

Business Model Scalability in the Cloud Business Context

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Abstract

Purpose: The paper explores the antecedents to business model scalability.

Design/Methodology/Approach: The paper is conceptual and exploratory in nature and builds on the practice / action learning approach.

Findings: The paper presents an action research based framework for approaching and understanding the change needs of business models and business model scalability as practices. These practices are based on a literature review of business opportunities, scalability and market dynamics.

Practical Implications: From a managerial and entrepreneurial perspective, the findings of the paper highlight the role and dynamism of the business environment and the continuous assessment of the business environment in evaluating business opportunity and changes in opportunity.

Originality/Value: The paper proposes a novel framework for business model synchronization against business opportunity, and vice versa. It also connects the business model to the market and hence to the market value of the firm.

Keywords: Business model, business model change, cloud computing, business model scalability

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Introduction

Cloud technology is increasingly becoming the core of many firms' business strategies (Srinivasan, Lilen & Rangaswamy, 2002: 58). The rapid pace of technological development within web technologies has opened up a multiplicity of ever-changing business opportunities to be explored and exploited with various business models (Amit & Zott, 2001). In line with this, Lee & Whang (2001) discuss that e-business enabled opportunities and business models are as limitless as the imagination. However, the exploration and exploitation of these opportunities call for unheard-of business model flexibility and experimentation compared to traditional business. Indeed, web business has turned out to be extremely dynamic, specialized, unpredictable, volatile, and competitive (Kalakota & Robinson, 2000). In these circumstances, demands for the scalability of the business model have increased considerably, highlighting the role of foresight, initiative, and dynamic capabilities in the exploration and exploitation of business opportunities through business models (c.f., Ahokangas & Myllykoski, 2014; Leih, Linden & Teece, 2014).

Bock and George (2011) discuss strategy as being environment-centric, and business models as opportunity-centric. In continuation of this line of argumentation, we claim that the scalability of the business model stems from the synchronization of business models to the respective business opportunities, and that the business environment frames the opportunity. The opportunity perspective is supported for example by Ardichvili *et al.* (2003), who claim that experimentation with opportunities results in a business model. Similarly, Zott and Amit (2009) suggest that a business model is created to exploit the opportunity. Ardichvili (2003) stated that "*the elements of opportunities are recognized, but the actual opportunities are made, not found,*" but not all the opportunities are viable (Song, Bij & Halman, 2008). As business environments are changing faster than ever, continuous exploration of opportunity is required, and companies need to employ scalable business models to quickly synchronize their business models respective to the changing business opportunities. For example, Bock and George (2011) support this view by defining opportunity-centric business model reconceptualization, and present a useful framework to assess the impact of opportunities on firms' behavior and business models. Similarly Fiet

and Patel (2008) argue that a business model is built through the opportunity assessment behavior or the entrepreneur.

Teece (2010), in essence, argued that a business model needs to be calibrated to the dynamism of the business environment. Business model scalability can be conceived as the ability to deal with business-volume related changes, business-space related changes regarding markets and customers, and business-model related changes in the business over time. The cloud as a context brings the capabilities for value provisioning and utilization to the core of business model scalability because resource pooling, dynamic scalability, on-demand availability, pay-per-use pricing, and ubiquitous access (Ahokangas *et al.*, 2014) are all required for conducting cloud businesses. Looking from the dynamic capabilities perspective (e.g., Teece & Pisano 1994, Teece, Pisano & Shuen 1997, Eisenhardt & Martin 2000), we argue that the scalability of the business model fundamentally stems from the synchronization of a business model to the respective business opportunity. Cloud technology allows an organization to easily scale its business operations, hence it enables a company to quickly benefit from economies of scale (Berman, *et al.*, 2012: 29). Although dynamism in the e-business models have been popular topics of research, so far no systematic effort has been made to discuss and research business models and scalability in the e-business context.

The business model describes how business is done in practice (Chesbrough & Rosenbloom, 2002) and it can be conceived from different perspectives. In this paper, we see business models from the action perspective (e.g., Zott & Amit 2010, Seddon *et al.* 2004, Casadesus-Masanell & Ricart 2011) and as devices by which business opportunities and advantages are explored and exploited (Leih, Linden & Teece, 2014; Ahokangas & Myllykoski, 2014). Thus, we see business opportunity to be at the heart of the business model and we view business models comprising of four elements of action: what, how, why and where (Ahokangas *et al.*, 2014). In the extant literature, business model innovation, creation, and transformation have been highlighted when discussing the dynamic aspects of business models (e.g., Baden-Fuller & Morgan 2010; Zott, Amit & Massa 2011; Teece 2010; Casadesus-Masanell & Ricart 2011).

Four key assumptions from recent literature can be drawn:

Assumption 1: *A business model is a boundary-spanning unit of analysis (e.g., Sosna et al. 2010, Amit & Zott 2012).*

Assumption 2: *A business model is about value creation and capture (e.g., Zott & Amit 2009, Baden-Fuller & Morgan 2010)*

Assumption 3: *A business model synchronizes to the business opportunity in a context (e.g., Bock & George 2011, Leih et al. 2014)*

Assumption 4: *Value provisioning and utilization influence business model scalability (e.g., Amit & Zott 2001, Ahokangas et al. 2014)*

Taking these starting points, this paper seeks to discuss and analyze the antecedents and characteristics of business model scalability within the cloud business context, paying attention to how scalability unfolds in business models in the cloud through dynamic capabilities. Specifically, this paper seeks to discuss, “*What are the antecedents to business model scalability in a cloud business context?*”

Cloud, scalability and the business model

Cloud computing can offer the development of a new business model where a solution is delivered through the cloud (Ahokangas et al., 2014). Marston et al. (2011) define cloud computing as an information technology service model where customers, regardless of devices and locations are able to access their selected services through the network. From the business perspective cloud computing is identified as “*a model for enabling ubiquitous, convenient, on-demand network access to a shared pool of configurable computing resources that can be rapidly provisioned and released with minimal management effort or service provider interaction,*” (Mell & Grance, 2011). From the Technology perspective cloud computing has appeared as a prosperous model bringing applications that use a web browser into large-scale use, and during unpredictable growth (or decline) the scalable system have an capacity to change load resources without impacting the whole system (Agrawal et al., 2011). This unique feature of the

cloud is important, as new ventures usually improve their business models about four times or more before they vitalize their revenue and profit growth (Johnson et al., 2008). Business models in e-business firms is typically designed according to the internal variables of organizations, such as their strategy, and with external environmental factors, such as market opportunities (Al-Debei & Avison, 2010: 373), and thereby influenced by the factors inside and outside the company (Teece, 2010). McDonald & Eisenhardt (2014) conclude that the heart of a strategy in new markets is the rapid development of a viable business model, otherwise firms will fail or exit the market. McGrath (2010) note that the use of business models may improve the decision making during the ongoing search for temporary competitive advantages in turbulent environments (McGrath, 2010). A successful business model attracts copycats, and in these cases the business model needs to be “differentiated, effective, and efficient” (Teece, 2010), and for this reason the business models for e-businesses should be reviewed continually to ensure they fit with the complex, uncertain, and rapidly changing external environment,” (Al-Debei & Avison, 2010: 374).

Since the dynamic capability approach focuses attention on the firm’s ability to renew its resources in line with changes in its environment (Bowman & Ambrosini, 2003), we note that McDonald & Eisenhardt (2014), Al-Debei & Avison (2010) and McGrath (2010) speak about dynamic capability. Hence if firms are moving towards some form of dynamic capability, they should develop business models that are sufficiently scalable. Business modelling concerns detailed requirements, making improvements, modification and recreation (Morris et al., 2005) and the model needs to be reassessed multiple times (Shafer, Smith & Linder 2005; Baden-Fuller & Morgan 2010). In this manner continuous business model innovation is an important capability for every firm seeking success in the long term (Sosna, Treviño-Rodríguez & Velamuri, 2010: 384). We agree with the view of Sosna et al. (2010) who describe dynamic capability as the ability of a firm to develop new capabilities in response to shifts in its external environment. For the e-business it is supposed to be insufficient to emphasize solely the scalability of the technical infrastructure, as firms utilizing e-business should simultaneously pay attention to the scalability of the business model (Su et al., 2001). Similarly, Peyton et al.

(2014: 29) have pointed out the importance of flexibility and adaptation in the business model, especially in the situation when the frequency of business model is identified as a static description of how the organization creates value. Scalability is about achieving profitable growth, meaning that most successful businesses today are those that are able to build up a scalable business model (Nielsen & Lund, 2018). Furthermore, Amit & Zott (2001); Rappa (2004) and Bouwman & MacInnes (2006) mention that scalability is a fundamental factor in business model innovation and firm growth.

“Scalability” is firstly connected with the performance of systems from a technical viewpoint (Menasce, 2000). *“The scalability refers to the ability of your e-business idea to continue to function well, regardless of how large the company gets,”* (Napier, Rivers & Wanqner, 2006: 47). From the e-commerce perspective, it is impossible to ignore the scalability characteristics of the technology because almost all activities are available virtually on the Internet and websites can endure significant growth, and this means that systems that cannot scale up with that growth will lead to inefficiency in their performance (Agrawal *et al.*, 2011). Scalability is generally rooted in the firm utilizing Internet based business opportunities (Nguyen, 2002), and thus firms should be seriously concerned about the scalability of the business model (Su *et al.*, 2001). The growth potential in business model scalability has a positive impact on investor attractiveness (Stampfl *et al.*, 2013: 240). Hence a startup should consider easily scalable business models in order to catch the attention of venture capital investors (Paull *et al.*, 2003). Another approach to scalability is utilizing existing business models to concentrate only on the value of combining with co-partners or franchising (Littlewood, 2011). Stampfl *et al.* (2013) state, *“It is important to be in an environment which provides the adequate people and other resources you need, because otherwise whole business model cannot be scaled.”* A study by Menasce (2000) reveals that all features of an e-business impact the scalability of the e-business firm. Hence, he investigates four aspects of e-business to introduce a multi-layer reference model in order to maximize the capacity of e-business site. These four analyzing factor layers consisted of: 1) A business model: all the business issues involved in the e-business corresponding with the components of a traditional business model, 2) A functional model:

the way e-business sites operate and how they are managed, 3) A customer behavior / user-orientation model: what users need, and 4) An IT resource model: the hardware, software and solution resources needed to execute the e-business site (Menasce, 2000). As the business model is a system which shows how the pieces of a business concept are connected (Magretta, 2002; Osterwalder *et al.*, 2005), and we are examining business model scalability, this study utilizes the business model layer as an analyzing factor allowing us to discuss the antecedents to business model scalability.

“A scalable business model is one that is flexible and where the addition of new resources brings increasing returns” (Nielsen & Lund, 2018: 66). Hence, there are many successful companies with multi-million dollar businesses, such as Facebook, Groupon, or Salesforce, which are former Internet start-ups (Stampfl, Prügl & Osterloh 2013; Markides 2008) that utilize the e-business ability to serve numerous additional customers at extremely low incremental cost (Hallowell, 2001). Many companies will integrate ICT in their business processes in order to innovate their business models so they can surpass their competitors and increase their profit making abilities. Thus firms utilizing ICT are able to achieve significant performance and attain accelerated growth and growth in profits compared to traditional businesses (Sakellaridis & Stiakakis, 2011). Technology by itself has no single objective value until it is commercialized via a business model, and the same technology commercialized by different business models will cause different returns (Chesbrough, 2010: 354). Wirtz, Schilke and Ullrich (2010) suggest that the evolution of the Internet will result in many ideas for business model innovation. Hence Internet-based start-ups are seen as being quite suitable for understanding and exploring business model innovation (Stampfl *et al.*, 2013). Scalability is one unique characteristic of ICT business, and it should be considered as an important element for business model innovation due to a company’s capacity to scale or not during periods of economic disruption (Stampfl *et al.*, 2013). This belief is supported by many researchers such as Amit and Zott (2001) and Rappa (2004).

Makadok (1999) defines economies of scale as being marginal improvements in efficiency that a firm experiences as it incrementally increases its size, and firms with greater economies of scale in the same industry

will later gain market share from their competitors. In global dynamic markets, push and pull policies can be integrated to maximize the advantages of scale (Corniani, 2008). For instance, the study by Walsh, Kirchoff & Newbert (2002) shows that new firms often use push and pull strategies simultaneously and this provides market advantages. The push strategy refers to the logic that a company invents and develops and proposes a product that is destined to find purchasers. The pull strategy refers to the logic that demand seeks supply and 'pulls' it out of the company (Corniani, 2008). The business model refers to the logic of the company, meaning how it operates, and creates and captures value for stakeholders in a competitive marketplace (Casadeus-Masanell & Ricart 2011: 9). Additionally, Kalakota & Robinson (2000) discuss market volatility and its effect on business models. A firm's market strategy and its business model are distinct constructs that affect the market value of the firm (Zott & Amit, 2008: 19), and thus the best variable for scale is market capitalization (Easton & Sommers, 2003). This supports our view that the market is the key business environment variable for studying the scalability of business models. Hence in this study we see that market has an impact on the business opportunity, and vice versa. For instance, if a firm selects a new market segment, the opportunities available to the firm change and existing business model needs to be calibrated against these new opportunities. If the business environment is changing (e.g., loss of market share), it is not choice of the firm, instead it impacts the business model and in this way the business opportunity must be calibrated against a new business model. This definition is supported for instance by Zott & Amit (2008:20) who conclude that product market strategies follow business model design, and vice versa. Similarly Trimi & Berbegal-Mirabent (2012: 463) highlight the importance of flexible business models that enable entrepreneurs to efficiently re-shape strategic choices that outline the business logic according to market demands.

Agrawal *et al.* (2011) developed two approaches related to the scalability concept; First, is the *scale-up* approach which is interpreted as the vertical approach to scaling the system (i.e., only one node of the system will be modified by adding more resources), and the second is the *scale-out* approach which is interpreted

as the horizontal approach to scaling the system (i.e., it takes effect on the whole system by adding more nodes to the system). Since "*the concepts of economies and diseconomies of scale in production pervade much of economists' basic thinking about market structure and pricing*" (Panzar & Willig, 1977), our research uses the marketplace as a system and thus the *scale-up* approach can be seen as a vertical market (i.e., existing markets or customer segment) and *scale-out* approach as a horizontal market (i.e., new markets or customer segment). As the changes in markets can quickly make existing business models obsolete or less profitable (Sosna *et al.*, 2010), the scale up and scale out aspects have two dimensions reflecting the increase (i.e., scale up +, scale out +) and the decrease of markets (i.e., scale up -, scale out -). Figure 1 presents the scaling model for four market scenarios by using two aspects of the marketplace, the scale-up is a sales volume of vertical markets and the scale-out is a sales volume of horizontal markets.

Our scaling model comprise four scenarios; 1) Market push – vertical (i.e., increase in existing market or segments), 2) Market push – horizontal (i.e., increase in new market or segments), 3) Market pull (i.e., increase in new and existing market or segments), and 4) Market churn (i.e., decrease in new and existing market or segments). In line with Corniani (2008), we see that market push is controlled by the firm (i.e., by internal

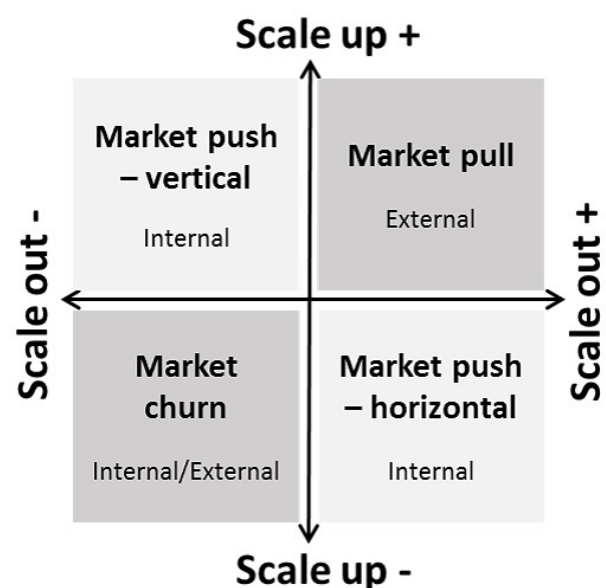


Figure 1: Four market scenarios (i.e., change in business opportunity).

decisions), and market pull is controlled by the markets (i.e., by external demands). Technology-oriented B2B companies are especially influenced by new technologies (Brem & Voigt, 2009). For instance, if a company is not prepared for the entry of new technology, they may lose some share of their existing market size, therefore in this manner market churn is controlled by the markets. Companies may also choose to reduce part of their unprofitable business, product lines or market areas, indicating that market churn may be controlled either by the company or by the markets.

A business model is created to take advantage of an opportunity (Zott & Amit, 2010), and experimentation with the opportunity results in a business model (Ardichvili *et al.*, 2003). Zott and Amit (2005) reveal that business models can be considered not only as a reflection but also as a consequence of the opportunity exploitation and exploration process, and business models are designed to maximize the business opportunity. Therefore, firms can use the business model innovation as potential source for market opportunities (Wirtz, Göttel & Daiser, 2016: 18). For example, a startup should attempt to discover opportunities through a suitable business model to test the feasibility of the business opportunity (Johansson & Abrahamsson, 2014). Thus, a goal of business model innovation is the retention of a sustainable competitive advantage (Wirtz *et al.*, 2016: 3).

Business models for e-business firms are being designed and shaped not only according to the internal variables of organizations, such as strategy, but also with respect to external environmental variables such as national culture, market opportunities, laws and regulations, customer-base size and nature, competition level, and technological advances (Al-Debei & Avison, 2010). Similarly, Teece (2010) notes that a “*good business model design and implementation involves assessing internal factors as well as external factors concerned with customers, suppliers, and the broader business environment.*” Hence, the business model innovation can be seen as either directed inwards or adjusting to the environment (Jensen 2013: 71), and business model innovation frameworks serve as a kind of guided trial-and-error process to anticipate and react to external and internal changes (Wirtz *et al.*, 2016: 18).

Due to business models being opportunity centric (e.g., Bock & George 2011; Zott & Amit 2010; Ardichvili *et al.* 2003; Amit & Zott, 2001) and the business model design consisting of internal and external factors (e.g., Teece 2010; Ojala & Tyrväinen 2011), we build on the business model concept developed by Ahokangas *et al.* (2014). Their business model concept is built around business opportunity and comprising of four key elements: 1) What? This refers to offers of the firm to their customers including their offering, value proposition, customer segments, and differentiation. 2) How? This refers to activities involved in delivering the previous “what” to the company’s customers including key operations, basis of advantage, mode of delivery, selling, and marketing. 3) Why? This refers to the reasons the company obtains profit from the previous “what” offered to the customer including the basis of pricing, ways of charging, cost elements and cost drivers. 4) Where? This refers to places where the previous “what” is executed or occurs including the location of activities or items internally.

Research method and process

This paper is a qualitative single case study of a company that has recently changed their business model towards the utilization of cloud technology. The case was examined through a qualitative action research method, and the data was collected within this process. “*Action research has a complex history because it is not a single academic discipline but an approach to research that has emerged over time from a broad range of fields,*” (Brydon-Miller *et al.*, 2003:11). Action research is rooted in each participant’s experience of the situation (Coghlan, 2007) and thus enables the researchers to get close to the business reality and fosters the development of a deep, rich insight and understanding of the complexities within decision-making (Carson *et al.*, 2001). Action research is described as an “enabling” science (Susman & Evered, 1978: 599), and the concept is reserved for situations in which researchers assume the role of change agents of the processes and events they are simultaneously studying (Gummesson, 2013). Working collaboratively with others leads also to personal changes in the action researcher (Brydon-Miller *et al.*, 2003:14). Ballantyne (2004) and Gummesson (2000) argued that action research is a suitable method

for seeking an in-depth understanding about changes in organizational settings, but it requires confident and experienced researchers (Coughlan & Coughlan, 2002). Daniel and Wilson (2004) state that action research is a valuable method in research dealing with dynamic and turbulent environments. The action research process consists of a cycle of planning, acting, observing and reflecting (Carson *et al.*, 2001).

The first phase of the action research was to identify the core problem and to *plan* the consequences. In the case study, this phase consisted of the identification of two different business models of the case company and the creation of suitable workshop content, structure and processes for the successful analysis of the business model. The second action research step consisted of visioning the business opportunity scalability scenarios effect on two comparative business models through several workshops, keeping mind the earlier assumptions. In the case study this phase consisted of several business modelling workshops that were organized between the years 2012 and 2015. Each workshop was recorded for research purposes and relevant materials were developed during the workshops. These materials provided the base data for the purpose of analysis. The company representatives had in-depth business knowledge and decision making power. These workshops were integral elements of the company's business model transformation process. The third step was to *collect data* and *observe* the *data* in order to form a full, integrated picture of two separate situations. This involved gathering and analyzing the data during the workshops. This consisted of recordings of the workshop sessions and documentation created presenting the results. The recorded data consisted of over 90 hours of recorded workshop activities. Part of the results that are relevant to this paper are attached in the analysis chapter. The last phase of our process was *reflecting* and *learning* from the action. This paper is an essential part of the learning process, presenting the theoretical approach adopted by the researchers, describing the methodological choices of the research, and incorporating the data and the findings of the research into a discussion on the topic of the paper. The conclusion chapter discusses our assumptions from the perspective of this research and hence furthering its information for academic research usage.

This paper seeks to answer the question, "*What are the antecedents to business model scalability in a cloud business context?*" by looking at a rather well-established Finnish technology/service-oriented case company (referred to as Alpha in this paper). The company is a service provider in the Business-To-Business (B2B) market segment, and is an entrepreneurially managed and privately owned SME that actively seeks new international customers. This case company is well suited this study due our wide business modeling work experience with their executives, and it has been using two different business models in exploiting one business opportunity. At the outset of our case study, Alpha was doing business without the cloud. During our case study process, Alpha transformed their business model towards the utilization of the cloud. Today Alpha is providing their services for their international clientele primarily through the cloud.

The reliability of the research was ensured by presenting descriptions of the action research process and the output of the organized workshops in this paper. The reliability of this study was further improved by implementing a longitudinal case study of single case company. The single case study method was selected because the business context of this specific case company was similar in comparable business models, and thus the company's management team were familiar with the business model concept and its transformation process. Since the difficulty of simultaneously participating as a change agent and a researcher has been recognized (Gummesson, 2000), we paid special attention to the researcher roles in the workshops. Carson *et al.* (2001) have pointed out that action research enables the researcher to reach a deep, rich insight and understanding of the complexities of the decision making process. Hence our access to the in-depth data through company management level workshops contribute extensively to the strength of the empirical research in this paper. The action research was constructed from several questions on issues that were relevant to potential business environment change. Our roles as researchers were not to say how the business model should or could be affected because of the environment changes, but to provide a suitable framework, working process, facilitation and avenues of thought for the participating managers.

Description and analysis of the cases

Alpha belongs to the ICT industry, has some e-business and was established as a spin-off of a larger company. Alpha specializes on providing of 3D visualization solutions for the furniture industry, serving both furniture manufacturers and retailers globally. Alpha is relatively young as a firm but it has a state-of-the-art offering that is way ahead of the traditional CAD-based 3D visualization solutions. Alpha only started to utilize cloud technology in their service offering less than two years ago when their main goal was to reach international markets. Figures 2 and 3 depict Alpha's former and current business model. Alpha's business focus has remained the same during these years, and these figures indicate that many business model building blocks changed between the years 2012 and 2015.

In the "what" section of Alpha's former business model, the customer building block includes two different types of customers. The offering block consists of Supply Chain Management (SCM) visualization Pads and Enterprise Resource Planning (ERP) integration that will be tailored to Alpha's customers on a project basis. The value proposition claims that usage of the service will boost the sales of Alpha's customers. The differentiator is the 3D visualization technology that was developed by Alpha. In the "how" section, Alpha delivers its service by SW hosting and licensing, meaning software required installation on customer's tablets or computers. Alpha's basis of advantage is its visualization technology. Key operations are product tailoring, product pricing, product development and marketing of their own products. The sales and marketing is carried out by Alpha and its distributors. In the "why" section, the cost driver

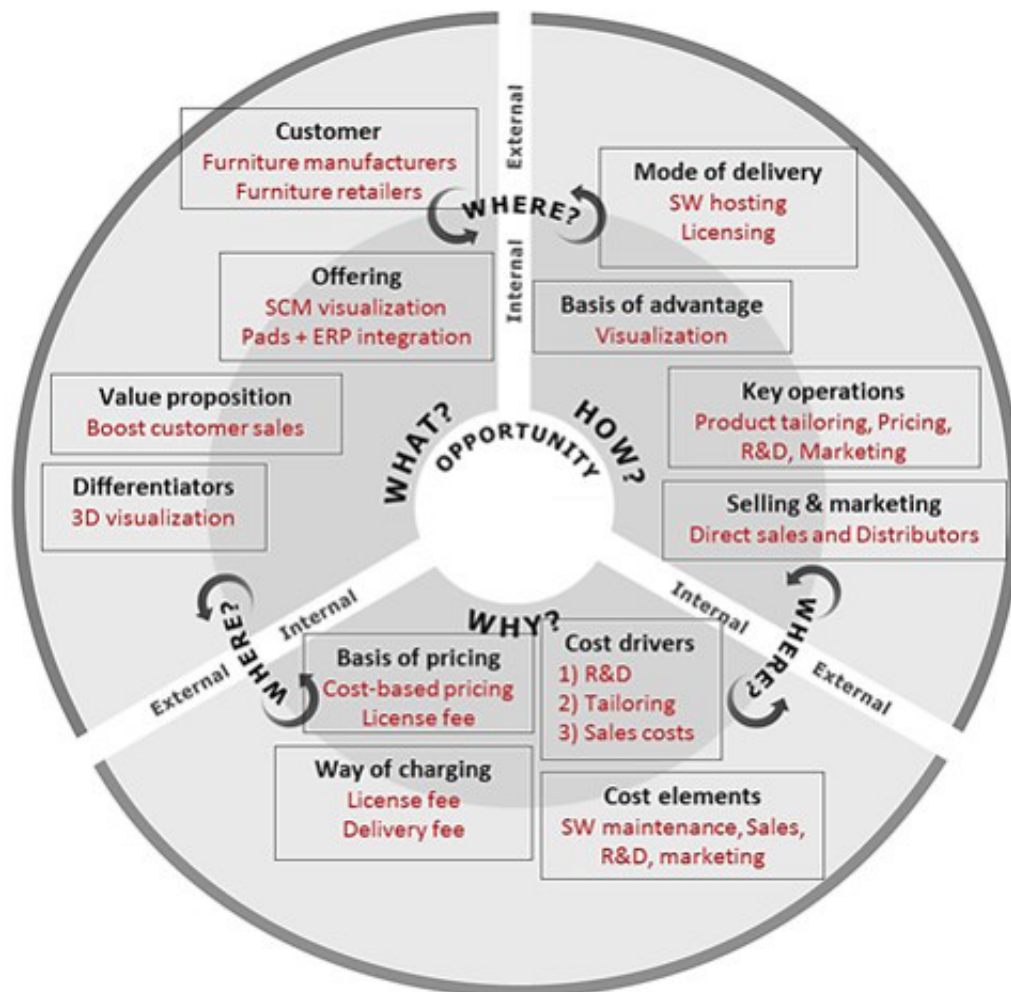


Figure 2: Alpha's former Business model in year 2012.

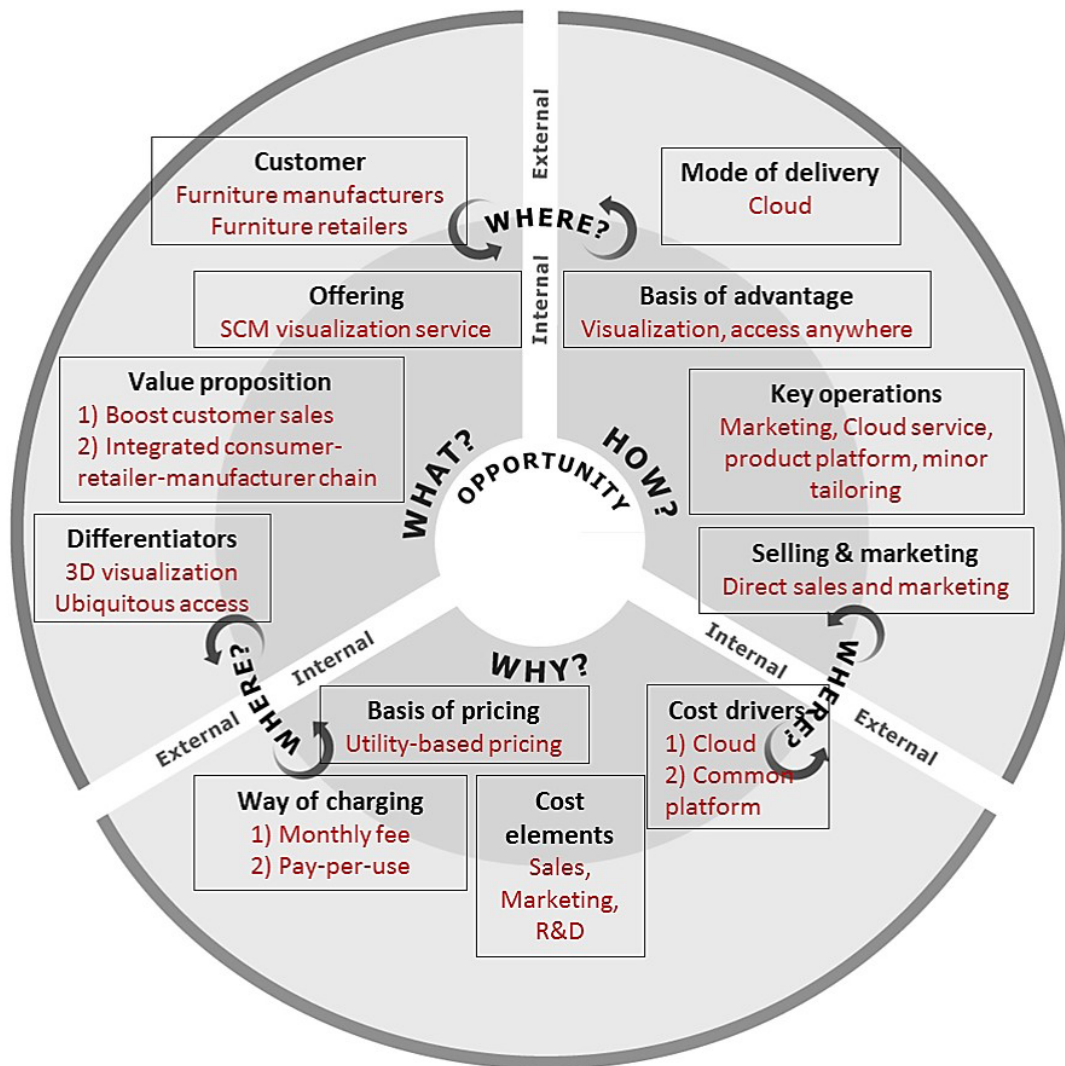


Figure 3: Alpha's current business model in year 2015.

include the cost of research and development, product tailoring and sales, and cost elements are research and development, software maintenance, sales and marketing costs. The basis of pricing comes from the cost based pricing and licence fee. Finally the way of charging can be done with license fee, or on the basis of service delivery.

In the “what” section of Alpha’s current business model, the customer building block includes two different types of customers. The offering block consists of SCM visualization service that will be available to Alpha’s customers through the cloud. The value proposition is that usage of service will boost the sales of Alpha’s customers, and usage of service will integrate the supply chain of consumer, retailer

and manufacturer. The differentiator is the 3D visualization technology and ubiquitous access through the cloud. In the “how” section, the delivery mode is the cloud, meaning that software is available in the cloud. Alpha’s basis of advantage is the visualization technology and the access anywhere through the Internet. Key operations are minor product tailoring, cloud services, product platform, and marketing of their own products. The sales and marketing is done by Alpha. In the “why” section, the cost driver is the cost of cloud and development of common platform, and cost elements are research and development, sales and marketing costs. The basis of pricing comes from the utility based pricing. And the way of charging can be done by monthly fee, or on the basis of service usage.

Table 1, 2, 3 and 4 consist of data that was derived from the workshop held with the business owners of Alpha. Table 1 contains the research data of former and current business models in scenario A - market push - vertical (existing markets or customer segment). Table 2 contains the research data of both business models in scenario B - market push - horizontal (new markets or customer segment). Table 3 contains the research data of both business models in scenario C - market pull (existing and new markets or customer segments). Finally, table 4 contains the research data of both business models in scenario D - market churn (existing and new markets or customer segments). These tables outline to what degree the contents of the building blocks of a business model are influenced by when the market size changes. This selection offers the most accurate and reliable data for analysis and discussion purposes, and thus furthers the conclusions of this research. The business model building blocks for "What" contain the offering, value proposition, customer segments and differentiation. The blocks for "How" contain key operations, the basis of advantage, mode of delivery and selling & marketing. The blocks for "Why" include the basis for pricing, ways of charging, cost elements and cost drivers. The blocks for "Where" are embedded in each of these business model specific building blocks and thus it specifies the location of the business opportunity impact (i.e., company internal, external, or both).

influenced by when the business opportunity changes due to a vertical market push (increase in existing markets or segment). It is clearly evident that the current business model is influenced less by the change in business opportunity. For instance, a business opportunity change due to a vertical market push has no impact on the business models' "what" element, but the same change does have an impact on Alpha's former business model without the cloud. Similarly the business models' "how" element remains almost untouched as the business opportunity change caused just minor changes in the mode of delivery, and thus the change is carried out by the external cloud service provider. The marketing effort of Alpha is visible in the "how" elements of both business models and is obvious as new business opportunities are sought through market growth. It is obvious that a change in business opportunity is more visible in the "how" element of the former business model because change has an influence on two additional building blocks compared to the current business model. Similarly, the business model "why" element is influenced more by the change in business opportunity. This change has an impact especially on SW maintenance and tailoring. In summary, a change in business opportunity due to a vertical market push seems to change the current business model very little compared to the former business model. Hence in contrast to the former business model the changes needed in the current business model are considered to be company external changes rather than internal ones.

Table 1 outlines to what degree the former business model and current business model of Alpha are

BUSINESS MODEL	Scenario A: "Market push - vertical" impact on	
	FORMER BUSINESS MODEL (Figure 3)	CURRENT BUSINESS MODEL (Figure 4)
WHAT SECTION		
OFFERING	MINOR CHANGE (INT)	NO CHANGE
VALUE PROPOSITION	NO CHANGE	NO CHANGE
CUSTOMER SEGMENTS	NO CHANGE	NO CHANGE
DIFFERENTIATION	NO CHANGE	NO CHANGE
HOW SECTION		
KEY OPERATIONS	CHANGE IN PRODUCT TAILORING (INT) and MARKETING (INT & EXT)	CHANGE IN MARKETING (INT & EXT)
BASIS OF ADVANTAGE	NO CHANGE	NO CHANGE
MODE OF DELIVERY	CHANGE IN SW HOSTING (INT & EXT)	MINOR CHANGE (EXT)
SELLING & MARKETING	CHANGE (INT & EXT)	CHANGE (INT & EXT)
WHY SECTION		
BASIS OF PRICING	NO CHANGE	NO CHANGE
WAY OF CHARGING	NO CHANGE	NO CHANGE
COST ELEMENTS	BIG CHANGE IN SW MAINTENANCE (INT), MINOR CHANGE IN SALES (EXT), CHANGE IN MARKETING (INT & EXT)	NO CHANGE
COST DRIVERS	CHANGE IN TAILORING (INT), CHANGE IN SALES COSTS (INT & EXT)	CHANGE IN CLOUD (EXT)

Table 1: The impact of change in business opportunity on Alpha's business models in scenario A.

BUSINESS MODEL	Scenario B: "(Market push - horizontal)" impact on	
	FORMER BUSINESS MODEL (Figure 3)	CURRENT BUSINESS MODEL (Figure 4)
WHAT SECTION		
OFFERING	CHANGE IN Pads + ERP integration (INT)	MAYBE MINOR CHANGE (INT)
VALUE PROPOSITION	NO CHANGE	NO CHANGE
CUSTOMER SEGMENTS	POSSIBLE CHANGE	POSSIBLE CHANGE
DIFFERENTIATION	NO CHANGE	NO CHANGE
HOW SECTION		
KEY OPERATIONS	BIG CHANGE IN PRODUCT TAILORING (INT), CHANGE IN PRICING (INT), CHANGE IN R&D (INT), CHANGE IN MARKETING (INT & EXT)	MINOR CHANGE IN PRODUCT PLATFORM (INT or EXT), CHANGE IN MARKETING (INT & EXT)
BASIS OF ADVANTAGE	NO CHANGE	NO CHANGE
MODE OF DELIVERY	BIG CHANGE IN SW HOSTING (INT & EXT), CHANGE IN LICENSING (INT & EXT)	CHANGE IN CLOUD (EXT)
SELLING & MARKETING	BIG CHANGE IN DIRECT SALES & DISTRIBUTION (INT & EXT)	BIG CHANGE IN DIRECT SALES & DISTRIBUTION (INT & EXT) NOTE REQUIRE DISTRIBUTION
WHY SECTION		
BASIS OF PRICING	CHANGE IN LICENCE (INT)	NO CHANGE
WAY OF CHARGING	NO CHANGE	NO CHANGE
COST ELEMENTS	BIG CHANGE IN SW MAINTENANCE (INT & EXT), BIG CHANGE IN SALES (INT & EXT), CHANGE IN R&D (INT), CHANGE IN MARKETING (INT & EXT)	BIG CHANGE IN SALES (INT & EXT), CHANGE IN R&D (INT), CHANGE IN MARKETING (INT & EXT)
COST DRIVERS	CHANGE IN R&D (INT), CHANGE IN TAILORING (INT & EXT), CHANGE IN SALES COSTS (INT & EXT)	CHANGE IN CLOUD (EXT), CHANGE IN COMMON PLATFORM (INT)

Table 2: The impact of change in business opportunity on Alpha's business models in scenario B.

Table 2 outlines to what degree the former business model and current business model of Alpha are influenced by when the business opportunity changes due to a horizontal market push (increase in new markets or segment). The change in opportunity due to a horizontal market push has almost the same impact on both business models' "what" element, but the business model changes in the "how" and "why" elements are more substantial in the former business model. For instance, the key operations and mode of delivery require a big change in the former business model, but the current business model unravels with minor changes. Similarly, the former business model requires more changes in the basis of pricing, cost drivers and cost building blocks. In both business models, selling and marketing requires a major changes and marketing costs influenced the cost elements building block. Hence the current business model requires a distribution building block to ensure market growth in a new market location. Even though the changes are now more equal between the two business models of Alpha, it is evident that the current business model is influenced less by the same change in business opportunity.

Table 3 outlines to what degree the former business model and current business model of Alpha are impacted when the business opportunity changes due to a market pull (increase in both existing and new

markets or segment). When the opportunity changes due to a market pull, it causes almost the same impact on both business models' "what" element, and the business model changes needed are rather large. Further, the changes in the key operations and mode of delivery for the former business model are large, but the same changes in the business model building block in the current business model are relatively small. In the same way as with scenario B, the current business model requires a new distribution building block to support geographical market growth. Interestingly in both business models, the key operations require a new financial building block. The financial building block is to support the cost building block that is impacted a lot in both business models. In both business models the changes in the cost elements building block are big, and R&D and sales are especially affected by this new business opportunity. Again, the current business model changes are less noticeable in the business model "why" element because the basis of pricing and way of charging remain the same. Furthermore, the cost driver changes are small compared to the former business model. Hence the changes are just external and the change in common platform is not yet certain. Even though the changes are now more radical in both business models, it is still evident that the current business model is impacted less by the same business opportunity change.

BUSINESS MODEL	Scenario C: "Market pull" impact on	
	FORMER BUSINESS MODEL (Figure 3)	CURRENT BUSINESS MODEL (Figure 4)
WHAT SECTION		
OFFERING	BIG CHANGE IN SCM VISUALIZATION and Pads + ERP INTEGRATION (INT)	BIG CHANGE IN SCM VISUALIZATION SERVICE
VALUE PROPOSITION	BIG CHANGE (EXT)	BIG CHANGE (EXT)
CUSTOMER SEGMENTS	CHANGE (EXT)	CHANGE (EXT)
DIFFERENTIATION	NO CHANGE	NO CHANGE
HOW SECTION		
KEY OPERATIONS	BIG CHANGE IN PRODUCT TAILORING (INT), BIG CHANGE IN PRICING (INT), BIG CHANGE IN R&D (INT), NEW FINANCE ELEMENT IS NEEDED (EXT)	NEW PRICING ELEMENT IS NEEDED (INT), NEW FINANCE ELEMENT IS NEEDED (EXT)
BASIS OF ADVANTAGE	NO CHANGE	NO CHANGE
MODE OF DELIVERY	BIG CHANGE IN SW HOSTING (INT & EXT), BIG CHANGE IN LICENSING (INT & EXT)	CHANGE IN CLOUD (EXT)
SELLING & MARKETING	BIG CHANGE IN SALES (INT or EXT)	MINOR CHANGE IN MARKETING BIG CHANGE IN SALES (INT & EXT), NEW DISTRIBUTION ELEMENT IS NEEDED (EXT)
WHY SECTION		
BASIS OF PRICING	BIG CHANGE IN COST-BASED PRICING (INT), NEW VALUE BASED PRICING ELEMENT IS NEEDED	NO CHANGE
WAY OF CHARGING	CHANGE IN LICENCE FEE (INT), CHANGE IN DELIVERY FEE (INT)	NO CHANGE
COST ELEMENTS	BIG CHANGE IN SW MAINTENANCE (INT & EXT), BIG CHANGE IN SALES (INT & EXT), BIG CHANGE IN R&D (INT & EXT), MARKETING IS SAME OR EVEN REMOVED	BIG CHANGE IN SALES (INT & EXT), BIG CHANGE IN R&D (INT & EXT), MARKETING IS SAME OR EVEN REMOVED
COST DRIVERS	BIG CHANGE IN R&D (INT & EXT), BIG CHANGE IN TAILORING (INT & EXT), BIG CHANGE IN SALES COSTS (INT & EXT)	CHANGE IN CLOUD (EXT), POSSIBLE BIG CHANGE IN COMMON PLATFORM (INT)

Table 3: Business opportunity change impact on Alpha's business models in scenario C.

Table 4 outlines to what degree the former business model and current business model of Alpha are impacted when the business opportunity changes due to market churn (decrease in both existing and new markets or segment). When the opportunity changes due to market churn, it has equal impact on both business models' "what" element. All the business model elements require a change, and all the changes are big.

Additionally, the business model changes in the "how" and "why" elements are broad in both business models. Only the basis of pricing and way of charging building blocks in the current business model remain the same, otherwise all elements are impacted by the change in business opportunity. In this scenario the changes in both business models have become revolutionary and thus it is meaningless to make any comparison in detail.

BUSINESS MODEL	Scenario D: "Market churn" impact on	
	FORMER BUSINESS MODEL (Figure 3)	CURRENT BUSINESS MODEL (Figure 4)
WHAT SECTION		
OFFERING	BIG CHANGE (INT)	BIG CHANGE (INT)
VALUE PROPOSITION	BIG CHANGE (INT)	BIG CHANGE (INT)
CUSTOMER SEGMENTS	POSSIBLE BIG CHANGE (INT)	POSSIBLE BIG CHANGE (INT)
DIFFERENTIATION	BIG CHANGE (INT)	BIG CHANGE (INT)
HOW SECTION		
KEY OPERATIONS	POSSIBLE BIG CHANGES IN EVERY ELEMENT (INT & EXT)	POSSIBLE BIG CHANGES IN EVERY ELEMENT (INT & EXT)
BASIS OF ADVANTAGE	MAJOR CHANGE (INT)	MAJOR CHANGE (INT)
MODE OF DELIVERY	NO CHANGE	NO CHANGE
SELLING & MARKETING	POSSIBLE BIG CHANGES IN EVERY ELEMENT (INT & EXT)	POSSIBLE BIG CHANGES IN EVERY ELEMENT (INT & EXT)
WHY SECTION		
BASIS OF PRICING	CHANGE (INT)	NO CHANGE
WAY OF CHARGING	CHANGE (INT)	NO CHANGE
COST ELEMENTS	BIG CHANGE IN R&D and MARKETING (INT & EXT), CHANGE IN SALES (INT)	BIG CHANGE IN R&D and MARKETING (INT & EXT), CHANGE IN SALES (INT)
COST DRIVERS	BIG CHANGE IN R&D (INT), NEW MARKETING ELEMENT IS NEEDED (INT & EXT)	NEW R&D ELEMENT IS NEEDED (INT & EXT)

Table 4: The impact of change in business opportunity on Alpha's business models in scenario D.

Discussion

In the situation of a change in business opportunity due to a *vertical market push* (scenario A), our research indicates that the market push in a vertical market requires the least business model element changes, and thus seems to be the easiest way to grow the market size of a firm. The same results are visible in both Alpha's business models, where the current business model with the cloud requires almost no business model element changes and far fewer changes than the former business model. For these reasons the current business model is more scalable than the former business model in the case of vertical market push.

In the situation of changes in business opportunity due to *horizontal market push* (scenario B), our research indicates that market push in a horizontal market requires more business model element changes than scenario A. The results remain the same in both Alpha's business models, though now in this case the current business model elements also require some changes. It seems that the cloud offers easy delivery, but new market entry requires local support in marketing and sales activities. Therefore Alpha needs to add one additional business model building block into selling and marketing element. Furthermore, new markets seem to require some product changes due to specific local customer needs. In the current business model, market specific product changes are hard to make as Alpha now operates with one common product platform. Even though the change in the former business model is bigger in terms of the number of business model elements, their product is tailored according to customer requirements and thus the new market entry is similar to their existing business operations. To conclude scenario B, we note that the cloud improves the scalability of the business model and thus the current business model is more scalable than the former business model in the case of vertical market push. New markets require local presence in sales and marketing and some level of product tailoring for the new market location.

In the situation of business opportunity change due to *market pull* (scenario C), our research indicates that market pull requires many changes in the business model. For instance, it caused major changes in value proposition, offering and sales in both business models of Alpha. Interestingly in both models key operations

required the finance building block because the cost elements were impacted so heavily in both cases. Again in this scenario the current business model requires fewer changes than the former business model, but the results are not that evident as both business models require multiple changes in every element. The big difference is that most of the current business model changes were external, and the former business model changes were more internal. Similarly to scenario A and B, the current business model did not require changes in the mode of delivery, way of charging or the basis of pricing elements. To conclude scenario C, we note that because of the cloud the current business model is more scalable than the former business model in case of market pull. Similarly to scenario C, new markets require local presence in sales and marketing and some level product tailoring for the new market location. Additionally, finance is one of the key activities in both business models.

In the situation of change in business opportunity due to *market churn* (scenario D), our research indicates that market churn requires big changes in every element and almost every building block of both business models. In scenario D, the only mode of delivery remains the same in both business models, and the basis of pricing and way of charging remain untouched in the current business model. Interestingly scenario D requires a big change in the offering, value proposition and differentiation building blocks. As the business model innovation focuses on changing the value delivery system of the firm (Mitchell & Coles, 2004) and thus the value proposition needs change, our research indicates that scenario D requires business model innovation. Since a business model is created to take advantage of an opportunity (Zott & Amit, 2010), the firm must seize a new business opportunity.

Conclusions

This study discusses the antecedents to business model scalability for a software oriented company by using a business model as the unit of analysis from the standpoint of change in business opportunity. We reviewed business opportunity and scalability literature, and adopted a framework that uses market and business opportunity as the central point in understanding the antecedents to business model

scalability. Similarly, we reviewed a business model and some business model transformation literature, especially the literature on business model scalability. We created a framework for business model scalability (Figure 4) during our research process. For instance, Doganova and Eyquem-Renault (2009) use a business model as a scale model for analyzing markets for new ventures. The firm's product market strategy and its business model are distinct constructs that affect the firm's market value (Zott & Amit, 2008) and market capitalization can be regarded as a variable for the scalability of firm (Easton & Sommers, 2003). Hence, in our framework market change is the main variable of the business environment.

Wirtz & Daiser (2017) defines a framework for the business model innovation that consists of environmental (e.g., industry/market shifts) and central (e.g., target group/customers) business model dimension elements. Similarly, our framework notes that the change needs for a business model might come from outside or inside the company. In the framework the inside change need takes the form of a market push or market churn, and the outside need is instigated by market pull or market churn. Hence the change need is determined by the change in the business environment, and thus it is a limiting (-) or enabling (+) factor for the business opportunities of the firm. Our research indicates that market push in a vertical market requires only slight business model changes, market push in a horizontal market requires a bigger business model

change, while market pull requires a tremendous business model change, and market churn requires so massive business model changes that it supports the establishment of entire new business opportunity and also a business model.

The business model is about value creation and capture (e.g., Zott & Amit 2009, Baden-Fuller & Morgan 2010) and the business model synchronizes to the business opportunity in a given context (e.g., Bock & George 2011, Amit & Zott 2001, Leih, *et al.* 2014). Hence we see *business opportunities as choices regarding attempted value creation and capture*. In line with the argument that *"...competitive advantage can emerge from superior product market positioning, as well as from the firm's business model"* (Zott & Amit, 2008:20) and *"the market-focused strategic flexibility is enabling firms to take advantage of opportunities as they rise"* (Johnson, *et al.* 2003: 83), we reason that a competitive advantage reflects a fit between the market position and business model. Market-focused, strategic flexibility enables a firm to make its own opportunities and thus generate a competitive advantage by being proactive in the markets (Johnson, *et al.* 2003). Hence the scalability of the business model enables market-focused strategic flexibility, and thus firms can quickly choose new business opportunities. Johnson, *et al.* state that, *"The effectiveness of market-focused strategic flexibility depends on the firm's extent and approach to (driven versus driving) market orientation, along with the environment in which the firm operates"* (2003: 87).

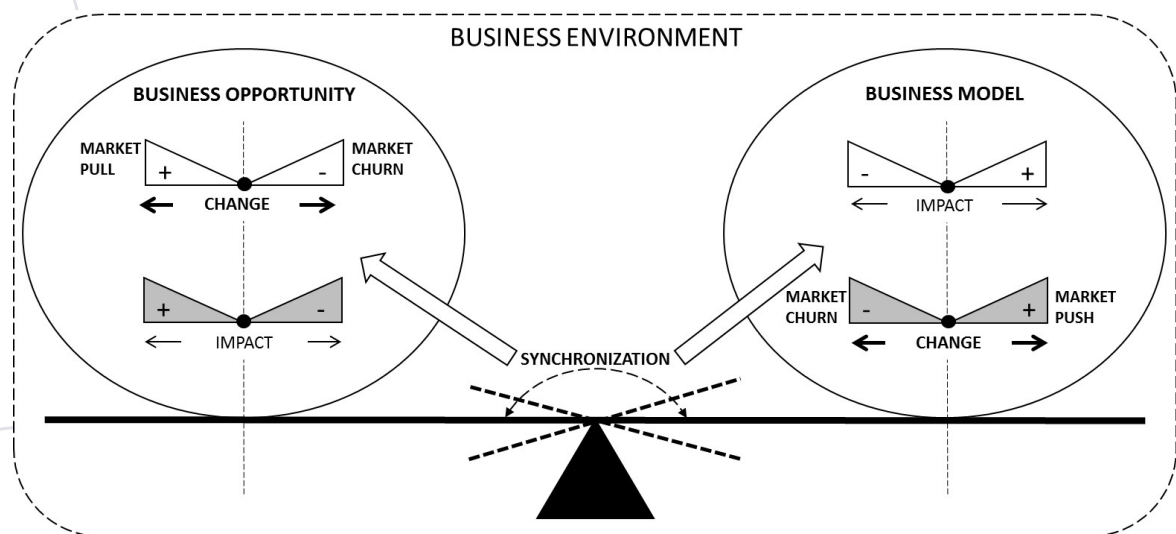


Figure 4: A framework for business model scalability.

Similarly, we argue that not all the market changes are a firm's own choices, instead market pull and market churn are caused by market changes in the business environment. This change influences the business model, and thus the business opportunity is synchronized against a new business model.

Similarly to Stampfl *et al.* (2013) and Bouwman & MacInnes (2006), our research scenarios A, B and C show that the scalability of business models have a positive influence on company growth. Furthermore, similarly to Zalewska-Kurek *et al.* (2016: 61), our research scenarios A, B and C show that changing the mode of delivery from the private SW installations to cloud service have positive influence on market growth. Our research scenario D shows that without a sufficiently scalable business model the firm must choose new business opportunities, and hence develop a new business model. From the business model perspective, our research supports the argument put forward by Demil & Lecocq (2010: 227) that a business model concept represents a transformational approach, where the business model is considered as a tool to address change. Hence our research shows that business models work as a boundary-spanning unit of analysis (e.g., Sosna *et al.* 2010, Amit & Zott 2012). Similarly to Leih *et al.* (2014), our research indicates that a business model transformation can change the boundaries of the firm. In line with Zott & Amit (2008: 19), we explore the fit between a firm's business level market strategy and the design themes of its business model. Our research also supports Sosna *et al.* (2010) in that changes in markets can make an existing business model obsolete or less profitable. To continue in line arguments put forward by Zott & Amit (2008: 19) that firm's market strategies and business models are distinct constructs that affect the market value of firm, we see that *potential market size and its scalable business model are distinct constructs that affect the market value of firms*. This would explain the precious market value of former Internet start-ups such Facebook, Groupon and Salesforce.com.

As the dynamic capability approach focuses attention on the firm's ability to renew its resources in line with changes in its environment (Bowman & Ambrosini, 2003), we see scalability unfolding in business models in context through dynamic capabilities. Our research shows that the antecedents to business model scalability through the cloud include resource pooling, on-demand availability, pay-per-use pricing, and ubiquitous access (c.f., Ahokangas *et al.*, 2014). Besides the cloud, we identified new antecedents of business model scalability as: *the flexible presence of local sales and marketing resources, a flexible product platform and flexible financial resources*. With these antecedents, the firm increases the scalability of its business model and thus the dynamic capability of firm. Looking from the dynamic capabilities perspective (e.g., Teece & Pisano 1994, Teece, Pisano & Shuen 1997, Eisenhardt & Martin 2000), we argue that *the scalability of the business model fundamentally stems from the synchronization of a business model to the respective business opportunity*.

The positive feedback provided by the study participants of firm, Alpha, about our framework, shows they see that the usage of this framework as a tool will elaborate their future scenario planning especially when the firm is planning a horizontal market push (for new markets or customer segment). Just a limited amount of research has been conducted so far on how changes in market based business opportunities affect the business model of the firm. Further studies may involve and compare start-ups and large multinational organizations, for instance, in the ICT segment, and thus reveal why startups are more scalable or not. In this study, we have offered some of the foundations necessary to productively explore these new avenues for research. The limitation of this study is the qualitative single case study method employed. With this method, broad generalizations cannot be made and different approaches, such as utilizing quantitative research, are required to build a more comprehensive view.

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