathered. The deduction process should provide a solution to a flaw in the current business model or otherwise improve the model. Inductive logic on the other hand, is the process of inducing information from external sources, finding inspiration or examples, and then incorporating that into the business model. (Velu, 2016.)

Ojala (2016) built a preliminary theory on how business models are created and how they evolve. Ojala used opportunity creation as a foundation for his theory together with empirical case findings and existing literature on business models. According to the theory, the business model creation and evolution has five phases: business model creation, business model, business model reassessment, business model development and business model abandonment. (Ojala, 2016.) This theory is described in Figure 2 Preliminary theory of business model creation and evolution (Ojala, 2016).

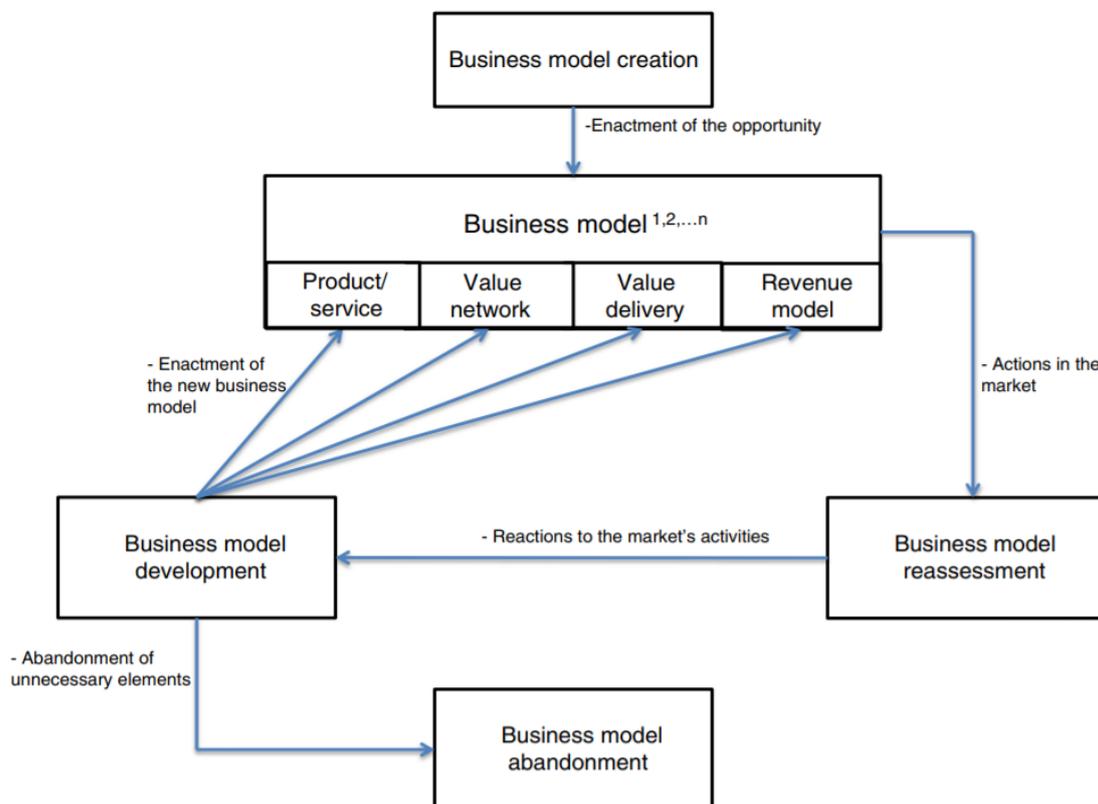


Figure 2 Theory of business model creation and evolution (Ojala, 2016)

In the business model creation phase, Ojala (2016) argues that the created opportunity is based on the entrepreneur's perceptions and assumptions regarding technological development and thus is the own skills and resources of the entrepreneur play a major role. Furthermore, the opportunity creation process is surrounded by uncertainty.

The business model itself is product of either business model creation phase or business model development phase. Business model, after being created or developed, is then brought into the market to use or for trial. The key being to determine the market's reaction towards the model and later reassess the model in the next phase. (Ojala, 2016.)

The next phase is the business model reassessment phase, where entrepreneurs evaluate not only the markets reactions to the business model, but also the changes in technology, market conditions and partner interaction (Ojala 2016). For example, entrepreneur's business model may lean on a technology still under development on the time of initial opportunity creation. During business model trial run on the market, it may become clear that the initial expectations towards the technology were misplaced or the technology might be replaced by a rivaling technology completely.

After reassessing the business model, the business model enters development phase where the model is refined based on the assessment of market reactions. In this phase, some or all of the business model components may be refined, defined, changed or even discarded as the business model is evolved towards the prevailing needs of the market. The criteria for refining a business model should be based around the means available rather than by well defined goals. (Ojala, 2016.)

After the business model has been developed in the development phase, it starts another cycle by entering the business model phase. The discarded components enter business model abandonment phase, where they are abandoned. (Ojala, 2016.)

### 3 EXPLAINING THEORIES

In this chapter, the various theories that can explain the strategic decision making behind the perceived evolution of business models in the empirical research are introduced. This chapter aims to establish to the reader these key theories that are used in this thesis in analyzing and explaining the evolution of business models.

#### 3.1 Game theory

This section establishes to the reader the concept of game theory, what it is and how it works as well as how it can be used. Moreover, this section explains, how the game theory can be applied to explain the strategic decision making behind the changes in business models of information technology companies.

##### 3.1.1 Introduction to game theory

The earliest records of discussions of min-max solutions to a two-person game, key concept of game theory, date from 1713. However, the father of game theory is accepted to be John von Neumann with his paper "On the Theory of Games of Strategy" in 1928. The game theory is therefore already over 90-years old. (Von Neumann & Morgenstern, 2007.) But what is it?

The game theory was created in order to describe and analyze the real-world processes in economics and social life, something that until then used applications of classical mathematics failed to do properly. Game theory proceeds to explain these real-world processes by creating different games that describe the current situation or problem, and then using mathematics to find out the optimal result for every participant. These games are grouped according to their features such as the number of participants, competitiveness of the participants, extensiveness of the game and type of information available to the participants. These groups share similar principles in finding the optimal result, but at the same time they need to be calculated with different methods. (Petrosian & Zenkevich, 1996.)

In other words, game theory simplifies a real-world situation into a 'game', and then uses mathematics to solve that game. By solving the game, the answer or course of action, that should be taken in the real-world, becomes clear. The game theory enables the analysis of different outcomes of various choices made by the participants. Dixit, Skeath and Reiley (2009) argue that game theory can be used specially to explain, predict and advice. In other words, why something was done, what will be done and the results the actions yield and what should be done. It is exactly this facet of the game theory that makes it usable for the

purpose of this thesis as it enables both explanation and prediction of actions and strategic decisions.

### 3.1.2 Relevant constructs and game types

As said before, there are a plethora of games each describing a certain isolated case with its own unique characteristics, though they can still be grouped using their common nominators. To list and explain all of the different variants of the games would take too much space nor would it be productive regarding the aim of this thesis. Thus, only the relevant game types and constructs are explored.

The key constructs to understand in game theory are strategy, payoff, rationality and equilibrium. Strategies are the choices of actions participants of the games can take. In a game that has only simultaneous moves that are made only once, these initial courses of action are the strategies. However, in a game that has sequential moves, strategy encompasses the whole set of choices from beginning to the end. This also means that players can react to the actions taken by others and modify their strategy accordingly. Thus, to make a “strategy” in this case refers to taking into account the complete plan of action that will lead a player to the end of the game. (Dixit, Reiley, & Skeath, 2009.)

Payoffs, on the other hand, are the outcomes of strategies that the players have used. That is to say, payoffs are the rewards to be gained by following a certain strategy and they encompass everything that the player can gain from the game by following a strategy. In real-life situations strictly zero-sum (win or lose) events rarely occur and thus the payoffs are more varied and have thinner margins as the payoff of a strategy is dependent on the competitor’s strategies as well. (Dixit et al., 2009.)

In game theory, rationality means that each and every player tries to achieve the best possible result for himself. Term “Rational behavior” assumes that all of the players can calculate the best possible strategies and flawlessly execute them as well. This, however, does not mean that the players are necessary selfish or focused on short-term nor that they all have the same view on value. Rather, players can rate payoffs differently according to their own beliefs, future consequences can have a huge impact on the strategic thinking and subsequently payoffs. Game theory assumes that all of the players are rational, but in reality, that is not always the case least of all every player being capable of calculating and executing the “best” strategy to obtain the highest possible payoff. (Dixit et al., 2009.)

Equilibrium is the end result of each player utilizing the best possible strategy in response to others’ strategies. However, equilibrium does not mean that thing remain unchanged as in games with sequential moves the position of players evolves constantly with every response and counter-response. Nor does equilibrium guarantee a positive result as the equilibrium in a competitive situation can mean all of the players lose some to prevent the others to win it all. Finding an equilibrium in a real game means solving the game but it can be a tough task. Nash equilibrium is an extension of simple equilibrium in that it defines the end state of the game where none of the players can get a better payoff by changing

strategies. That means that Nash equilibrium defines the best possible strategy for each player under the assumption of rational behavior. "Solving" a game usually means finding the Nash equilibrium. (Dixit et al., 2009.) In other words, Nash equilibrium does not define the strategy that yields the highest possible payoff rather it defines the strategy that yields the highest payoff regardless of the competitors' action under rational behavior. Consequently, should other players not act with rational behavior or should they be able to cooperate completely, higher payoffs than what the Nash equilibrium would yield can be possible. By following another strategy than what the Nash equilibrium designates, all of the players could possibly gain higher payoffs. However, some of the players could then have an even better strategy yielding even higher payoffs tempting them to "cheat."

After explaining the key constructs around which game theory is built, it is necessary to look at the defining characteristics of games. Games vary depending on the situation and as such have different characteristics. Understanding these characteristics helps to understand the game situation better by simply listing its characteristics. Games can be defined by are they dynamic or static, competitive or cooperative, zero-sum or non-zero-sum, infinite or finite, are the rules fixed or manipulated and is the information symmetric or asymmetric. (Dixit et al., 2009.)

In static games all the players make their moves simultaneously. Conversely, in dynamic games the players can make moves sequentially. This differentiation is important, as the way of thinking changes between the two types. In static games the players do not have knowledge of what their opponents are going to do, so they can only assume they behave rationally and find a best strategy regardless of what the opponents strategy will be. In dynamic games, however, players must add a new layer of thought into the strategies as now they need to think the responses their competitors will make to their own actions. This can go on for a long time as these kinds of games can reach far. Most games can have both characteristics in some point. In some dynamic games the first to move may have an advantage while in others it's the seconds to move that benefit more. (Dixit et al., 2009.)

In competitive games the players compete against each other trying to get the best possible payoff selfishly. In cooperative games on the other hand the players are helping each other to reach the best solution together. Two rival firms may, for example, create a joint venture to generate more revenue together than on their own combined. However, these firms will compete against each other when it comes to splitting the revenue between themselves. In zero-sum games the winners take all while the losers lose everything. In non-zero-sum games the total payoff is not zero, so all of the players can gain something, or not lose everything. Most economic situations are non-zero-sum games. (Dixit et al., 2009.)

Infinite games are such that do not have an ending or are repeated over time while on the other hand, finite games are played only once and have an ending. The strategies used in these types of games differ from each other as in finite game, the players do not know so much about each other. Moreover, the strategies utilized tend to be more ruthless as the game will not be repeated in the

future cutting long-term repercussions from the equation. In infinite games, however, the long-term strategies become evident as short-term ruthlessness can be punished in the long run as competitors learn from each other. Moreover, in infinite games competitors can try to benefit from each other by, for example, taking turns to “win.” Also, building reputations positions players against each other influencing strategies even more. (Dixit et al., 2009.)

In card games or sports the rules are fixed as in all the players play by the same rules and cannot change them in any way. In manipulated games, the competitors can try to the best of their ability to change the rules before the game even starts to gain the upper hand. In economics, this can take the form of suddenly expanding or advertising in a market twisting way. This can also include threats and promises between competitors that influence the game to some direction. (Dixit et al., 2009.)

Information symmetry means all the competitors have the exact same knowledge. Information asymmetry conversely means some competitors know more than the others do. Some firms may have advanced farther in their research and development than others or they may have inside information about some situations. These affect the strategies increasing uncertainty about the actions competitors will make or have made. This can lead to manipulation of information in an effort to mislead competition. (Dixit et al., 2009.)

### **3.2 Opportunity creation**

Opportunity creation aims to explain, how opportunities are formed before they can be exploited by entrepreneurs or firms. Before the creation process can be explained, the concept of an opportunity needs to be explained.

There exists a strong consensus on the definition of an opportunity. An opportunity exists, when there exist competitive imperfections in product or factor markets. Derived from this definition, opportunities can only exist under imperfect competition. This is due to any possible positive asset value being reduced to zero with perfect competition. By competitive imperfections are meant entities such as entry barriers, high transaction costs and asymmetric information. Key realization here is that an opportunity existing does not depend on whether it creates economic value or not, as the value may or may not be realized regardless of it existing. (Alvarez, Barney, & Anderson, 2013.)

Opportunity creation builds on social constructionism perspective, how individuals construct their own social reality. Opportunities that generate wealth are socially constructed and thus become meaningful once they have become a part of socially constructed reality of the society. Furthermore, opportunities do not exist before an entrepreneur has created them through enactment process. (Alvarez et al., 2013.)

The other foundation of opportunity creation is evolutionary theory, which at its core has a strong emphasis on variation, selection and retention process

(Alvarez et al., 2013). This variation can be blind through chance, myopic or intentional when the actors seeking solutions to problems. Intentional seeking can only rarely anticipate all of the possible consequences thus leading to the myopic nature. (Aldrich & Kenworthy, 2011.) With all of the variation, there exists pressure to eliminate some of them and select others to survive. These surviving variations can then influence organizations but not unless they are retained. Retention takes active effort to imitate a successful variation or legitimization of it. (Alvarez et al., 2013.)

From these two theories, the social constructionism and evolutionary theory, the evolutionary realism was formed to explain better the phenomena of opportunity creation. According to evolutionary realism, economical actors construct their own social reality, but these social constructs are tested against objective reality or collective social constructions of others labeled market demand. This framework enables study of the interaction between objective and socially constructed realities. (Azevedo, 2002.)

Often the social reality of the actor and the objective reality have a mismatch. Thus, in order to exploit the opportunity created, the actor must act and wait for market's response to the action. Subsequently, the actor generally has to adjust based on the reactions and then act again generating an enactment process. Following this line of thought, opportunities do not exist until they are enacted. (Weick, 1979.) Opportunities are created and constantly refined based on the market's reactions (Sarasvathy, 2008). Furthermore, not all opportunities, believed as such by the actors, are defined as such by the objective reality of the market ultimately forcing the actor to give up on the opportunity or continue refining it until market reactions change (Alvarez et al., 2013).

Opportunity creation occurs under conditions of uncertainty, with the end result and probability of success both being unknown at the time of decision making. To follow through this process requires entrepreneurial mindset and as such poses a challenge for firms that would need to allocate resources and capabilities into uncertain opportunities. Firms that were formed to exploit an opportunity may afterwards be unable to adopt organizational forms that were dominant when the opportunity emerged. Founders may need to utilize their personal experience to enable opportunity creation process in their firms. However, should an opportunity be successfully created, it can be hard to imitate due to the process being path-dependent and yielding unique experience learned through the process (Alvarez et al., 2013.)

### **3.3 Opportunity discovery**

In contrast to opportunity creation, according to opportunity discovery, the opportunities are "out there" waiting to be discovered (Alvarez et al., 2013). Opportunity discovery might result in founding a new company or it might take place in an already existing company (Foss & Foss, 2008). Opportunity discovery refers to entrepreneurial behavior aiming to create a new business concept that

produces economic value. The opportunity discovery process includes knowledge acquisition, competitive scanning, proactive searching, innovative behavior and collective action. These need to be used in conjunction to be able to discover opportunities. (Puhakka, 2007.) These phases are also strongly overlapping and may also include back-and-forth between the phases (Foss & Foss, 2008).

Knowledge acquisition is the first step in the discovery process of opportunities and it refers to perceiving and interpreting business information. Entrepreneurs search the information through various sources, for example newspapers, patent filings and strangers, and spend time thinking about their future business. For entrepreneurs this is deliberate search for opportunities, a need in the market not yet filled. This search process is also influenced by the existing experience and knowledge of the entrepreneurs. (Puhakka, 2007.) New opportunities can be sensed by some entrepreneurs but not others due to the individual differences in sensitivity to opportunities. These differences derive from the unique experience and knowledge of entrepreneurs. (Ardichvili, Cardozo, & Ray, 2003.)

Competitive scanning on the other hand encompasses understanding the competitive situation in the market, trying to find customers whose needs have yet to be satisfied and then create value for them. Subsequently, a strategy to create that value for those customers is formed. Entrepreneurs are trying to find niche markets not yet exploited but still large enough to support serious business and profit. This is due to entrepreneurs not wanting to openly and aggressively compete against each other. Competitive scanning requires opportunity filtration, selection and refinement to enable developing a strategy creating room for new business in the market. (Puhakka, 2007.) Entrepreneurs embark on a new business opportunity when they find it more promising than the current configuration of resources (Ardichvili et al., 2003).

Proactive searching differs from knowledge acquisition in that it is about understanding future development, creating a vision of the future and establishing a business before it is noticed by competition. Entrepreneurs need to be ready to grab emerging opportunities through intuitive interpretations of market structure, customer needs and timing among other things before others can see them as opportune. To bring their vision into reality, entrepreneurs then need to proactively gather information and be able to justify the idea to the market. Proactiveness, however, is not rational behavior but rather entrepreneurs being alert to events that incline something about the future. (Puhakka, 2007.)

Innovative behavior refers to questioning the status quo and finding new solutions that have not yet been implemented. These solutions can be unusual, answer a need in the market, fill a gap in the market or condense existing information into significantly changing the business domain. (Puhakka, 2007.) According to Puhakka (2007), the importance of innovative behavior was recognized by Koning and Muzyka (1994). Innovating can take many shapes or forms. For example, researching and inventing or exploring the world. (Puhakka, 2007.)

Finally, collective action is social behavior in which entrepreneurs utilize the knowledge of the group to refine their own vision to a more realistic and

objective vision of the future. In some cases, opportunities might even be almost provided for the entrepreneurs active in dialogue and with wide social networks. (Puhakka, 2007.) Entrepreneurs who have more extensive networks identify significantly more opportunities. Quality of the network also has an effect on the identified opportunities amount. (Ardichvili et al., 2003.)

## 4 EMPIRICAL RESEARCH

In this chapter, the research method is thoroughly explained. To begin with, the nature of the study as a whole is explained followed by the method of analysis. Finally, the reliability and validity of this research are discussed.

### 4.1 The research method

Qualitative research method processes are similar to quantitative ones, but they rely more on text and images. They also have unique steps in analyzing the collected data and can have various designs. (Creswell & Creswell, 2017.) The eight basic characteristics of qualitative methods are introduced in the following paragraphs as well as explaining how they relate to this thesis.

Firstly, qualitative researchers tend to collect data in the natural environment of the participants. The researchers do not bring the participants into a laboratory but rather go to them to talk and observe. Researchers also do not send out instruments to complete but spend prolonged amount of time with the participants to gather data through face-to-face interaction. (Creswell & Creswell, 2017.) In this research, two interviews were conducted face-to-face in the interviewees respective firms. The interviews were executed as open discussion with the help of a set of guiding questions found in attachment 1.

Secondly, in qualitative research the researchers are key instrument themselves due to them collecting the data themselves by interviewing the participants, observing them or examining documents. Even though they might use an instrument to help gather the data, they normally rely on instruments of their own making. Moreover, the researchers gather and interpret the information on their own. (Cresswell & Cresswell, 2017.) In this research the researcher performed the interviews alone with the interviewee and as such the data was indeed collected by the researcher directly. However, differing from the norm the set of guiding questions used in the interviews was not of the researcher's own making but rather received from the supervisor of this thesis, Arto Ojala.

Thirdly, qualitative researchers typically use multiple sources and forms of data rather than relying on just one type. These forms can be interviews, observations and documents among others and they can be gathered from multiple different persons and other sources. The researches need to review all of the data and organize it into a form that can be analyzed. (Cresswell & Cresswell, 2017.) In this research the main bulk of data is from the two interviews conducted, but in addition to that some data was procured from the websites of the respective companies to add to the interviews.

Fourthly, qualitative research is carried out inductively and deductively. A typical way of research is to begin by working inductively, building patterns, categories and organizing the data into themes. To accomplish this, the research

usually needs to go back and forth between the dataset and the themes. Subsequently, whether or not a given theme needs more supporting evidence in the form of additional data gathering becomes apparent bringing forth deductive thinking. (Cresswell & Cresswell, 2017.) In this research, the case material was first organized into different versions of business models in the history of the case firms. Following this the data was categorized into changes in key business model elements and then themes and pattern were distinguished.

Fifthly, the focus of the qualitative research process should be on the meaning that the participant holds about the problem and not on the meaning the researcher brings or what literature says (Cresswell & Cresswell, 2017). For this research this means understanding the background and status of the interviewees and taking it into account when analyzing the data.

Sixthly, the qualitative research process is emergent as in the initial research plan cannot be too tightly locked in. Some or even all the phases of the research process might undergo a change after obtaining data. The change can occur for example in the form of data collection, the questions or the participants and locations used in study. These shifts are a sign of the research going deeper into the topic of the research, learning more about the problems and better understanding how to address the research to tackle the research problems. (Cresswell & Cresswell, 2017.) Likewise, the research plan of this study has shifted around slightly due to emerging factors and circumstances.

Seventhly, in qualitative research the background, culture and experiences of the researchers can reflect to the research possibly shaping the interpretations and the direction the research undergoes. This is a real possibility due to the aforementioned second characteristic of qualitative research, as the researcher is a key instrument. (Cresswell & Cresswell, 2017.) Extra care is taken in trying to avoid twisting interpretations of the case material. Rather, objectivity is sought after in interpretations, though there is always a chance in qualitative research that researcher influences the direction of the research or interpretations in a subjective manner.

Eightly and lastly, in qualitative research the researchers try to develop a complex understanding of the problem, a holistic view. This involves multiple perspectives and identifying the different related factors to generate a big picture where these multiple factors interact mirroring real world. (Cresswell & Cresswell, 2017.) This is accomplished through necessary amount of case material as well as two case firms to broaden the viewpoint into the subject and give more credible results.

## **4.2 Method of analysis**

The method of analysis for this research was selected to be case study. Case studies are rich descriptions of certain phenomena based on empirical evidence acquired generally through various data sources. Case studies embrace the real-world context in which the phenomena are occurring in contrast to laboratory

experiments that strip that rich environment away. Furthermore, case studies enable inductive theory crafting based on rich qualitative evidence and moreover deductive research to test these theories. (Eisenhardt & Graebner, 2007.) This in conjunction with the research questions and aim of this research make case studies the optimal method to use.

Single-case studies can provide extremely rich empirical evidence on describing the existence of a phenomenon. (Eisenhardt & Graebner, 2007). However, multiple-case studies provide higher generalizability due to enabling comparisons between the cases studied (Yin, 1994). Theoretical implications based on multiple cases are also more robust due to being based on more varied empirical evidence (Eisenhardt & Graebner, 2007).

Furthermore, Ojala (2016) notes a call for additional case studies regarding business model evolution by Hedman and Kalling (2003) and this research answers in part to these calls.

Longitudinal elements are normally applied in qualitative case studies, but due to time constraints and lack of resources in this study the case material is collected in single interviews with knowledgeable persons and of the whole history of the case firms. This limits the richness of the collected data dampening the robustness of the research.

### **4.3 Reliability and validity**

Reliability and validity are important in any research to ensure quality. However, assessing either reliability or validity is not straight forward with qualitative research, as Golafshani (2003) noted. Reliability concerns measurements and as such it has little to no relevance in qualitative research. Thus, the reliability has been replaced with dependability, which is quite close to the notion of reliability. Similarly, validity translates poorly directly into qualitative methods. In its place is used trustworthiness, the how true the results are, that can be defended. In measuring dependability of the research, the trustworthiness of the said research must be determined. Thus, demonstrating the validity, in the form of trustworthiness, of the research is sufficient in establishing reliability, dependability. (Golafshani, 2003.)

Having established the notions of reliability and validity in qualitative research, and how the validity of the research determines the reliability, the validity of this qualitative research is determined followingly. However, before the validity can be established the question of how to determine the validity, or trustworthiness of a qualitative research requires looking into.

Highly trustworthy results of qualitative research are more credible and defensible and should lead to generalizability. Thus, the trustworthiness of a qualitative research is directly linked to the generalizability of the results. Triangulation is an important method in increasing the trustworthiness of the results. Triangulation can mean using several kinds of data sources and methods of analysis. (Golafshani, 2003.)

Regarding this research, the main bulk of the data was collected by interviewing personnel highly knowledgeable of their respective firms. In addition to that, the websites of the respective firms were used to verify the data and fill in the gaps. Although the main data was only from the interviews, the interviewees were highly knowledgeable regarding their respective firms, which adds to the credibility of the data collected. In addition, the websites of the firms were used as a second data source. The data was organized, categorized and comparison between the two cases were made. Furthermore, themes and patterns were searched. Also, multiple theories were used in explaining the evolution of the business models and ultimately in synthesizing the findings into a model aiming to explain better the evolution of business models.

Due to the credibility of the interviewees and additional data source in the form of the websites, the method used in analyzing the findings and the use of multiple existing and validated theories in synthesizing the final model, the validity and subsequently the reliability of this research is at an acceptable level. However, how well the resulting model can truly be generalized cannot be effectively tested in this thesis as it is way out of the scope of this research. Thus, it falls to subsequent research to validate the model, and in turn the research.

## 5 CASE FINDINGS

In this section, the two case firms are introduced by giving a short overview. Following that, the evolution of the business models of respective companies is described and later analyzed. This is done separately for the two case companies CGI and Gofore. The results are then compared to each other and similarities and differences will be examined and explained in chapter 6.

### 5.1 Case firm 1: CGI

The first case firm, CGI, was founded in Canada by Serge Godin and André Imbeau in 1976. The name translating to “Consultants in management and information technology.” Originally, the business idea was solely business management consultation. However, during the early years the business started slowly growing organically and then evolved into consulting and systems integration. During these early years, a strategy and principles were developed to guide the company further. These included the company’s dream: “To create an environment in which we enjoy working together and, as owners, contribute to building a company we can be proud of.” (CGI, 2017.)

When information technology outsourcing began to emerge, CGI developed a strategy to enter the emerging market. In 1986, CGI became a public company to provide funding for acquiring outsourcing firms. The acquisitions enabled CGI to offer end-to-end information technology, consulting, systems integration and outsourcing services. From 1996 CGI had major clients and focused on deeper insight on the business sectors of these clients as well as building geographical mass through their “Build and Buy” -strategy. This strategy meant growing both organically and through acquiring other companies. Until 2012, CGI had been mainly on Northern Americas markets with staff of around 31 000. In 2012 however, CGI bought European company Logica over doubling their staff to 68 000 and expanding to the Europe and Asia simultaneously becoming the world’s fifth largest independent IT and business consulting firm. Nowadays CGI has 74 000 professionals working for CGI. (CGI, 2017.) Next, the evolution of CGI’s business model through time is examined with the help of a CGI consultant, who gave an interview to shed light on this, as well as additional material gathered through various sources.

In the beginning, the CGI’s business model was a very simple one. The company consisted of the two founders and offered business management consultation services that were charged by the hour or day: “The business started as a management consulting firm that billed the customers per hours or days.” Explains the consultant. At the time information technology had not yet made its mark on the world according to the consultant: “1976, when the company was founded, automatic data processing was unknown.” Also, the business started

without government assistance or incentives nor without external financing: “Everything we do is based on own cash flows and profitability and, even though I cannot say for certain, it is unlikely that there was any government support in the beginning.” The consultant notes.

These services were offered to various companies nearby in Canada, geographically easy to reach firms that needed help on managing themselves tells the consultant: “The first customers were from the local big cities and areas surrounding them.”

In terms of the four key business model components, Value proposition, Value network, Value architecture and Revenue model, this looks the following. The Value proposition consisted of the knowledge and skills of the two founders offered in consulting business managements. The Value network doesn’t have any partners involved besides the targeted customers. Thus, only the targeted customers, the companies nearby, make up the value network of this business model. The value architecture of the company, as the company consisted only of the two founders, was also quite simple. It rested completely on the consultation capabilities of them and the flexibility of a small firm. The revenue generated by the business management consultation made up the revenue model. The business model is described in Figure 3 The first business model of CGI, 1976.

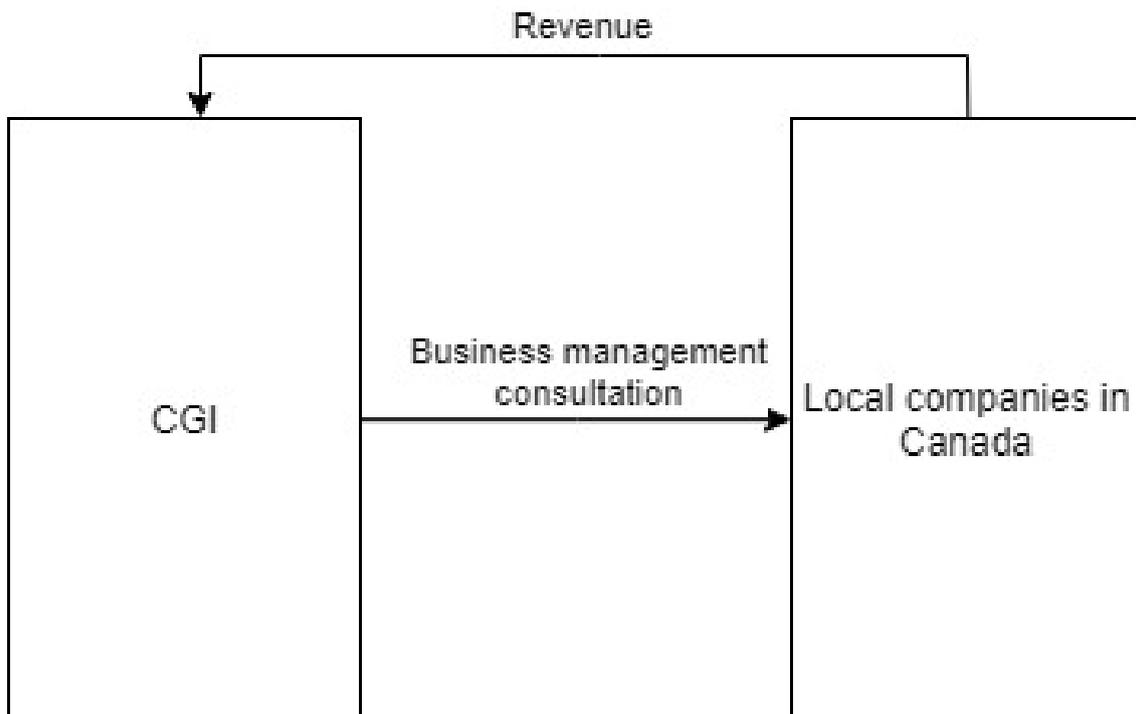


Figure 3 The first business model of CGI, 1976

After a while, the customers of CGI began to ask could CGI provide them the automatic data processing systems (ADP). CGI recognized, that information technology had great potential, so they started delivering ADP-systems, systems

integration, according to the consultant: “We saw a possibility, that information technology could become a huge deal in the future.” This brought with it a great change in the business model, as the value proposition was transformed from pure management consultation into management consultation and systems integration. Systems integration required CGI to get partners capable in delivering the hardware for the ADP system: “Hardware providers, like IBM, had a major role. CGI has mostly technology partners. However, the CGI’s position is to stand on its own and thus external contractors cannot be used in critical areas.” Explains the consultant. This made the value network more complex, as now these hardware providers were included in it.

Furthermore, CGI began taking over other consultation firms, first smaller and located in Canada: “Then the takeovers of other smaller consultant firms around Canada began. Then, little by little, CGI began to spread to the United States side of the border.” described the consultant.

This began to change the value architecture to alter as the organization grew and new capabilities were obtained as well as new geography be it the neighboring country. The Canadians and Americans share a little brother – big brother relationship where the Canadians do not like the Americans much while the Americans do not think much of the Canadians. This brought some challenges when entering the United States of America’s markets. With CGI constantly growing, a clear organization was necessary, so CGI organized into hierarchical line organization. The revenue model underwent some changes as well, as the partners that delivered the hardware were factored in as well as the software licensing. These changes to business model are illustrated in Figure 4, the second business model of CGI, 1977-1989.

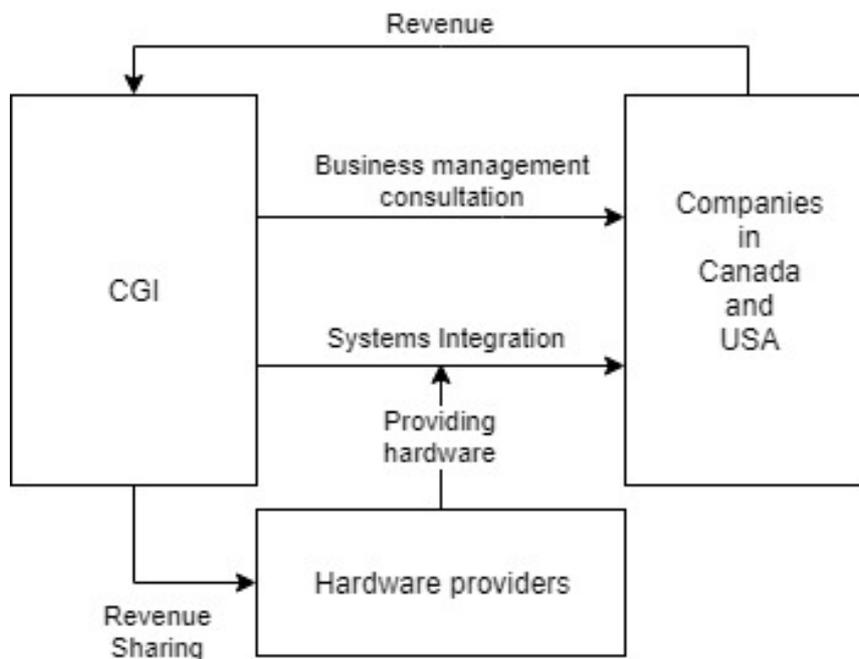


Figure 4 The second business model of CGI, 1977 - 1989

According to the consultant, at the end of 1980s and the beginning of the 1990s the whole technology industry underwent great changes. Until this point in time, the hardware providers had a major role in technology projects as stated above. However, a major shift started to take place shifting the roles upside down in the industry. The client companies began to understand that the software was the most important part of information technology and not the hardware. This realization shifted the software providers to be the main contractors and the hardware providers to subcontractors. Following this the software providers started to deliver the hardware provided by companies such as IBM. Then later on this was dropped as it provided no additional value for these software providers and instead they used a salesman that knew the hardware.

At the start of the 1990s offshoring began to raise its head. The actual coding work was transported to be done in another country with cheaper work force. Especially from India a lot of information technology engineers and aggressive salesmen arrived in the United States. They had most of the coders back in India and only a smaller group in the location and this way they could reduce the cost of labor as the wages between USA and India were far apart. The consultant describes this followingly: "The Indians arrived, innumerable number of IT-engineers. Most of the workforce was back in India and only the salesmen were here. It affected the competition as they tended to have cheaper labor." However, this was not for everyone, as some customers wanted that the projects to be done on their own native language and that it was done nearby. Furthermore, when the project was actually carried out overseas, the customer had no control over it and it occasionally generated undesirable results as the consultant explains: "The salesmen were from different group and thus only sold the project to the other company delivering it, and that did not always have good results."

CGI had concentrated on big companies as customers in the USA and went full on ahead with outsourcing their information technology. CGI listed to the stock market in order to generate capital for acquiring outsourcing businesses to grow and seize a market share in this market. However, though being a listed company, CGI does not pay dividend to its shareholders but rather provides value for them by quality and long-term planning. Also, in 1992, an initial version of CGI Management Foundation was created to ensure this quality. This Management Foundation is a shared plan of action that describes how projects offers and agreements can be made, what boundaries must be kept. This has helped in reducing so called 'red projects', projects that are not in schedule or budget.

In April 1997, CGI acquired CDSL Holdings Limited, a Canadian retail banking services provider. This enabled CGI to provide its customers money transfers enabling it to work as a bank to encourage its customers in outsourcing information technology. (CGI, 1997b.) CGI typically had extremely long deals with its customers. The consultant reckons the length of the deals to be a competitive factor in the States. The CGIs value proposition consisted of consultation services and software products specifically made for the customer companies. First, the ownership of the code was not thought of significantly. Sometimes the

customer owned the coded and sometimes the potential of a software product was recognized, and it was made into a product that the CGI owned and sold to other customers as well. "This was typically how new software products were made. First software was developed with one or few customers and then transformed into software products." explains the consultant. In 1997, CGI's value proposition consisted of outsourcing information technology, systems integration, consulting and business solutions. For example, CGI provided telecommunication services together with its partner Bell Canada. (CGI, 1997a.)

In terms of the business model and its key components these events had the following impacts. The value proposition was still mostly intact with the consultation services and systems integration with added outsourcing of information technology. The addition of offshoring changed the business logic somewhat. The value network included the same partners, the hardware providers, but the roles they had were altered as the software's importance rose.

Value architecture changed the most as offshoring and the constant growth altered the organizations infrastructure. CGI needed more information technology capabilities in addition to management consultation to develop and deliver software products. The revenue model's revenue streams stayed intact, but the cost structures changed due to the offshoring. This business model is presented in Figure 5 The third business model of CGI, 1990-2005.

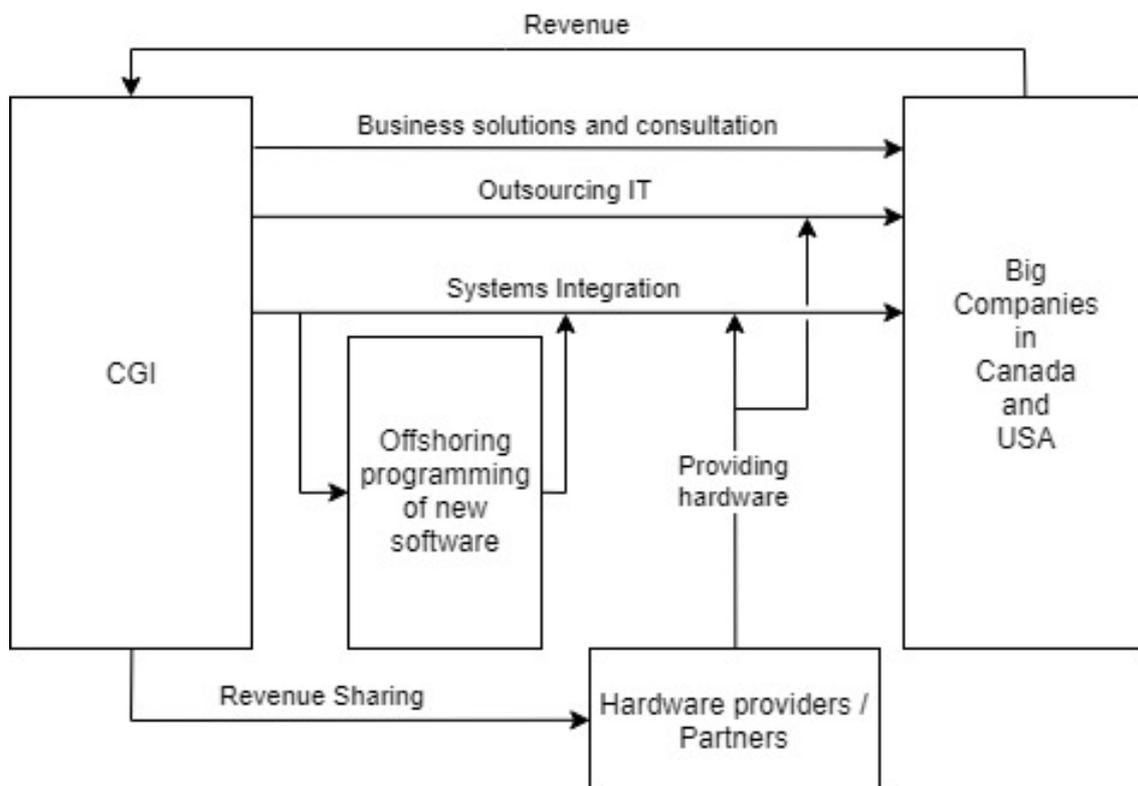


Figure 5 The third business model of CGI, 1990 - 2005

In 2012 CGI acquired an European company Logica for \$2.6 billion in an effort to expand overseas to Europe. CGI took advantage of the European debt crisis undervaluing many European companies. Logica's share price had fallen 50 percent in a year prior to CGI's takeover. (New York Times, 2012.) Before the acquisition CGI had most of its business in North America and only little bit in Europe while Logica had exactly the opposite. According to the consultant, the geographical match was excellent. Also, CGI was slightly smaller than Logica doubling the size of the company after the acquisition. The landscape in Europe was rather different to North America in terms of the customers. The customers and projects CGI inherited from Logica with the acquisition were smaller and much more numerous than what CGI had striven for in the North America. According to the consultant, CGI has around 4000 customers in Finland which is a far cry from the tens-to-hundreds that CGI originally sought after in North America. CGI has pretty much equal number of customers and employees here. But the customer landscape is different with only limited number of large companies. Moreover, Logica had a lot of the so called 'red projects', which were cleaned out based on the CGI Management Foundation. Another challenge that emerged was that the management foundation was created for big companies and thus had difficulties when adapting to use with smaller firms.

In 2006, a large alteration in the organization's structure was made. The so-called metro market model was implemented in which the customers of CGI were first divided by geography into metro markets and then further categorized by their industry. These metro markets are geographical locations that had concentrations of customers. (CGI, 2006.) In the North America these were large cities and their surrounding industrial areas. On the other hand, Finland is a single metro market due to the condensation of customers into the capital region and scarcity of them in Northern Finland. Sweden, on the other hand, has Stockholm as a metro market and Northern Sweden as another.

A key reason for implementing these metro markets was customer intimacy, to be close to the customer physically, the consultant notes. CGI's promise is to deliver locally, to have people near and speak the same language. This combines CGI's global delivery model with localness enabling high customer response (CGI, 2006). A noteworthy mention is that CGI doesn't send managers over to the metro markets rather the managers of the metro markets are locals. Instead, CGI has clear guiding methods and the metro markets report back to Canada. Furthermore, CGI's managers come together once every quartal and go through every metro market and how they are doing.

CGI has ten industries, biggest of which are government, financial services and telecommunications according to CGI 2012 annual report to which they concentrate on and have a set of services and products that are offered for these globally. With the metro market change, the metro markets can rather independently decide on which industries they focus on and what the offered services will be. This was a much-needed change, as the countries CGI operated in, especially after the Logica acquisition, had very different industry landscape. For example, in Finland there is not much space technology, but the public government is rather

big. Lots of ministries, municipalities and so forth. Public government, however, is always subject to the nation due to local laws. Thus, not all solution can be used in different countries and for example, Sweden is already very different to Finland according to Jari. Furthermore, the cultures of different countries differ as well not allowing one practice to be utilized all around.

Sometimes CGI creates joint ventures with customer companies creating a new company the goal of which is to serve the customer company's needs. For example, "Finanssikontio" is a joint venture of CGI and OP for creating new insurances. The new venture firm's employees come from both CGI and the client firm, though CGI has a majority in the board and all of the employees become CGI members. "This is just a one way to manage outsourcing. In Finland, this is useful in getting value added tax, VAT, reductions." explains the consultant.

Support for some of the outsourced information technology solutions was offshored to reduce the costs. For example, Finnish helpdesk support is offshored to Philippines and Portugal tells the CGI consultant.

New technology has also impacted the business model of CGI along the way. CGI, wanting to be at the forefront of technology according to the consultant, is developing new solutions with emerging technologies. For example, in 2014 CGI was developing Internet of Things -based solution for elevators enabling predictive maintenance through machine learning. In this project, CGI partnered with Microsoft to utilize Microsoft's machine learning platform. (Microsoft, 2014.)

At this point, CGI is offering information technology outsourcing more as a service than a product. There is no longer a need for the customer to install software themselves rather they only need a web browser. This enables CGI to sell the service with a monthly premium instead of software license and upkeep fees. For the customers, this brings a difficult proposition as they are not sure which model is better for them.

The value proposition transformed yet again into more complex form with services sold with monthly premium emerged in addition to older licensed products and consultation. The localness of the service was highlighted with the metro market change. The value network got a new element in terms of the partner companies as a channel in delivering value for the customers. The value architecture transformed as well due to the metro market change as the organizations structure was altered into the numerous different business areas that have certain amount of independence in operating. The revenue model also became more complex with the addition of monthly premium services and joint ventures with partners added into the mix. These changes impacted the business model in various ways, described in Figure 6 The fourth business model of CGI, 2006-.

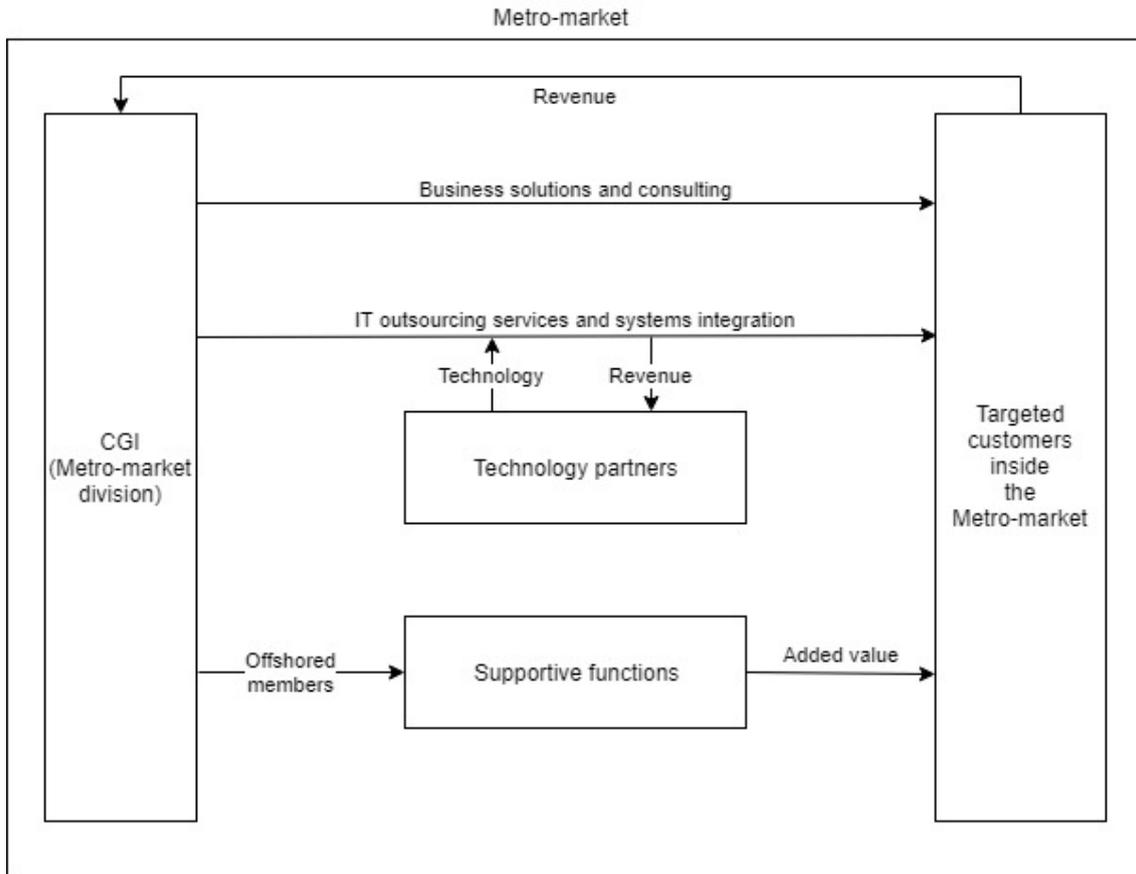


Figure 6 The fourth business model of CGI, 2006 -

## 5.2 Case firm 2: Gofore

Gofore was founded in 2002 and is an internationally operating growing digitalization service provider. Gofore believes that in the future, every single service will be redesigned – again and again, and Gofore helps its customers in maximizing the potential in change. According to Gofore, adjusting into changing environment and taking advantage of new possibilities in the best way possible requires the whole culture to change, not just structure, processes and systems. (Gofore, 2018.)

Currently, Gofore has 7 offices in four countries, over 470 employees and over 150 customer companies. The offered services of Gofore can be defined through four customer needs: Lead the digital change. Design new, user-based digital services. Build future digital services and service architecture. Services in cloud and assure lean development and light maintenance. (Gofore, 2018.) Next, the evolution of Gofore’s business model is explored based on an interview with the Chief Operating Officer of Gofore.

Originally, Gofore's business model was a simple one and quite different from the one in use nowadays. In the beginning, Gofore was founded to create a software product for a business solution. It was a business to business product for electronic commerce. A product that would have been sold through licensing fees. However, it never got going because the founders had previously been working in a different company that had a somewhat similar solution, which might have brought up issues should Gofore endeavor in similar business explains the chief operating officer. Thus, Gofore began to form into a service company. This first business model, that was never utilized, is depicted in Figure 7 The first business model of Gofore.

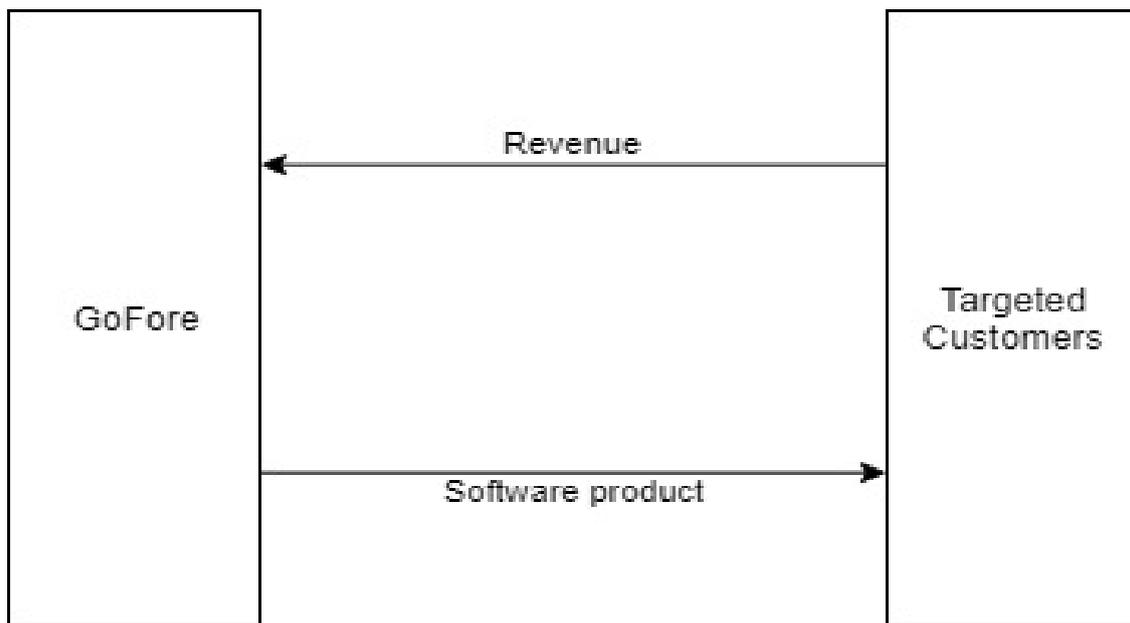


Figure 7 The first business model of Gofore, 2002

As mentioned above, after the unsuccessful first business model, Gofore transformed into a service company. They started doing software consulting as the main business idea, as in they sold their own knowledge and skills, their own expertise, and were paid by the hour. The chief operating officer acknowledges this to be a common practice in software industry: "Before you generate revenue through something, you can always sell your own talents that someone is willing to pay for." At this point Gofore was made up of 4 people.

Thereafter, the fundamental revenue model of Gofore's business model has remained the same: sell consultation services of different aspects to the customers and receive income based on the hours worked. However, the value proposition, value architecture as well as value network have evolved, grown more complex.

The second iteration of a business model's key idea was selling own software and coding expertise. The value proposition was fully encompassed of the expertise of these two areas that the personnel of Gofore had. This expertise was used to improve the customers' software and products. The value network wasn't that complex either. Rather, it was only the targeted customers that made the network. The value architecture on the other hand consisted of a small organization's flexibility and the expertise of the personnel. Revenue was created by selling the expertise and receiving payments per how many hours the personnel worked for the customer's benefit. This business model is shown in Figure 8 The second business model of Gofore, 2002 - 2007.

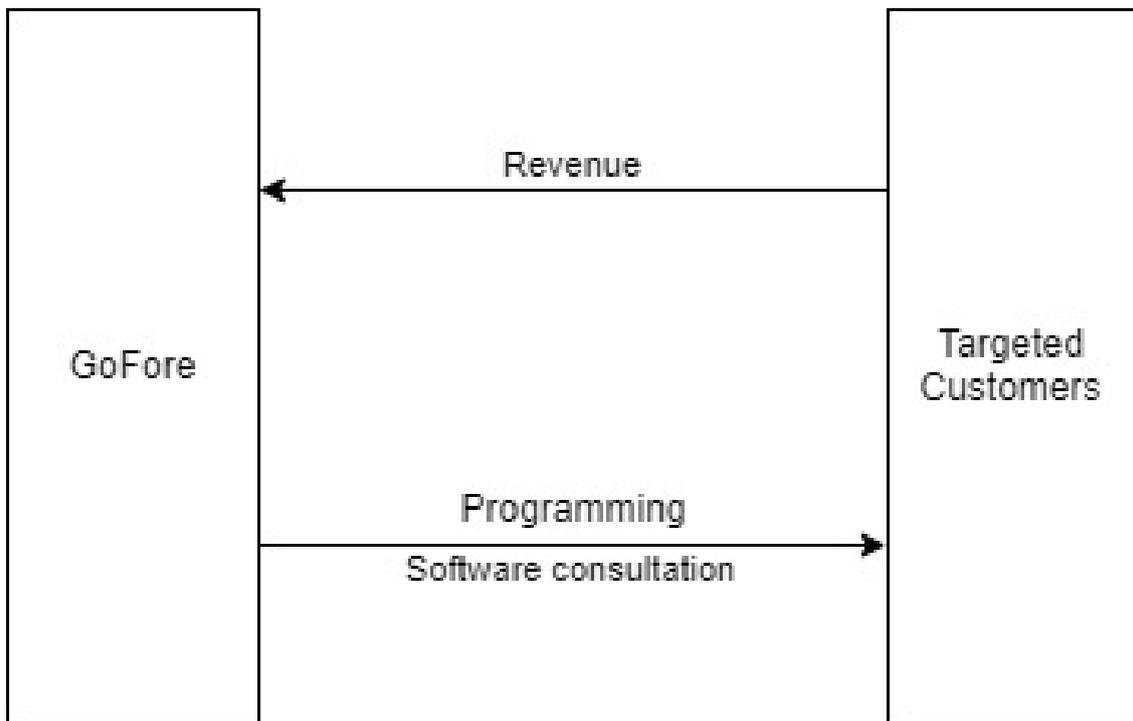


Figure 8 The second business model of Gofore, 2002 - 2007

Following the use of the second business model, Gofore found a lot of success and organic growth. Along the way, Gofore picked up a variety of other services into their value proposition in addition to the software and service design consultation. First addition was architecture consulting later followed by service design, user experience, management consulting and cloud.

"A major reason for the addition of these different services is the demand for them", notes the chief operating officer. The chief operating officer adds: "Good examples of this are projects for the public government like the national service architecture or Suomi.fi identification. Mostly these are programming projects where programming skills are needed. However, to enable the programming interface designing needs to be done first. Thus, it is reasonable and smart that both of these services are offered by Gofore as a whole instead of the customer needing to acquire the programming from Gofore and then obtaining the

designing services from a third party.” In other words, the customer needs are the key reason behind this.

The cloud services are a slightly different aspect in Gofore’s business model as it does not follow the same revenue model than the other services and in this Gofore has partners that provide the actual cloud capacity that Gofore provides for the customers. Nevertheless, cloud services are integral part of the whole business model says the chief operative officer.

According to the chief operating officer, a lot of effort has been spent in creating a meaningful set of services that produce added value for the customer. This is delivered to the customers in four big pieces that are “Design”, “Build”, “Cloud” and “Lead”. These four achieve a logical continuum from designing the new service for the customer, programming it and then sustaining it through cloud services. This entirety is then supported by the fourth block, management, in helping the organization through the culture change enabled through the new digital services. This in the eyes of the customers, the chief operating officer notes, forms a rational portfolio of services for fulfilling a single need.

In addition to the customer needs, competition was also a deciding factor in including all these services into the value proposition. These services are the ones with which Gofore wants to compete because as a whole they form the aforementioned sensible portfolio. Furthermore, the competitors are different in these different services and in the entire services portfolio the competitors are fewer in number.

Another key aspect of Gofore’s current business model is the low hierarchy in the organization. The center idea behind this is that the organization molds itself to match the needs and evolving business explains the chief operating officer. He then explains further: “New technological trends bring forth hype, for example analytics or machine learning are trends like this. Following this some of the employees of Gofore get interested in these trends and customers start to have demand for projects centered around these trends and thus in Gofore groups that begin carrying out such projects form.” The chief operating officer notes, that this forming is dynamic by nature rather than something managers have ordered. Of course, some stable organization elements are needed adds Topi. Recruitment and sales are two such elements that must exist in the organization and require someone to lead them.

This idea of a low-hierarchical organization, as well as the founding idea of Gofore, is based on the huge and fast technological change that is occurring. “Gofore’s view is that the evolving technology enables more things than firms can utilize meaning that technology is no longer the inhibiting factor preventing creating new solutions. Rather, the organizations are unable to utilize the technology to the fullest due to nonflexible structures.” explains the chief operating officer. This is the cultural change that Gofore advocates and consults to its customers: lower hierarchy, strong transparency and self-guiding organization.

This requires employees that are ready for it giving emphasis in the recruitment process being successful. But the benefits are high flexibility which enables Gofore to take higher variety of projects compared to stiffer competitors. The

chief operating officer notes that the success factors of Gofore are the culture and the benefits it brings: transparency, self-guidance and trust in addition to the highly capable personnel themselves that want to stay working for Gofore. Gofore believes that transparency in itself creates trust, and that is the foundation of their culture (Vainio, 2018).

A more traditional success factor of Gofore, the chief operating officer adds, is the understanding of the public sector and being able to compete proficiently in the bidding competitions there. A key in this is understanding the change in public organizations and acquiring proper knowledge, skills and reference projects to be able to match the need.

The industry, with the improving technology, has evolved into positive direction for Gofore. "Currently ongoing technological breach transforming the value of companies from physical products and investments more into data and services generates the demand for software businesses and culture change." notions the chief operating officer. Lean developing is another trend that has brought programming work back from offshoring countries such as India and China due to the need of more interaction between the provider and customer. Additionally, even though the modern technology does enable interacting across the world, having similar cultural understanding helps prevent misunderstandings.

In terms of growth, Gofore has been growing around 50 percent annually for over ten years when the market has been growing around 20 to 25 percent annually (Kalliosaari, 2016). This growth has been organic until Gofore bought Leadin in 2017 and Solinor in 2018. These acquisitions were made due to them benefitting the strategy of Gofore. The Leadin acquisition enabled Gofore to provide its customers even more comprehensive services in digital change (Gofore, 2017). The Solinor acquisition expanded Gofore's reach into Helsinki and its surrounding area (Arvopaperi, 2018). The chief operating officer explains that as change is inevitable, by growing you can determine change yourself. Should you shrink or stagnate, others will define change regardless of you.

Gofore has also expanded internationally to Great Britain, Germany and Spain. The business in Great Britain and Germany have been in operation for a while and are already of good size, while the office in Spain is newer and still quite small. The goal is to keep growing internationally with Spain's office the focus in addition to domestic growth. The international growth is probably expanding to more countries in the future as well. The domestic growth is focused on the private sector, as the public sector is already in a good position.

All in all, the current business model of Gofore is excellent, so the strategy is to keep strengthening and growing it instead of large scale modifications, remarks the chief operating officer. The cloud services and management consultation with the international growth are seen as the focal points of future growth.

Next, the changes in business model compared to the second version, first actually used, are noted. The value proposition grew a lot with the added new services architecture consulting, service design, user experience, management consulting and cloud services. This created a rational selection of services that

together could fulfill a single customer need. The value network grew to include the cloud capacity providers. Value architecture faced big changes as well with all the new skills and knowledge required for the new services. Additionally, the organizations structure with low hierarchy, high transparency and self-guidance plays an important role in value creation enabling Gofore to acquire new expertise flexibly. The revenue model remained half intact, but the cloud services added a new layer and channel of revenue through partners. These changes are presented in Figure 9 The third business model of Gofore, 2008 -.

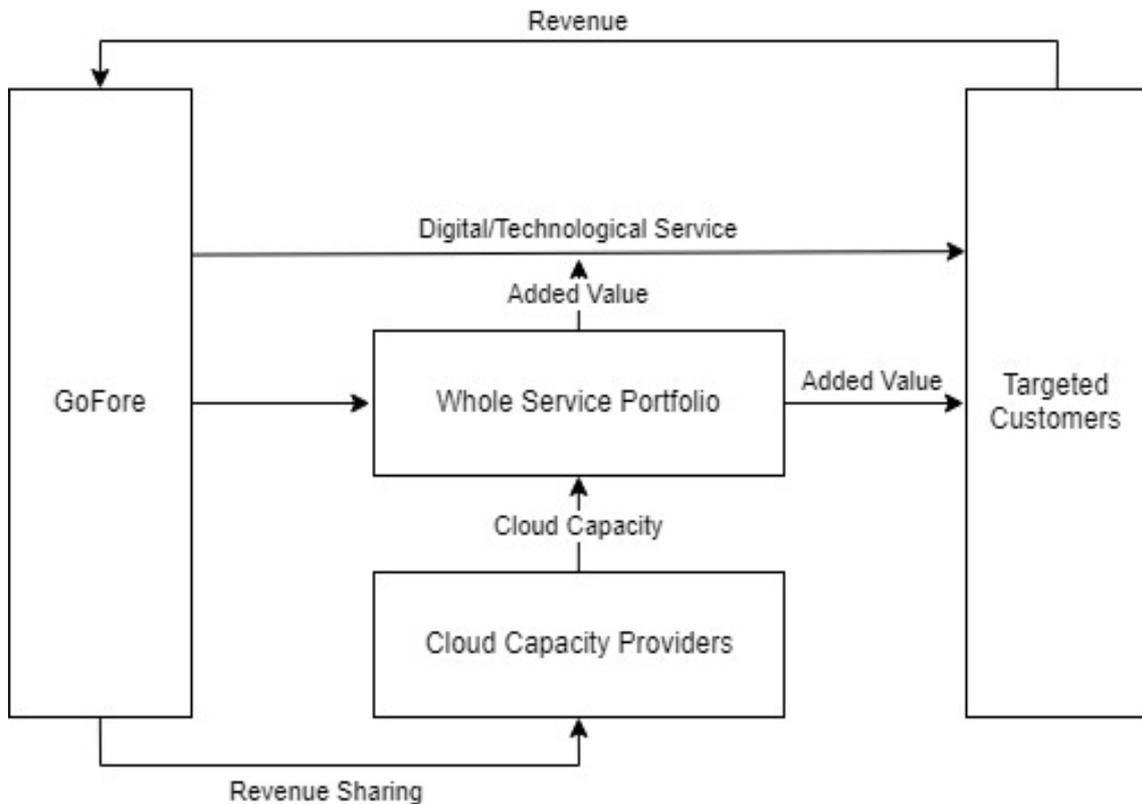


Figure 9 The third business model of Gofore, 2008 -

## 6 DISCUSSION

Now that the evolution of the business models of both companies, CGI and Gofore, has been examined, the aim is to try to explain the evolution through existing theories presented in chapter 3. Ultimately, a preliminary model that incorporates strategic decision making to the evolution of these business models is created based on the observed phenomena and existing theories.

To provide better grounds for the analysis of the evolution of the two business models, the observed changes will first be presented in a table allowing easy referencing and contrasting the evolution process. Table 3 lists the changes in CGI's business model while Table 4 does the same for Gofore's business model. The changes are categorized by the previously identified four key elements of business models in chapter 2.

Table 3 The changes in CGI's business model

VERSION	VALUE PROPOSITION	VALUE NETWORK	VALUE ARCHITECTURE	REVENUE MODEL
1	Business management consultation	Local firms as customers	Expertise of the founders to consult business management	Customers invoiced per hours consulted
2	Systems Integration	Firms from around Canada and USA as customers. Hardware providers as partners.	Programming expertise. Hierarchical line organization.	Software licensing. Hardware providers as extra cost
3	Outsourcing information technology	Big firms as companies in North America.	More IT capabilities. Offshoring creating overseas functions	Offshoring costs/cost reductions
4	IT outsourcing services. Local	Customers inside metro markets. Joint venture companies with customers	Organization divided into semi-independent metro markets.	Services as monthly premium. Revenue from joint venture firms.

Following the above table 3, which lists the changes of CGI's business model, the table 4 below lists the changes of Gofore's business model. The "--" character

mean that the element in question did not change from the previous version of the business model.

Table 4 The changes in Gofore's business model

VERSION	VALUE PROPOSITION	VALUE NETWORK	VALUE ARCHITECTURE	REVENUE MODEL
1	Software product for a business solution	Targeted customers	Programming skills	Revenue through licensing the product
2	Programming consultation	Public and private sector as customers	-	Revenue through hours consulted
3	A whole service portfolio to fulfill a customer need	International expansion to Europe. Cloud capacity providers as partners.	Capabilities to deliver all the services in the portfolio. Low hierarchy with high self-guidance and transparency.	Cost/revenue through cloud capacity providers

Firstly, after the changes to business models have been listed to the two tables above, these changes will be explained using different theories of strategy per the first research question. Multiple theories of strategy, described in chapter 3, are required in endeavor to fully explain the evolution process based on the case material as a single theory cannot explain everything. This generates more complete understanding that enables the creation of the model that aims to explain the business model evolution process, which ultimately is the aim of this research.

The most logical direction to begin explaining these changes in business models is to start from the beginning and examine what theory of strategy can explain which change. This is done separately for the two companies' business models after which common themes and separating factors between them are looked at.

The major change in CGI's business model after the initial version was the addition of systems integration with the business management consultation. The initial push that prompted the change came from the customers of CGI at the time requesting them to deliver these systems. At the time, IT was rather unknown and only beginning breaking through. CGI's founders recognized the potential opportunity and started delivering systems integration. Opportunity discovery theory explains this as searching for opportunities based on what is going to happen. Furthermore, entrepreneurs are alert to events that could tell some-

thing about future developments. (Puhakka, 2007.) In this case it was the customers beginning to ask about ADP systems, that alerted the founders of CGI to the possible opportunity beginning to emerge.

The other change that happened relatively same time was the geographical expansion to the United States of America. This happened both organically and through acquisitions of other consultant firms. CGI's strategy relating to growth was to double in size every three to five years. The idea behind the growth was to grow to be able to define the industry in the years to come and not let the competitors do the define regardless of CGI.

Game theory can be utilized to explain the rationale behind this strategy through infinite dynamic game. With every new technological innovation, the competitors in the industry are vying to define the change that it brings forth. In order to be able to define the change the competitor needs to either act first without others or be large enough in relation to competitors. This puts the competitors in an infinite dynamic game of asymmetric information where competitors do not know what actions others make (Battigalli, 2003). The decisions in the game are to adopt the change, not adopt it, acquire competitors to grow, or grow organically enough, into defining position or not grow. The payoffs vary depending on the actions of all the competitors and not all the actions might be possible for every competitor.

The changes in the value proposition going into the third version are a continued can be explained with opportunity creation theory. Opportunity creation theory argues that entrepreneurs create a product, observe how the customers respond to it and then reassess the product (Alvarez et al., 2013). CGI continued to refine the discovered opportunities of software and created new software solutions for their customers with their customers to reduce the risks of uncertainty. When they believed that the created new software could be valuable to other customers as well, they took it as part of their selection.

Offshoring was another change in the third version of the business model. Offshoring allowed CGI to lower the cost of workforce by transferring the programming work into an overseas country with lower wage level. This brought competitive advantage compared to competitors that chose not to offshore. The downside of this was the distance between the customer and the programming team. Game theory can explain this utilizing a dynamic non-cooperative game, where competitors decide whether to enter the offshoring market or not. This decision can be made after other competitors. The payoff for entering into the offshoring market are reduced costs of labor and thus higher profitability leading into competitive advantage. The Nash equilibrium in this game would lead all the competitors to enter the offshoring market. (Dixit et al., 2009.)

Going into the fourth version of CGI's business model, the changes in value proposition follow the opportunity creation theory's idea of continuously developing on opportunity in relation to changes occurring in the market (Sarasvathy, 2008). CGI has continued improving their software solutions based on market reactions and new technological innovations.

The biggest change in the fourth version of the business model was the implementation of metro markets. The key event prompting this change was the acquisition of Logica and its European business functions. This brought huge variance into CGI's customers as in Europe Logica had had a lot of smaller customers and with multiple native languages. At the time, customers were also increasingly wanting development done locally and with their own native language. The strategy behind this is best explained through game theory with the competitive situation in each of the metro markets formed into a separate non-cooperative static game (Dixit et al., 2009). In these games the choices for the competitors are to either deliver locally with native language or not. As the customers were increasingly wanting the projects delivered locally and with their native language, partly due to lean methods being prevalent, the Nash equilibrium choice is to go local.

The change in the revenue model of the business model can be attributed to opportunity discovery theory, as the addition of the new monthly premium services is a new solution for existing need of the customers and is the result of an active search of such opportunities. This is a defining characteristic of the opportunity discovery according Ardichvili, Cardozo and Ray (2013).

Now that the changes in CGI's business model have been explained through theories of strategy, the same needs to be done with the changes in Gofore's business model. The major change from Gofore's first business model into the second is the complete abandonment of the first business model and shift to a completely new version. This was done after realizing the first business model was not a valid one due to circumstances. This behavior is explained by the opportunity creation theory and its process of opportunity creation. In this process entrepreneurs first create an opportunity based on their own imagination and then observe how the market reacts to it after which reassessing the created idea to respond better to the objective reality and needs of customers. (Alvarez et al., 2013.) In this case the founder's initial idea had a mismatch in the objective reality in that their previous employers had a similar product, so it would not have been reducing the opportunity void due to possible legal consequences.

Going into the third version of the business model a lot of changes occurred. The changes into value proposition were prompted by perceived customer needs combined with own will. One by one, Gofore took new service into their portfolio and created what they feel is a sensible whole fulfilling single customer need. This approach can be explained through game theory with dynamic non-cooperative game (Dixit et al., 2009). In this game, the choice for Gofore is to either fulfill the emerging customer needs or let competitors fulfill them. Furthermore, careful consideration must be made on whether or not the new service that would fulfill the customer need more fully is something Gofore is capable of and moreover willing to adopt. As in, will it add value for the customer together with the existing services Gofore already has? The payoff for adopting the new services is revenue generated from it, and less revenue for competitors. Moreover, with these added services, Gofore is able to reduce the number of competitors. Individual

services have more competitors than the whole service portfolio as less competitors can match all the services offered.

The international expansion of Gofore as well as industry's average exceeding organic growth rate of approximately 50 percent is due to similar logic what CGI had. Gofore also shares the sentiment of constant change and to define this constant one must be large enough and constantly growing as well. Thus, it can be explained similarly to CGI's strategy with game theory and infinite dynamic game.

The major change in value architecture going into the third version of Gofore's business model is the low hierarchical organization. This organization form requires a lot of self-guidance from the employees and transparency and trust from the employer. Gofore regards this as one of their key success factors enabling high flexibility in the ever-changing environment.

Now that the evolution of the two case firms' business models is described and the changes have been explained through theories of strategy, the next step is to find themes, similarities and differences between the explained changes. This will enable the creation of a model trying to explain the strategic decision making behind business model evolution process.

From the case material and subsequent analysis of it, three central themes central in the evolution of the case firms' business models can be discovered. First of these is the importance of customers' needs. Every change made into the business models revolved around how to create more value to the customers and subsequently to the firms itself. However, the manner in which customers' needs were pursued to fill with opportunities varied between the changes. Some of the changes were the result of actively creating a new opportunity while others were discovered.

The second theme that arose from the material is the impact of competition in the business model evolution process. The competition affects all the firms encouraging improving the services offered and reaching greater heights. Furthermore, competition can guide the actions of the firm in trying to stay ahead of the competition or at least avoid falling behind. For example, in the 1980s and 1990s everyone bought hardware from IBM because everyone else did so too, so you could not be wrong, explains Jari from CGI.

The third theme that defined a lot of the evolution of the two case firms' business models is change. Both firms had views that change is a constant. Moreover, they both shared the notion that change can be defined by the big players of the industry. Furthermore, both firms shared the sentiment of wanting to define the change and to do that they both aimed to grow constantly and be on the forefront of technology. Both firms have also grown at a high speed surpassing the market average.

Using these findings together Ojala's (2016) preliminary theory on business model creation and evolution discussed in chapter 2.4 as a basis and existing literature examined in chapters 2 and 3, enables to build upon the theory incorporating more strategical perspective into it. Figure 10, Strategic decision making in business model evolution process highlights the role of strategy in the business

model evolution process as well as integrates additional elements in to the process in the form of competitors and new opportunities created / discovered after the initial creation and implementation of a business model.

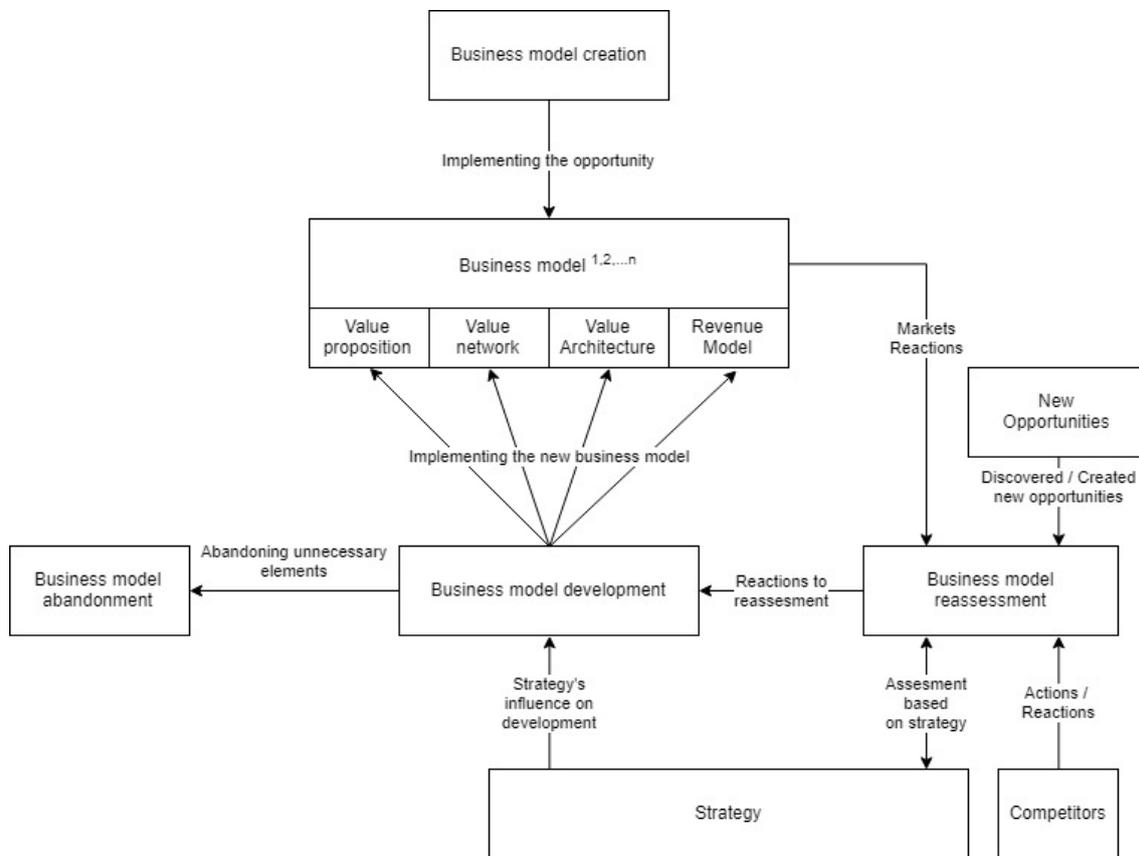


Figure 10 Strategic decision making in business model evolution process

As stated above, Figure 10 is strongly based on Ojala's (2016) preliminary theory on business model creation and evolution explained in chapter 2.4. The main phases of the business model evolution process are still business model creation, business model, business model reassessment, business model development and business model abandonment. Some modifications have been made into some of these phases and the influence of strategy and competitors have been highlighted in the new model. Furthermore, "New Opportunities" have been added linking to business model reassessment phase.

In the two case firms, the initial opportunity creation did not follow opportunity creation theory. In both cases, the founders had personal skills and knowledge that they utilized but they did not create anything new, rather they exploited, or tried to, existing and known needs so there was less uncertainty involved as well. Hence, the opportunity existed in the form of customers needing said services and the founders took advantage of this with their own skills. This is more in line with opportunity discovery with opportunities existing and only waiting for discovery (Alvarez et al., 2013).

The business model phase's function is the same as in Ojala's (2016) model. However, the key elements of the business model have been redefined as per the findings in the literature review in chapter 2 of this study. Hence, the key elements are value proposition, value network, value architecture and revenue model. The business model encompasses the way the firm does business including the business logic, partners, required resources and the way revenue is generated. Once created or re-developed, business model is put into action in the market as the firm starts utilizing the model to do business.

When the business model has been utilized, it is subjected to market reactions. Competitors can also react to the model by changing their own business models or strategies to compete. The business model evolution process enters the reassessment phase where the firm reassesses its business model through all these interactions in the market similar to Ojala's (2016) theory.

Following next in the business model evolution process is the business model development phase, where the business model is developed based on the reactions to the reassessment of the business model in the previous phase. Then elements deemed unnecessary in the business model are discarded in the business model abandonment phase. The rest of the business model is refined based on the reactions to reassessment of the previous phase and subsequently implemented into the business model. Following this, the evolution process enters the business model phase, from which the cycle begins again. All of these actions are according to Ojala's (2016) theory.

Analyzing the case material three additional elements to the evolution process rose up. These are opportunities created or discovered while the business model is utilized in the market, opponents influence and reactions on the business model and the effect of the firm's own strategy on the business model. These all affect the business model reassessment phase and strategy has a further effect on the business model development phase.

In the case material there are multiple examples of these. While acting through its business model, a firm may discover or create a new opportunity which then needs to be considered in the reassessment. For example, when CGI was utilizing the first business model, its customers began asking them to deliver the automated data processing systems as well. CGI then assessed the potential in the newly discovered opportunity and ultimately included it into its business model. Furthermore, while consulting its customers and delivering IT outsourcing services, CGI created new software systems together with the customers. CGI then assessed the value and potential of the new system and took some of these into their intellectual property rights -collection enabling them to sell it to other customers as well.

Gofore, on the other hand, with their first business model had to consider one of the competitor's, their previous employer's, reactions to their business model and assess the viability of it all in the end scrapping most of the original business model. With their second business model in the reassessment phase, Gofore market reactions were positive but competition was also hard in the single service offered in the value proposition. After assessing the situation Gofore

decided to include new complementing services to their value proposition thus reducing competition and simultaneously catering better to the customers' needs.

The strategy's influence in the reassessment and development is also highlighted by multiple examples in the case material. In the above example of Gofore including new complementing services into their value proposition, the assessment and development was done based on their own strategy. Gofore considered the competitive situation and the customers' whole needs through the lens of their own strategy. Gofore intended to grow and compete on a higher level influencing the assessment of the business model. Furthermore, Gofore's own strategy influenced the business model development as they had to consider the reactions to the reassessment based on their own vision; What to include into the model and what to exclude? Furthermore, Gofore's decision to operate through a low-hierarchy organization was product of their strategy and vision. Gofore believed that low-hierarchy would provide higher agility and thus competitive advantage in addition to increasing employee satisfaction and loyalty to the firm.

Similar influence of strategy on the reassessment and development phases can be noted from CGI's actions and changes into their business models. CGI aims to be one of the leading IT consultant firms and defining change. This affects CGI's strategy subsequently affecting their assessment and development of business model. For example, when the IT outsourcing began booming, CGI enlisted in stock market to gain capital to takeover other outsourcing firms accelerating its growth. In other words, based on market reactions, CGI decided to heavily invest into the IT outsourcing business due to their growth strategy. Furthermore, the growth strategy was the basis of the acquisition of Logica and following business in Europe. The reassessment phase, on the other hand, can also influence the strategy, which can be seen in effect when CGI understood the potential in information technology.

The strategic decision-making influences the evolution of business models significantly. Strategic decision-making is apparent throughout the evolution process, most notably in the business model reassessment phase and business model development phase. The case firms act through their own strategy in reassessing their business model and subsequently refining it. In these strategic decisions the market's and competitors' actions play a key role in defining the firm's view towards its own business model. This view is then used in refining the business model by including new elements viewed worthy and discarding the unnecessary ones.

## 7 CONCLUSION

The aim of this study was to better understand the strategic decision making behind the evolution of business models in software firms. To fulfill this aim business models were first examined with priority on the key elements and the evolution process. Following that theories of strategy which could help in explaining the decision making were examined. Then the two case firms were explored with focal point being the changes in their business models through the years. This was followed by analysis of these changes through the lens of the theories of strategy. Finally, the evolution process and the impact of strategy was defined.

Findings of this study are presented next in a concise manner. This study was able to explain the changes in the business models of the two case firms through opportunity creation, opportunity discovery and game theory. Opportunity creation and discovery could explain the origins and evolution of opportunities around which business models are formed. Game theory, on the other hand, enabled the study to consider the context of the evolution process and explain the strategic decision making in relation to that context. Finally, it was deduced that the case firms' strategy impacted the business model reassessment and development phases but also that strategy could be impacted by the reassessment phase.

This research contributes to the business model evolution theories by providing two additional cases examined and synthesizing three strategical theories in an effort to understand the evolution process of business model better with focus on the strategical decision making in the background. This research built upon the preliminary theory on business model evolution by Ojala (2016) providing additional support for the theory but also adding three elements into it namely new opportunities, competitors and strategy.

For practical use this research offers few insights into the evolution process of business models that can be utilized. Firstly, the second case of Gofore highlights that entrepreneurs should not be hesitant to try. Even though Gofore's first business model went up in smoke, the founders managed to build a successful business regardless. Secondly, game theory can indeed be utilized in an effort to analyze the market situation and in figuring out the best strategy to go for. This can prove to be a helpful tool in the competition for advantage.

This research does not come without its limitations. Due to time and resource constraints the case material was not as rigorous as preferred. Although the interviews conducted provided plentiful of insight inside the case firms, the interviewee's own subjectivity remains a slight issue. Thus, further research validating this study's findings is needed. Moreover, future research focused on the impact of strategy in business model evolution is required as the research in this field is still somewhat shallow.

The relevancy of this research is based in the call for such by Ojala (2016) and Hedman and Kalling (2003). Even though the interviews conducted are few

in number, they provide deep insight into the case firms' business models. Furthermore, additional support for these have been provided by secondary material from various sources. This provides the necessary credibility for this study.

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## APPENDIX

### Appendix 1 - The interview form

#### General guidelines:

We are gathering qualitative data mainly in order to understand the evolution of the business models over time and the nature of such changes and how the changes came about. Therefore, the questions below are mostly open questions that support understanding the evolution of the business model(s) by inviting recollection rather than specific quantitative data gathering questions. A set of guiding questions will open topics for discussion, but the interview participants should be aware of the flexibility that is necessary in this context.

#### Set of guiding questions

The following set of questions are intended only to frame the conversation. They don't necessarily have to be answered in the specified order and they can also be omitted if the conversation covers them before. New questions may also arise dynamically.

1. Quickly verify the most important preview data: Date of starting operations, suppliers, customers, finance mode (bank, bootstrap etc.), description of business.
2. How did the business start? Partners? Opportunities or passion or both?
3. How the background of founders influenced the initial business model?
4. Challenges to start (financing, competition, foreign country) , if any.
5. Initial government support, if any?
6. Who were the initial customers and suppliers?
7. Have the customers and suppliers changed over time?
8. How has competition changed over time?
9. How has the product line evolved over time?
10. How has the organizational structure changes over time?
11. How has the changes in technology influenced the business?
12. Has the industry changed favorably or unfavorably?
13. How has the government incentives changes over time?
14. For those changes, what has been the company's response?
15. What in your opinion are the greatest asset(s) of the company that enables it to compete successfully?
16. Growth goals? Is the goal to achieve a certain size or keep it small to keep the advantage that derive from it eg. agility?
17. Are there plans for expansion in size or diversification in product line?
18. Are there plans for expansion into related industries or different technologies?
19. Are there plans to request foreign or local investment?
20. Generally speaking, how is the future visualized for the company?