Digital Capability and Business Model Reconfiguration

a co-evolutionary perspective

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Dedicated to my Parents
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Abstract

While IT-enabled innovations continue to disrupt long-lasting industries, emerging concepts and theories seek to explain implications of digitalisation on its value, competition and organisation. Over the past two decades, the notions of digital capability and business model reconfiguration as antecedents of organisational performance have become increasingly influential in the Information Systems literature. Appreciation of the role of strategic agility, external resources and interorganisational collaborations on IT-enabled value propositions has shaped the core logic and fundamental assumptions of the two aforementioned concepts. Nevertheless, the relationship between digital capability and business model reconfiguration remains underinvested and largely elusive. In order to reconcile such fragmented literature, the aim of this study is to investigate the coevolutionary dynamics of digital capability and business model reconfigurations.

Digital capability reflects on the organisational ability to identify IT-enabled opportunities and deploy IS/IT to mobilise resources and structures in order to exploit those opportunities. Business model reconfiguration encapsulates management agenda to elevate value propositions for customers, partners and other stakeholders in order to create and capture value. It entails altering organisational resources and processes to enable such value propositions.

Empirical data that is used in this thesis is gathered from an insurance company and contains information about the internal and external contexts, decisions, actions and performance between 2008 and 2016. There are four major phases during this time period. As identified, during each, the company revised its strategic intentions, invested in new IS/IT and human resources and reconfigured its business model.

Results of this study illustrate that organisational digital capability drives strategic intentions for co-exploration and co-exploitation of value with partners. Such emerging strategies shape the configuration of the firm’s business model, which in turn leads to investments for generating the required IS competencies. This process increases the organisational digital capability, which affects the future cycles. Development of each IS competency is a result of co-exploration strategies. It is likely that such IS competencies are leveraged for co-exploitation in the future phases. In addition, Business-to-Business (B2B) IS competencies are instrumental in operationalising business models: however, as the number of
partners grow and configuration of business models change, dyadic connections are likely to be replaced by standard ones. Strategies of co-exploration and co-exploitation could lead to innovative, adoptive or evolutionary business model reconfigurations. However, for incumbent organisations, business model innovation seems to follow several business model adaptations and evolutions. That is, a great deal of organisational learning and tinkering with business models, strategic intentions and technological backbone is needed to innovate business models.

The final contribution of this research is the analytical model devised for exploring the essence of strategic decision making in dynamic environments. Based on the Appreciative Systems Model, the model illustrates how the perception of the constant flux of events and ideas leads to strategic intentions based on value and reality judgments, which in turn triggers action to operationalise those understandings. Both formulating the intentions and executing them will change future events, perceived ideas and emerging intentions based on evolving values and standards.

**Keywords**: Digital capability, Business Model Change, Interorganisational collaborations, Co-exploration and Co-exploitation
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Introduction

With the digitalization wave breaking, products and processes are becoming increasingly interconnected across boundaries of firms and traditional industries. This trend has made value propositions in numerous industries increasingly more complex, and often co-created in collaboration with partners, suppliers, customers and other stakeholders (Bharadwaj et al., 2013; Chesbrough, 2010; Ferrier et al., 2010). To illustrate, consider the case of Willab Garden, a Swedish manufacturing company that produces greenhouses, conservatories and patio material and accessories. The company’s website provides a number of wizards to help customers visualise and customise their desired outdoor spaces based on various form factors, material, dimensions, colour and additional features such as integrated LED lights or heating systems. While users work on their designs, and with each little modification, price and additional information are updated to help customers make informed decisions. Upon finalising the design and based on the customer’s geographical location, the system provides required drawings to be submitted to the authorities for acquiring building permits and provides a list of authorised builders who could help with the assembly. Those wizards have been proven to be popular among the homeowners and according to the Willab Garden’s website, they have become the biggest supplier of greenhouses and conservatories in Scandinavia. It is worth noticing that Willab Garden’s products are neither the chipset in the market, nor demonstrate exceptional quality, design or features that are unmatched in the market. However, what makes the company’s value propositions enticing seems to be the customers’ liberation from tedious project mismanagement issues to focus on creative tasks and balancing design and features with their budgets.

From an organizational perspective, an apparatus like the above is enabled through a purposeful configuration of Information Technology (IT) enabled inter-organizational exchange and interactions between the focal firm and suppliers, subcontractors, logistics companies, financial institutions, regulatory agencies and authorised builders. This configuration is captured by the firm’s business model, which illustrates how the local firm is linked to external
stakeholders, and how it engages in economic exchanges with them to create value for all exchange partners (Zott & Amit, 2007). To elaborate, business strategies deal with competitive positioning by answering what is the firm’s value proposition and who is the target customer. Increasingly, adding to the classic product-market strategies, firms also devise strategic intentions for inter-organizational collaborations to develop innovative products or services, increase supply chain effectiveness, reduce time to market, increase market responsiveness, develop market or customer relationships or generate complementarities with partners’ products or services (Börjeson, 2015; Malhotra et al., 2005; Rai et al., 2012; Rai & Tang, 2014). A business model, however, deals with the how question. Firms often compete in the same product markets; however, the way that the products are created, delivered and monetized is different (Santos et al., 2015; Zott et al., 2011). In line with the above example, empirical evidence suggests that a firm’s business model is a unique, and primary, source of value that is distinctive from the firm specific factors, e.g. product-market strategies, resources and capabilities and industry characteristics such as resource dependence and clock speed. Accordingly, the central organizational design question is shifting from the firm’s administrative structure to new forms of IT-enabled structural organization apt for innovative business models through configurations of interorganizational exchange and interactions (Rai & Tang, 2014; Zott & Amit, 2007; Zott & Amit, 2008). The main question raised from this shift for information Systems (IS) scholars is how IS/IT should be conceived and deployed to support information needs of these types of organizations.

Recent developments in the IS strategy literature suggest that the relationship between IS and organizational strategies is reciprocal and co-evolutionary. To elaborate, traditional IS Strategy movements, such as Strategic Planning for Information Systems or IS Planning, treat IS/IT assets as functional resources that need to be aligned with business strategies and core organizational processes in order to yield strategic benefits. In this view, strategic benefits of IS/IT can be expressed through increased efficiency of the organizational processes (Merali et al., 2012; Peppard et al., 2014). While efficiency is inherently beneficial for all sort of businesses and every opportunity to improve it by utilising IS/IT should be taken seriously, this is not the only way that IS/IT affect contemporary organizations. In the recent decades, IS/IT have also had a transformative effect on the nature of value, competition and organization in numerous industries. That is, with IS/IT becoming increasingly more ubiquitous, powerful and interconnected, they have also become a major driver of strategic change and unanticipated discontinuities. Rise of the Internet of Things, multisided marketplaces, sharing economy, Big Data Analytics and Machine Learning are just a few examples of IT-enabled innovations that affect competitive dynamics, value proposition and organizational practices. Therefore, the promises advanced by the co-evolutionary perspective is that an increasingly important precursor of performance is the organizational ability to
identify IT-enabled opportunities and deploy IS/IT to transform resource base and organisation respectively to keep up with demands of the changing environments.

To this end, the notion of digital capability as a collection of organizational routines, practices, and knowhow for strategizing by virtue of IS/IT assets has become influential in the IS/IT strategy literature. A firm’s digital capability, in essence, reflects not only the complexity and variety of strategic reactions that its IS/IT and IT resources enable, but also its managerial foresight to exercise those moves to transform value propositions in response to the changing environmental conditions (Bharadwaj et al., 1999; Merali et al., 2012; Peppard & Ward, 2004; Saebi, 2014; Sandberg, 2014; Ward & Peppard, 2016; Westerman et al., 2014).

The concept of digital capability found its way into the IS strategy literature from the late 1990s. Earlier accounts labelled the concept as IT capability (e.g., Bharadwaj et al., 1999; Weill & Vitale, 2002; Xiaobo et al., 2006) or IS capability (e.g., Peppard & Breu, 2003; Peppard & Ward, 2004) in order to conceptualise the phenomenon and position it in the wider domain of IS strategy research. While such accounts by large focus on the transformative nature of IS/IT on value propositions, business models or core processes, they have subtle differences in the way they treated the core concepts. For example, Bharadwaj et al. (1999) conceptualised IT capability as a higher-order construct reflected by a firm’s abilities in underlying lower-order facets such as: IT business partnerships, external IT linkages, business IT strategic thinking, IT business process integration, IT management, and IT infrastructure. Therefore, IT capability is not so much a specific set of sophisticated technological functionality as it is an enterprise-wide capability to leverage technology to differentiate from the competitors. However, readers might come to the conclusion that lower-order facets are completely separated, and thus IT capability can be dissected to its constituency. This goes against the systemic view of digital capabilities which is implied in the aforementioned literature.

Another conceptualization is formed by Peppard and Ward (2004) to illustrate the importance of the organizational context for IS capability. They use IS competency as an intermediary construct that shape the organizational IS capability based on specific IS function. That is, IS competencies are developed over time in conjunction with organizational resources, know-how, culture, practices and structures to perform specific tasks by leveraging IT resources. Examples could be infrastructure, Business-to-Business (B2B), report generation, or cloud competencies. The organizational IS capability, therefore, is a collection of such IS competencies and has a two-way relationship with strategic moves.

Moving beyond the conceptualisation issues, recent accounts have focused on the systemic nature of digital capability generation and begun investigating generative mechanisms that lead to developing and leveraging digital capability (e.g., Curry et al., 2012; Sandberg, 2014; Ward & Peppard, 2016; Westerman
et al., 2014) or implications of digital capability on strategic agility or performance (e.g., Chen et al., 2014; Chen et al., 2015; Rai et al., 2012; Zhang et al., 2013). Westerman et al. (2014) extensive research on 50 global companies, which they labelled as ‘digital masters’, illustrates how digital leaders envision application of trending IS functions, plan and lead the change processes to realise those vision. Their work provides an authoritative guideline for practitioners to harness benefits of IS functions such as social media analysis or mobile for strategizing and, therefore, ‘leading digital’. Their work however remains clear of organizational processes that lead to development of such IS functions. Sandberg (2014) theorised that digital capability generation is an ongoing organizational effort that is shaped through co-evolution of business and IS strategies. His arguments rest on the idea that digital capability generation can be analytically considered in terms of retaining useful variation through dynamic capabilities to sense, seize, and transform. In this way, as environments change and capabilities depreciate, firms attempt to maintain or elevate their digital capability. The magnitude of such initiatives depends on the rate of depreciation, turbulence in the environment and extent to which IS/IT is embedded in the operations.

While IS scholars emphasise that both generation and application of digital capabilities are closely linked with the collaborative strategies that organizations pursue to leverage external resources and capabilities (e.g., Bharadwaj, 2000; Peppard & Ward, 2004; Rai et al., 2012; Rai & Tang, 2014; Sandberg, 2014; Westerman et al., 2014), very few empirical investigations have been dedicated to the phenomenon. In particular, how and why a firm’s digital capability affects, and is affected by, the configuration of its business model remains under investigated.

**Problem statement**

Emerging enterprise digital solutions are essentially technologies for integrating large complex networks. The cloud provides ubiquitous access to shared pools of configurable system resources and storage or processing services that can be rapidly provisioned with minimal management effort on the Internet. Big data analytics provide rich insights into hidden patterns, unknown correlations, market trends, customer preferences and other useful information based on voluminous amounts of integrated data from various data streams. Machine learning and Artificial Intelligence (AI) utilise data from various sources to develop advanced models by automatically learning and improving from experience. Internet of Things provides a common set of core assets related to the interconnection of physical machines (objects) to the virtual world of the Internet. Application Programming Interface (API) provides access to proprietary software application for integrating data and processes across and
beyond the organisational boundaries. Last, but not least, 3D printing provides the means of bringing design, prototyping and manufacturing together.

It has been argued that leveraging such rapidly evolving technologies necessitates organizational ambidexterity—i.e. to be simultaneously innovative and adoptive. Organisational ambidexterity in interconnected contexts is defined as the organizational ability to balance co-exploration and co-exploitation activities in response to the changing environmental conditions. Co-exploration, in essence, refers to activities such as experimentation, innovation, flexibility or variation by virtue of the partners’ resources and capabilities, while co-exploitation refers to refinement, choice, production, efficiency, selection, implementation, and execution (Gibson & Birkinshaw, 2004; Parmigiani & Rivera-Santos, 2011; Raisch & Birkinshaw, 2008). To this end, business model reconfiguration as the means of optimizing value creation and capture through co-exploration and co-exploitation, or trial and error, has been strongly advocated across the academic literature and business press (Afuah, 2014; Andrevski et al., 2016; Foss & Saebi, 2015; Foss & Saebi, 2017; Merali et al., 2012; Teece, 2010; Zott et al., 2011).

A business model describes the system of interdependent activities that are performed by intra- and interorganizational units and the mechanisms that link those activities to each other, such as the contents being transferred, structure of execution and governance of activities such as who does what. An activity can be seen as engagement of resources of any of the parties involved to the overall processes (Zott & Amit, 2010). Business model reconfiguration, therefore, is understood as a managerial mechanism to enforce revised strategic intention through alteration of the content, structure or governance of activity systems. Entanglement of internal and external resources and activities over mutually developed and controlled digital infrastructure makes business models inherently complex. While this complexity makes business models less susceptible to imitation by competitors, it can also make business models resilient to change (Amit et al., 2012; Foss & Saebi, 2015; Rai & Tang, 2014).

Empirical evidence from various industries suggests that not all firms manage to successfully reconfigure their business models. Most contemporary organisations utilise an entire array of IS/IT that are introduced over the years by different vendors for different purposes. As a result, modifying such a complex IS/IT infrastructure to add further functionality such as sharing content with new partners, re-structuring boundary-spanning activity systems or employing alternative modes of governance is not an easy task. It is also worth noticing that the aforementioned emphasis on organizational ambidexterity introduces opposing forces on the configuration of digital assets and organisational practices. On the one hand, such configurations have to be flexible and open to encourage co-exploration through novel and innovative design of the content, structure and governance of the boundary-spanning activity systems. From the other hand, the configurations have to be robust and scalable to allow co-exploitation through well-defined and fine-tuned design of
the content, structure and governance of the boundary-spanning activity systems (cf. Amit et al., 2012; Hanseth & Lyytinen, 2010; Ross & Beath, 2006; Tallon & Pinsonneault, 2011). In fact, IS literature is rife with examples of failed interorganizational collaborations in all shapes and sizes due to the problems associated with ownership of data, configurations, and assets; mismatching standards or systems; inaccurate, incomplete or delayed data; bad communication or lack of commitment from partners (Afuah, 2014; cf. Chesbrough & Rosenbloom, 2002; Chesbrough, 2010; Denning, 2013; Galliers & Leidner, 2014; Johnson et al., 2008; Koch, 2004; Koch, 2007; Kotha & Srikanth, 2013; Lafley & Charan, 2008; Lee et al., 2014; Mangan & Lalwani, 2016; McKnight et al., 2017; Santos et al., 2015; Schwalbe, 2015; Sosna et al., 2010; Zhao & Xia, 2014).

Investigating organizational antecedents of business model reconfiguration is a relatively new endeavour both in IS and organisational sciences (Foss & Saebi, 2015; Foss & Saebi, 2017). While previous research acknowledges the critical role of IS/IT in operationalising business models (e.g., Al-Debei & Avison, 2010; Amit et al., 2012; Osterwalder & Pigneur, 2013; Veit et al., 2014), the relationship between a firm’s digital capability and the configuration of its business model still remains under investigated. For example, Rai and Tang (2014) conceptualised that dyadic and standard Business to Business (B2B) IT capabilities are mediating execution mechanisms between strategic intentions for interorganizational collaboration and the reconfiguration of business models. Their conceptualization of B2B IT capabilities into two distinctive levels, i.e. dyadic and standard goes against the holistic nature of the digital capability concept. This in effect, leads to downplaying the organizational processes involved in developing such B2B IT competencies, note: not capabilities, and their implications on future configuration of business models. It seems that both IS and business literature can benefit from an empirical investigation aimed at reconciling digital capability and business model concepts.

**Research aim**

Despite a great deal of interest on the concept of business model reconfiguration, implications of digital capability on business model reconfigurations remain under investigated. In order to fulfil a critical gap in the IS strategy literature, I will investigate the co-evolutionary dynamics of digital capability and configuration of business models.

Anticipated contributions of this thesis would be in exploring and explaining a relevant, and yet often ignored, relationship between business models and digital capability. To provide such insights, an insurance company is chosen as the empirical setting. I believe the state of the insurance industry in general, and challenges that the case company faced in particular, provide the optimal setting...
for conducting this research. To elaborate, just over a decade ago, insurance was known to be immune to innovation and change. It was often said that insurance and innovation only come close in the dictionary. Nevertheless, during the past decade, technological innovations, higher customer expectations and disruptive newcomers have redefined the insurance marketplace. Nowadays, there is a surge across the industry to “get on the digital train before it’s too late” according to a business developer in the case company. Insurers are advised to embed digital technology across their organizations as a part of an offensive strategy to prevent non-traditional insurers from gaining market share. Emerging digital solutions can help insurers to streamline their activity systems to lower costs or develop innovative services to increase customer satisfaction. This era of insurance also requires moving beyond traditional boundaries because, for instance, third party information aggregators play a vital role in providing information that can be fed to risk assessment models. Deloitte suggests that insurers should also consider extensive collaborations or even buying insurance start-ups not only to expand digital capabilities, but to inject a more innovative element into their culture, and to accelerate the disruption of more time-consuming and expensive standard business processes.

Delimitation

There are several competing research streams focusing on the concept of business model. for example some of conceptualizations focus on functional mechanism that makes an entire business models and their relationship to one another (e.g. Massa & Tucci, 2013; Osterwalder et al., 2005). I used Amit and Zott (2001) conceptualization that focuses on value creation and capture in relation to the external environment rather than the nuts and bolts that keep the business model together. In this way I will stay away from management accounting or organisational practices involved to operationalise the entire business model. this is particularly helpful for my research as the case company is multidivisional and multinational company with complex operations which makes it hard to seek those nuts and bolts. instead I will remain focused on those components of the business model that change through time.

Another limitation of the study can be the way that the core concepts are selected and treated. For example, I seek strategies of co-exploration and co-exploitation as the major emerging strategies for interorganisational collaborations. Nevertheless, these can be broken down to specific functional level strategies to provide a different set of insights.

When it comes to the methodological limitation, this research is carried in the insurance industry which some experts believe, and I do too, is on the verge of disruption. In particular the raise of data driven risk assessment has had a significant impact on the way that the industry perceived as actors seems to be seeking torrents of external information for more accurate risk assessments.
This could potentially impact the way that digital capability and business models co-evolve.

**Chapter summary**

The fundamental ideas that shape the core of this thesis is the implications of IT-enabled interorganisational collaborations on value, organisation and competition. There are two major streams of research emerging from the IS literature that focus on this phenomenon, namely digital capability and business model. The former is concerned with the two-way relationship between IS functions and business strategies, while that later is concerned with IT-enabled value and organisational forms in relation to the business strategy. Utilising the business strategy as the intermediary construct, the aim of this research is to explore the co-evolutionary dynamics of digital capability and business model.

**Structure of the thesis**

The rest of this thesis builds on this introductory. Chapter 2 starts with a brief overview of the IS Strategy research. By proving a trajectory of the focus, challenges and scope of IS strategy from the 80s, this section helps positioning the current research within the broader scope of the IS literature. After that the theoretical underpinning of the research is presented, those are the notion of digital capability, strategic intentions for interorganisational collaborations and business model reconfigurations. This chapter ends, with representation of the theoretical model for investigating the co-evolution of digital capability and business model. After that, chapter 3 sheds a light on the methodological choice that made to conduct the empirical investigation and analysis of the data. This include reflections on how the fundamental principles of the hermeneutic circle are adhered to in order to achieve rigor in the course of the research. After that, a brief overview of the case company as well as general insights about the insurance industry is provided in order to make readers aware of the specific internal and external contexts in which this research was carried out. Chapter 3 also include information about interviews and document analysis as the major sources of data. At the end of the chapter, Appreciative Systems Model is presented which is used as the analytical model to make sense of the empirical data.

Chapter 4 provides a linear narrative that is derived from the empirical data. It covers the time period between 2008 and 2016 and illustrates the firm’s decisions and actions in relation to internal and external events and ideas. Chapter 5 provides the analysis and discussion of the findings based on the analytical and theoretical models that are devised in chapter 3 and 2 respectively. The analysis is formed around four major time periods, each of which contains distinct decisions and actions in order to respond to the threats
or opportunities. Utilising the theoretical model, the next section is dedicated to discussion of the co-evolutionary dynamics of digital capability and business model. Personal reflections on the research process is the final part of chapter 5. Chapter 6 provides results of the research and opens up directions for future research.
Theoretical Perspectives

This chapter starts with positioning the research within the broader scope of IS literature. After that, theoretical foundations for investigating the co-evolutionary dynamics of digital capability and business model will be presented.

Positioning the research

Information Systems (IS) Strategy research is a relatively new area of investigation within the broader scope of IS research. The extant literature is generally formed around three major phenomena, which are: applications of IS/IT for strategic decision making, IS management and strategic use of IS/IT for competitive gains (Gable, 2010). Merali et al. (2012) identified the trajectory of strategic use of IS/IT literature from the 1980s as migration through five dimensions, as shown in Table 1. The table clearly illustrates the progression of complexity within SIS research, which has transformed over time from the system level to global architecture.

Strategic benefits of IS and IT began appearing in the IS literature in the early to mid-1980s when scholars were mainly exploring and highlighting the strategic benefits of IS and IT and placing SIS into the management agenda. The seminal work of Porter (1985) contextualized the role of information and IS in internal and external value chains and competitive positioning. The important role of information as both strategic resource and strategic weapon for competitive positioning emerged in subsequent research in that decade (cf. Merali et al., 2012). Furthermore, during this decade, the notion of alignment emphasized the importance of synchronizing IS/IT strategy and corporate strategy (Lederer & Mendelow, 1988; Reich & Benbasat, 2000).
**Table 1 Trajectory of IS Strategy Literature adopted from Merali et.al (2012)**

<table>
<thead>
<tr>
<th>Dimension of change</th>
<th>1980s</th>
<th>1990s</th>
<th>2000s</th>
<th>2010+</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dominant Alignment Challenge</strong></td>
<td>Aligning SIS with Business Strategy</td>
<td>Developing SIS for Integration of IS with Business</td>
<td>Developing SIS for Networks and Resource-based competition (valuing relational, human and knowledge resources)</td>
<td>Developing SIS for complex, dynamic, distributed contexts</td>
</tr>
<tr>
<td><strong>Integration Focus</strong></td>
<td>Systems</td>
<td>Process</td>
<td>Resource</td>
<td>“Global” socioeconomic system architectures</td>
</tr>
<tr>
<td><strong>Emergent/adopted IT trends</strong></td>
<td>Applications Portfolios</td>
<td>Integrated Systems ERP and CRM</td>
<td>Enterprise Architectures; Service-Oriented Architectures and Web-based services; Business Intelligence and Knowledge Management Environments</td>
<td>Multi-scale Ecologies; Cloud Computing Web 2.0 and Social Media</td>
</tr>
<tr>
<td><strong>Scope of Strategic Contextualization</strong></td>
<td>Internal</td>
<td>Industry-linked</td>
<td>Cross-Industry Value webs and Networks</td>
<td>Wider Global-Local Socio-Economic context</td>
</tr>
<tr>
<td><strong>Scope for Business Model Innovations</strong></td>
<td>Value Chain</td>
<td>Extended Enterprise</td>
<td>Value webs; Global reach</td>
<td>Distributed, Socially Relevant</td>
</tr>
</tbody>
</table>
During the 1990s, organizational, social and relational aspects of this mentioned alignment emerged as the central concern of SIS scholars. The important role and requisite competencies of Chief Information Officers (CIOs) along IT leadership gained recognition, which in turn paved the way for the notion of IS or IT capabilities that became prominent later (Kearns & Lederer, 2000; Levy & Powell, 2000; Merali et al., 2012). The notion of IS or IT capability is defined as the organizational ability to leverage IS and IT for performing specific tasks increased, by virtue of complimentary organizational resources such as know-how, processes, routines, and culture. The notion of IS/IT capability increasingly implied a two-way relationship between business strategy and IS/IT strategy. It required better incorporation of IT/IS in business strategy and better alignment of IT/IS with this strategy (Bharadwaj et al., 1999; Peppard & Breu, 2003).

At the turn of the 20th century, fusion of IS/IT into the fabric of organizations had a profound impact on the nature of organization, competition, and strategy. Accordingly, SIS scholars focused on themes of internal network relationships (Tillquist et al., 2002) and industry-wide network dynamics (Sambamurthy et al., 2003) which include networks and network dynamics in organisational competitive context. Increasingly the literature focused on cross-boundary projects and relationships, highlighting the importance of inter-personal relationships for shared information and knowledge processes for achieving positive outcomes (Enns et al., 2000; Rai et al., 2009).

As competitive contexts begun to evolve rapidly during the 2000s, IS/IT was seen as both the force and cure for digital disruptions. Thus, the notion of strategizing with IS/IT assets, which connotes strategy is something that organisations do not have, emerged as the major theme in the IS Strategy in the 21th century (Merali et al., 2012; Sandberg, 2014). Three major theoretical themes contributed to the strategizing with IS/IT school, namely: Resource Based View (RBV) of the firm, the concept of punctuated equilibrium, and the concept of ambidexterity (Merali et al., 2012). RBV is used to explain performance differences among firms based on total investments on human, organisational and technology in developing IS/IT capabilities. That is, the synergistic relationship between IS/IT assets and organizational resources was emphasized to underscore that investment in IS/IT is not in and of itself a necessary or sufficient condition for sustained competitive advantage. Instead, co-specialization of IS/IT resources and capabilities with tacit, socially complex firm-specific resources was shown to empower firms to transform their resource base and value propositions to remain competitive in changing contexts (Nevo & Wade, 2010; Piccoli & Ives, 2005; Ray et al., 2005).

Punctuated equilibrium and ambidexterity were both used as theoretical devices to explore the evolution of longitudinal changes in SIS alignment, and to recognise the tension between the imperatives for evolutionary and revolutionary change. Punctuated equilibrium was used for sense making about changing patterns of alignment between business and information strategies and
business and information structures over time based on long periods of relative stability that are interspersed with short periods of revolutionary change (Sabherwal et al., 2001). Emphasizing exploration (experimenting with new alternatives) and exploitation (refinement and extension of existing competencies, technologies, and paradigms), the twofold notion of ambidexterity was seen as joint requirements for viable organizations operating in an increasingly complex environments (March, 1991). Ambidexterity involves the pursuit of both exploration and exploitation at the same time, as reflected in the SIS literature concerned with the problem of dynamic alignment and the challenge of investments balance in exploration and exploitation for organizational learning and innovation (Galliers, 2004).

As IT-enabled innovations continue to disrupt a growing number of industries in the current decade, potential destabilizing effects of exogenous change have become an explicit concern of SIS scholars. Challenges only accelerate for adopting emerging technologies and developing IS for complex, dynamic and distributed socio-economical contexts to support socially relevant processes in global scale research initiatives. Merali et al. (2012) proposed that the IS Strategy domain is the domain that is profoundly responsible for the co-evolution of Physical Technologies, e.g. IS/IT assets, and Social Technologies, e.g. business models and organizations, to deliver social and economic benefits. This conceptualization puts emphasis on developing, harnessing and leveraging IS/IT for competitive positioning and organizational performance, which is consistent with reviews of the IS strategy literature that cumulatively define the IS Strategy domain as multi-level, multi-scale and multi-dimensional (Chen et al., 2010; Sidorova et al., 2008; Taylor et al., 2010; Ward & Peppard, 2016).

By exploring the co-evolutionary dynamics of digital capability and business model, this research contributes to the stream of research seeking implication of IS/IT for competitive advantage by exploring the dimensions of the alignment in complex interorganisational networks.
Theoretical frame

Digital capability

IS scholars are widely acknowledging that IT-enabled organizational change is shaped through interaction of social and physical technologies (Markus 1983; Markus and Robey 1988; Orlikowski 1992; Lamb and Kling 2003; Leonardi 2011) and IS/IT has both enabling and inhibiting consequences on organizational change and performance (e.g. Orlikowski and Robey 1991; Hanseth et al. 1996; Woodard et al. 2013). Synergic relationship between IS/IT assets and organizational resources underlies the fact that investment in IS/IT resources is not by itself a necessary or sufficient condition for sustained competitive advantage. Instead, co-specialization of IS/IT resources and capabilities with tacit, socially complex, and firm-specific resources is required to leverage IS/IT resources for enhance customer value proposition and, hence, gain superior performance (Bharadwaj, 2000). This reasoning holds at any scale ranging from the local implementation of systems in individual businesses through to large-scale adoption of global systems in multi-divisional and multi-national enterprises, and the success or failure of innovations in global markets (Nevo & Wade, 2010). Therefore, recent accounts put forward the notion of digital capability as a collection of organizational resources to leverage IS/IT assets for launching competitive reactions (cf. Peppard et al., 2014; Sandberg, 2014).

A firm’s digital capability, therefore, must provide strategic foresight and systemic insight for recognising IT-enabled opportunities and strategically leveraging IS/IT assets. Strategic foresight in this context refers to anticipation of discontinuities in the environment or technology while systemic insight denotes the capacity to identify entrepreneurial opportunities through enhanced linkages among the technology, the operations and the business model (Woodard et al., 2013). Enabling a synergistic relationship between IS/IT assets and organizational resources therefore requires co-specialization of socially complex and firm-specific IS/IT resources with tacit operational and technical knowledge (Bharadwaj, 2000). This reasoning holds at any scale, ranging from the local implementation of systems in individual businesses through the large-scale adoption of global systems in multi-divisional and multi-national enterprises, to the success or failure of innovations in global markets (Nevo & Wade, 2010).

Peppard and Ward (2004) conceptualised IS capability, hereafter referred to as digital capability for construct clarity, in relation to business strategy, IS/IT strategy, IT operations and services, business operations and organizational performance. It therefore follows the strength of an organization’s digital capability is ultimately only determined by the way it impacts business performance. The authors defined IS competencies as a collection of organizational resources such as IS/IT, knowledge, know-how and culture.
embodied in organizational structures and processes that in turn, define the firm’s digital capability, as illustrated in the figure 1. That is, a collection of such IS competencies, each corresponding to a specific IS/IT function, contribute to the firm’s overall digital capability through strategic use of such IS competencies and investment decisions to develop new IS competencies.

Figure 1 Digital capability and organisational performance. Adopted from Peppard and Ward (2004)

The figure 1 illustrates the relationship among digital capability, business and IS strategies and business and IT operations. It emphasizes that organizational performance ultimately derives from business operations such as sales, manufacturing, marketing, logistics, service, research and development operations not directly related to technology. Digital capability affects all four areas of the model and the aforementioned operations. The underlying IS competencies determine the extent to which IS/IT opportunities are incorporated into business strategy, core operations and systems strategy to positively influence organizational effectiveness and organizational ability to deliver IS/IT investments benefits. In this way, Peppard and Ward (2004) argue that contemporary IS/IT alignment requires that the organization develops, nurtures and utilizes IS competencies in relation to each of the four areas of the model. This view contrasts with the traditional view which considers just the alignment of the business and IS/IT strategies and the structures and processes of the IS function and activities in relation to the business organization. Sandberg (2014) theorised that digital capability generation is an ongoing organizational effort sustained through interaction between organisational and
IS strategies. The dynamic capabilities of sensing, seizing and transforming work as a synchronising mechanism between such strategies is illustrated in figure 2.

![Figure 2, Coevolutionary Strategy Processes, adopted from Sandberg (2014)](image)

Digital capabilities are built over an extended period of time by combining IS/IT resources with other complimentary organizational resources such as human resources, know-how, structures, and activities (Bharadwaj, 2000; Chen et al., 2015; Liu et al., 2013). Therefore, an organization’s digital capability empowers it to exercise a customised local set of competitive responses by leveraging IS/IT assets. Both the breadth and depth of these competitive responses influences adaptability to exogenous forces in and out of organizational boundaries (Majchrzak & Markus, 2012; Zammuto et al., 2007).

**Strategic intents for interorganizational collaborations**

From the late 1980s, Interorganizational Relationships (IOR) have become an important management phenomenon that contribute to organizational performance and competitive advantage. IORs represent strong and durable ties between two or more organizations with the aim of exchanging information, goods, knowledge and know how, or other resources and capabilities (Gulati, 1999; Gulati et al., 2000; Hagedoorn, 2002; Merali et al., 2012; Parmigiani & Rivera-Santos, 2011; Schmiemann, 2006; Schmiemann, 2007). By the turn of the century, fusion of IS/IT into the fabric of organizations made control and coordination of IORs substantially more efficient and accurate. This in turn has made the image of atomistic actors competing for profits against each other in decentralised marketplaces somewhat inadequate. As social, professional, and exchange networks growing in size and numbers, there is increasing appetite for establishing IOR to tap into external resources and capabilities. Such connections aid firms in gaining legitimacy and decreasing uncertainty, as competitive contexts are increasingly characterised by disruptions. Digital interconnectivity outside the boundaries of traditional industries’ products and
processes fortifies firms’ competitive responsiveness and organizational resilience (Christiaanse & Kumar, 2000; Ferrier et al., 2010; Parmigiani & Rivera-Santos, 2011; Tanriverdi et al., 2010; Vaccaro et al., 2010).

The motivations of firms engaging in IORs are rooted in organizational theory and organizational economics perspectives. From the organizational economics perspective, IOR is the most efficient governance form when compared to internalisation or market transactions. Issues related to specific investments, complementary assets, or incentive alignments are factors affecting the governance choice (Börjeson, 2015). Key theories that are used to study IORs in organisational economic terrain include transaction cost economics (TCE) and resource-based view (RBV). Traditional TCE approaches consider governance choices to be a function of costs associated with writing, monitoring, adapting and enforcing contracts. Assuming equal production costs, TCE predicts that the governance structure associated with the lowest transaction costs will be chosen to govern the transaction (Kim & Mahoney, 2005; Williamson, 1996). More recent accounts appreciate the role of firms’ existing capabilities and argue that governance choice is a function of firms’ strength and weaknesses (Williamson, 1999). Consequently, governance choices made during business model reconfiguration are influenced by transaction costs associated with each alternative choice (market, IOR, or firm), as well as organizational ability to devise and sustain the chosen alternative. Therefore, a class of IT capabilities required to establish, control, and govern customised exchange in each IOR is essential for business model executions. Therefore, a firm’s strategic intentions for IOR and their subsequent business models are affected by the firms IT capabilities to facilitate customised requirements for each IOR (Rai & Tang, 2014).

From a RBV perspective, IORs are formed to obtain access to complementary resources that are firm specific and hard to imitate (Barney, 1991). This perspective considers IOR as one of the four major vehicles to acquire new resources, along with internal development, external procurement, and full acquisition (Rivera-Santos, Miguel & Inkpen, Andrew, 2009). IORs typically provide cheaper and quicker access to tacit and imperfectly tradable resources than internal development or full acquisitions. However, IORs do present challenges and risks associated with the potential for leakage of valuable knowledge to partners. As customer value propositions foreseen by business models become more and more complex and embedded in larger contexts, organizational ability to acquire external resources and capabilities through IOR plays an important role in successful business model reconfiguration. Although issues such as trust, mutual benefit, and history are oftentimes mentioned as important for the inception of IORs, the role of digital capabilities in enabling such relationships is typically ignored.

From an organization theory perspective, IORs are established so firms can accomplish tasks more efficiently through interorganisational and interpersonal relationships. Such partnerships enable firms to gain powerful allies, improve
their reputations and legitimacy, become connected with other organizations, and gain access to greater and more diverse sources of social capital. Resource dependence theory emphasizes power and dependence as motivators for IORs, as organizations use these relationships to gain control over vital resources (Hillman et al., 2009). The key assumption in this approach is that organizations are dependent upon vital resources that may be owned by others, leading to power struggles and uncertainty. In a similar vein, stakeholder theory (Laplume et al. (2008) suggests that organizations will partner with influential stakeholders to reduce uncertainty arising mainly from reputational concerns. Those theorists focus on identifying and understanding stakeholders and on distinguishing between primary stakeholders, such as employees, customers, or suppliers, and secondary stakeholders, such as activists, legislators, or the media. Forming IORs with stakeholders is one mechanism organizations can use to better understand stakeholders’ views and influence them in a positive direction. According to this perspective, organizations’ ability to connect with reputable players via its IT capabilities significantly influences the success of all business models.

Exploration and exploitation are lifeblood of any organisation (Lavie et al., 2010; March, 1991). By combining essence of these motivations, and advancing the notion of exploration and exploitation Parmigiani and Rivera-Santos (2011) identified that all forms of IORs (e.g. strategic alliances, joint ventures, buyer–supplier agreements, licensing, co-branding, franchising, cross-sector partnerships, networks, trade associations, and consortia) combine traits from two distinct pure forms, namely: co-exploitation and co-exploration. Exploitation is defined as “refinement, choice, production, efficiency, selection, implementation, and execution”. Therefore, they defined co-exploitation as “a strategically important, cooperative relationship to execute existing knowledge, tasks, functions, or activities”. Exploitation focuses on existing knowledge to efficiently leverage assets and resources that are owned, controlled, or shared by partners. Focus of this pure form is on existing knowledge with expansion as the main activity. Value is derived from efficient use of assets, mainly involving explicit knowledge. Relations based on co-exploitation are enduring and can last as long as partners find it beneficial to pool their resources together and conduct a joint activity.

In the same way Parmigiani and Rivera-Santos (2011) defined exploration as “search, variation, risk-taking, experimentation, play, flexibility, discovery, and innovation”. Therefore, it follows that co-exploration defined as “a strategically important cooperative relationship to create new knowledge, tasks, functions, or activities”. Focus of this pure form is on acquiring new knowledge in collaboration with partners. Note that learning can include learning from the partner, learning about the partner, or learning about managing relationships (Inkpen, 2002). Furthermore, innovation drives value creations, thus acquired knowledge is typically tacit to capture the value within the bounds of the IOR (Grant, 1996). In contrast to co-exploitation, duration of co-exploration is
typically set and it terminates when the objectives are complete (Khanna et al., 1998).
By steering away attention from particular types of IOR toward strategic objective, this approach provides a clear way for investigate strategic intentions for IORs when it comes to business model reconfigurations. Table 2 illustrates how co-exploration and co-exploitation can be interpreted based on organizational theory and organizational economic perspectives.
Table 2 Strategic Objectives of Interorganisational relationships

<table>
<thead>
<tr>
<th>Motive</th>
<th>Strategic Objective</th>
<th>Authors</th>
</tr>
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</table>
| Transaction Cost Economy      | IOR is one form of governance along with market and hierarchy (firm). Governance choice is associated with transaction cost involved in each from of governance. | Co-exploration: Create a new specific investment  
Co-exploitation: Exploit an existing specific investment   | (Geyskens et al., 2006; Williamson, 1991) |
| Resource Based View            | IOR is a formed to access resources and capabilities that owned and controlled by partners. Alternative approaches include internal development, external procurement, and full acquisition. | Co-exploration: Combine resources possessed by the partners to create new resources  
Co-exploitation: Leverage resources possessed by the partners | (Barreto, 2010; Kraaijenbrink et al., 2010; Rivera-Santos, M & Inkpen, AC, 2009) |
| Resource dependence theory     | Organizations are dependent on vital resources that exclusively owned by others.    | Co-exploration: Reduce uncertainty through greater control of creativity, the most important resource in IOR  
Co-exploitation: Reduce uncertainty through greater control of capacity, the most important resource in IOR | (Hillman et al., 2009; Pfeffer & Salancik, 2003; Salancik & Pfeffer, 1978) |
| Stakeholder theory            | IORs are formed with influential stakeholders to reduce uncertainty arising mainly from reputational concerns. | Co-exploration: Develop reputation with new or different stakeholders on new or different issues  
Co-exploitation: Transfer, protect, and leverage reputation with known stakeholders on known issues | (Hannan & Freeman, 1984; Laplume et al., 2008) |
Business model reconfiguration

Around the turn of the century, e-commerce ventures began to outperform traditional business, as the Internet assumed increased importance. Observing the transformational power of IS/IT on value propositions, Amit and Zott (2001) argued that none of the traditional sources of value that derive from classic strategic management theories or industrial organization disciplines could independently account for the value that is created in the digital economy. Their proposed framework aggregates the traditional sources of value (i.e., Value Chain, Schumpeterian Innovation, Strategic Networks, TCE, and RBV) around four interdependent dimensions, namely: efficiency, complementarities, lock-in, and novelty. They also advanced the business model construct as a unit of analysis that encapsulates a firm’s logic of value and its IT-enabled organization to create, deliver, and capture that value. Three design elements of content, structure, and government were used to illustrate the gestalt of a business model in their seminal paper.

Business model definition

A business model illustrates the system of interdependent activates that are performed by the focal firm and its partners and the mechanisms that link these activities to each other to create, deliver, and capture value. An activity in this business model can be seen as engagement of human, physical, and capital resources of any party to the business model (the focal firm, end customers, vendors, etc.) to serve a specific purpose toward the fulfilment of the overall strategic objectives (Zott & Amit, 2010). As activities performed by intra- and interorganizational units, interdependencies among activities that are boundary-spanning, are the key to understanding value creation and capture through the business models. Such interdependencies results from active management decisions to shape and design both the organizational activities and the IT-enabled exchanges and interactions that link intra- and interorganizational activities. The configuration of the firm’s activity systems that is shaped by the choice of activities, how they are linked, and who performs them, captures how the focal firm is embedded in its ‘ecology,’ i.e., in its multiple networks of suppliers, partners and customers, as well as defining the firm’s potential suppliers, partners and customers (and competitors) in the first place (Zott & Amit, 2010). Aligned with current literature (e.g. Amit & Zott, 2015; Saebi, 2014; Santos et al., 2009; Zott & Amit, 2010), In this thesis business model is defined as the configuration of intra and inter organizational activities and relationships, designed to create, deliver, and capture value. Activities define the value propositions and target customers or what is offered to whom. Relations specify inter or intra organizational units that perform the activities and the way they are linked and governed to, thereby, determine how the firm creates and capture value.
Design elements of content, structure, and governance characterise business models. Activity system content refers to the selection of activities to be performed to enable value propositions. Activity system structure describes how the intra- and inter-organizational activities are linked together (i.e., sequence of execution), and activity system governance refers who is performing the activity. Design themes of Novelty, Lock-in, Complementarity, and Efficacy define business models. That is, activity systems could get configured to provide novel value propositions by adoption of new activities (content), and/or new ways of linking the activities (structure), and/or new ways of governing the activities (governance). In the same way activity systems can get configured to lock customers or suppliers in (lock-in), perform tasks in more efficient ways efficiency, or complement other products or services (Zott & Amit, 2010).

**Business model reconfiguration**

In recent years, the literature (Doz & Kosonen, 2010; Foss & Saebi, 2015; Teece, 2010) has strongly advocated the notion of business model reconfiguration as an appropriate response to disruptions, accelerated rate of change, intensified competition within the larger context of increased emphasis on information and knowledge as value creation mechanisms. However, it is not clear what scholars and practitioners mean by business model innovation, change, and adaptation in terms of scope, scale, and dimension of change. For example, some consider change along the lines of value proposition, revenue model, or operational model (Foss & Saebi, 2015; Santos et al., 2015). Others consider change along three dimensions of innovation in technology, value network, and financial hurdle rate (e.g. Giesen et al., 2010; Lindgardt et al., 2009). Table 3 provides an ontology of business model reconfiguration as reflected in the literature.
<table>
<thead>
<tr>
<th>Tag</th>
<th>Definition</th>
<th>Scope</th>
<th>Extend</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>BM Innovation</td>
<td>the discovery of a fundamentally different business model in an existing business.</td>
<td></td>
<td></td>
<td>(Markides, 2006)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Radical</td>
<td>Complete</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Rarely</td>
<td>Industry level</td>
<td></td>
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<tr>
<td>BM Change</td>
<td>Typology: Reactivating, Relinking, Repartitioning, relocating is a reconfiguration of activities in the existing business model of a firm that is new to the product service market in which the firm competes.</td>
<td>Incremental</td>
<td>Partial</td>
<td>(Santos et al., 2009)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Occasionally</td>
<td>Firm level</td>
<td>2015</td>
</tr>
<tr>
<td>BM Reconfiguration</td>
<td>Management active actions to reconfigure and renew organizational resources to change an existing business model. The reconfiguration process requires shifting, with different degrees of radicalness, from an existing model to a new one.</td>
<td>Incremental</td>
<td>Partial</td>
<td>(Massa &amp; Tucci, 2013)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Radical</td>
<td>Complete</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Occasionally</td>
<td>Firm level</td>
<td></td>
</tr>
<tr>
<td>BM Lifecycle</td>
<td>involves periods of specification, refinement, adaptation, revision and reformulation. An initial period during which the model is fairly informal or implicit is followed by a process of trial-and-error, and a number of core decisions are made that delimit the directions in which the firm can evolve</td>
<td>Incremental</td>
<td>Partial</td>
<td>(Morris et al., 2005)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Usually</td>
<td>Not applied</td>
<td></td>
</tr>
<tr>
<td>BM Learning</td>
<td>An established firm modifies its business model when faced with competition from a new business model.</td>
<td>Incremental</td>
<td>Partial</td>
<td>Complete</td>
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<td>-------------</td>
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<td>----------</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Usually</td>
<td>Firm level</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>BM evolution</th>
<th>A fine-tuning process involves voluntary and emergent changes in and between permanently linked core components.</th>
<th>Incremental</th>
<th>Partial</th>
<th></th>
<th>(Demin &amp; Lecocq, 2010)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Usually</td>
<td>Not applied</td>
<td></td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>BM replication</th>
<th>Not defined</th>
<th>Incremental</th>
<th>Complete</th>
<th>Partial</th>
<th>(Dunford et al., 2010)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Occasionally</td>
<td>Not applied</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>BM Renewal</th>
<th>Not defined</th>
<th>Incremental</th>
<th>Complete</th>
<th>Partial</th>
<th>(Doz &amp; Kosonen, 2010)</th>
</tr>
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<tbody>
<tr>
<td></td>
<td></td>
<td>Usually</td>
<td>Not applied</td>
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</table>
Despite a great deal of discrepancy among the listed perspectives, in line with findings of Saebi (2014), three stereotypes can be extracted from the literature: business model evolution, adaptation and innovation. Business Model Evolution is driven by a fine-tuning agenda that involve voluntarily change among permanently linked component of the business model, such as actors, processes or technologies (Massa & Tucci, 2013). Business model evolution is a continuous struggle for perfection of business models at slow but lengthy intervals. It reflects permanent tweaking of activity systems and their underlying relationships to improve customer value propositions, reinforce relationships with partners, or increase efficiency by adjusting operational processes. It does not involve any major strategic change or altering core processes and broadly speaking change remains limited to few areas at a time without significantly changing the core processes.

Business model adaptation, however, involves aligning activity systems and relations to fit the changing environmental conditions (Demil & Lecocq, 2010). In contrast with business model evolution, business model adaptation involves active management engagement to adjust boundary-spanning activity systems and their underlying relations to enforce refined strategic objectives. Various areas of the existing business model can be changed at the same time with various degree of radicalness. That kind of change is triggered by revised strategic intentions for alignment with the environment through utilising best practice business models new to the firm. This process can occur in radical or incremental fashion involving various aspects of the business model. Business model evolution and adaptation are similar in that they entail organizational processes that bring about adjustments (as opposed to disruptions) in the business models. They differ, however, in the way that evolutionary change processes occur more naturally and incrementally over the lifespan of the firm’s business model, while business model adaptation reflects purposeful changes made in response to changing environmental conditions.

Finally, business model innovation involves a radical process by which internal and external dimensions of a business model gets completely innovated to disrupt market conditions. It happens seldom and involves reinventing every wheel and cog in the business model. New relationships need to be formed and activity systems need to be selected, structured, and governed in new ways. While business model evolution and adaptation keep the existing business model as the foundation and build on it, business model innovation usually involves manufacturing a distinct business model from the scratch.

As it can be seen in the table 4, business model reconfiguration can be used for attaining alignment to the environment, achieve minor adjustments, or unleash disruptions. Activities of reactivating, relinking, repartitioning and relocating can be seen as the operational mechanisms for business model innovation, evolution and adaptation. Reactivating involves altering activity systems that constitute the current business model, relinking involves altering connections between intra- and interorganizational units, repartitioning involves altering
physical, cultural and institutional boundaries of organizational units that carry out activity systems, and relocating involves altering physical, cultural and institutional distances of organizational units that carry out activity systems.
Table 4 Business Model Dynamic Stereotypes dynamic characteristics of the previous ontological perspective

<table>
<thead>
<tr>
<th></th>
<th>Innovation</th>
<th>Adaptation</th>
<th>Evolution</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Strategic Aim</strong></td>
<td>Disruption</td>
<td>Alignment</td>
<td>Adjustment</td>
</tr>
<tr>
<td><strong>Extend</strong></td>
<td>Complete</td>
<td>Complete/partial</td>
<td>Partial</td>
</tr>
<tr>
<td><strong>Scope</strong></td>
<td>Radical</td>
<td>Radical/incremental</td>
<td>Incremental</td>
</tr>
<tr>
<td><strong>Occurrence</strong></td>
<td>Rarely</td>
<td>Periodically</td>
<td>Usually</td>
</tr>
<tr>
<td><strong>Newness</strong></td>
<td>Industry Level</td>
<td>Firm Level</td>
<td>Not relevant</td>
</tr>
<tr>
<td><strong>Activities</strong></td>
<td>Reactivating, Relinking, Repartitioning and Relocating</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Given the business model’s strong emphasis on value creation in collaboration with partners, organizational ability to form Interorganisational relationships for co-exploration and co-exploitation is essential for business model design and implementation. It is intuitive that all the various business model reconfigurations mentioned in the previous section (evolution, adaptation, and innovation) involve altering existing or perhaps making new IORs. Strategic intentions of business model reconfigurations are identified as adjustment, alignment, and disruption. Therefore, each type of business model reconfiguration can encourage co-exploration or co-exploitation in a customised way according to business model reconfigurations objectives. Table 5 illustrates this phenomenon.

Table 5 Collaborative Strategies for Business Model Reconfigurations

<table>
<thead>
<tr>
<th>BMR Objective</th>
<th>Innovation</th>
<th>Adaptation</th>
<th>Evolution</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Co-Exploration</td>
<td>Co-Exploitation</td>
<td>Co-Exploitation</td>
</tr>
<tr>
<td>IOR objective</td>
<td>Form new partnerships across boundaries of traditional industries</td>
<td>Combin...</td>
<td>Commercialize novel investments</td>
</tr>
<tr>
<td></td>
<td>Create new specific investments</td>
<td>Combine resources owned by partners</td>
<td>Leverage partner resources</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

With IT-enabled transactions playing a significant role in operationalising business models and value networks, this classification can help understanding the severity of IT-capability renewal required for each situation. To review, business model adaptation and evolution places less pressure on the IT units to develop and leverage new IT capabilities, as the essence of the business model would not significantly disturbed, although new partners might be added to the value network, which could provide technological difficulties, as explained in the previous chapter. Business model innovation, however, would require a whole set of new IT capabilities to enable activity systems that are not only new to the firm, but also new to the industry. Therefore, it is more likely that a complete renovation of IT capabilities would be required for this kind of business model reconfiguration.
Business-to-Business (B2B) competencies for business model reconfiguration

B2B competencies constitute a subset of the firm’s overall digital capability defined as the organizational ability to manipulate its digital network of information to create, control, and execute interfirm transactions efficiently (Kim & Mahoney, 2006). B2B IT competencies provide the means to support the design requirements of interfirm collaborations by empowering firms to establish digital connections between partners for information sharing and activity coordination. (Malhotra et al., 2005; Rai et al., 2009; Ross & Beath, 2006; Saraf et al., 2007).

At least two IS competencies are instrumental for operationalising business models: Dyadic and Standard B2B. Dyadic IS competencies facilitate idiosyncratic requirements for information sharing with a specific partner (e.g., what to share, how much, how often, with what level of personalization, etc.); governance (e.g., rights to resource attributes, and level of security and privacy); and transaction structure (e.g., collaborative execution of interdependent tasks). Dyadic IT customization represents a firm’s ability to develop build-to-order IT interfaces for a given relationship to exchange custom information; tailor business rules; resolve syntactic and semantic differences with a partner’s databases; and integrate hardware platforms, communication technologies, and applications to work seamlessly with a partner (Broadbent et al., 1999; Yang et al., 2009). This competency develops the architecture of digital linkages that accommodates unique integration requirements to transmit, combine, and process data and coordinate activities with a partner (Grover & Saeed, 2007; Rai et al., 2006). The ability to meet idiosyncratic exchange requirements of individual partners leads to quasi integration with such partners, which in turn promotes co-specialization, and develops mutual trust and mutual interdependence with partners (Nyaga et al., 2010; Subramani, 2004; Subramani & Venkatraman, 2003).

Standard IT competency facilitates common modularized IT processes to exchange data and structure activities with a large number of partners, thereby reducing the need for idiosyncratic systems (Malhotra et al., 2007; Ross & Beath, 2006). It reflect the firm’s ability to deploy Standard B2B IT to remap efficiently both the structure of its interfirm network and the governance of interfirm relationships (Rai & Tang, 2014). This capability enables firms to add, replace, and terminate partnerships, thereby changing the composition and structure of its value network (Gosain et al., 2004; Rai & Tang, 2010), and modify the rules of control and collaboration for different types of interfirm relationships, thereby changing the governance of the interfirm network (Rai & Tang, 2010; Tanriverdi et al., 2010).
<table>
<thead>
<tr>
<th>Dyadic B2B IT Competency</th>
<th>Definition</th>
<th>BM Ramification</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Accommodate an interorganizational relationship’s idiosyncratic requirements for information sharing</td>
<td></td>
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<tr>
<td></td>
<td>Facilitate boundary-spanning activity systems in customized relationships for business model implementation</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Business Model Content</strong></td>
<td></td>
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<tr>
<td></td>
<td>Facilitates the timely and accurate exchange of tailored information for the execution of relationship-specific processes and the operation of relationship-specific products/services in a dyadic relationship</td>
<td></td>
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<tr>
<td></td>
<td><strong>Business Model Structure</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Supports idiosyncratic activity and decision interdependencies for coordinating dyadic interfirm relationships</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Business model governance</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Supports the execution of individualized contracting and monitoring processes for a dyadic relationship</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Safeguards against opportunistic behaviour and involuntary knowledge spill over in a dyadic relationship</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Promotes mutual adjustment through sharing of idiosyncratic information in dyadic interfirm relationships</td>
<td></td>
</tr>
<tr>
<td>Standard B2B IT competency</td>
<td><strong>Business Model Content</strong></td>
<td></td>
</tr>
<tr>
<td>----------------------------</td>
<td>---------------------------</td>
<td></td>
</tr>
<tr>
<td>Leverage modularized IT resources and B2B IS standards to facilitate exchange with its network of suppliers, customers, and partners. Facilitate boundary-spanning activity systems in standard relationships for business model implementation</td>
<td>Facilitates the timely and accurate exchange of a broad range of standard/routine information for the execution of common processes and product/service interoperability in a firm’s network of interfirm relationships</td>
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</tr>
</tbody>
</table>

**Business Model Structure**

Supports common activity and decision interdependencies for coordinating a firm’s network of interfirm relationships

**Business model governance**

Establishes a broad range of common contracting and monitoring processes across a firm’s network of interfirm relationships

- Reduces relationship lock-in and promotes partnering flexibility
- Uses standardized interfaces to encapsulate and protect intellectual property
Table 6 provides the implications of various B2B IT capabilities on business models. Network IT standardization reduces the focal firm’s need to dedicate and manage unique IS resources for routine coordination with partners, enabling it to commit such unique IT resources to high value-adding information exchange rather than common coordination (Malhotra et al., 2005). Furthermore, it allows the focal firm to establish digital connections to a group of partners with relative ease and at a low cost. This B2B IT competency is especially applicable to managing those relationships that involve common processes and interoperable products/services across a diverse set of partners. By implementing standardized IT interfaces for these common processes and interoperable products/services, the focal firm is able to broadcast information and achieve scale economies (Tang et al., 2011). Moreover, standardized information allows quick comparison of performance across different partners, helping the focal firm evaluate its partners and learn about effective contract design for a variety of resource attributes (Kim & Mahoney, 2005). Using standardized IT interfaces to execute common processes and achieve the interoperability of products/services with a group of partners reduces the focal firm’s dependence on a specific partner, thus making it easy to add, replace, or terminate a relationship whenever necessary (Bae & Insead, 2004).
Application of the theory

![Diagram](application_theory.png)

*Figure 3 Theoretical Model: Dynamic Link between Digital capability and Business model*

In this research, the application of theory will be in the analysis and discussion chapter, which explores the relationship between digital capability and business model configuration. As illustrated in the figure 3 It advances a cyclical loop in which a firm’s strategic intentions are formed by the firm’s digital capability, which in turn defines the configuration of the firm’s business model. Technological requirements to operationalise business models triggers investments in IS competencies, which in turn increases state of the firm’s digital capability.
Methodology

This chapter presents philosophical underpinnings and rationale for conducting this research through an interpretive case study. After that a brief introduction to the insurance industry and the empirical contexts is provided, which is followed by description of the way that the empirical data is gathered during the course of this research. Finally, a brief description of the Appreciative Systems Model is presented as it is used for analysing the empirical data.

Philosophical underpinnings

I have chosen to conduct interpretive research based on a qualitative case study. Across the management and business sciences, case studies are used to provide deep understanding of complex phenomena – e.g., how and why some decisions were made or some processes implemented. Case studies are used to investigate the subject matter in context by accessing empirical evidence from one or more organizations. Interviews and documents are common sources of empirical data for case studies. In particular, case studies are helpful for exploring the phenomenon of interest where little research has been carried out. Nonetheless, case studies can also help formulating new theories, testing existing theories, developing causal explanations, or even compare theories (Myers, 2013; Yin, 2013).

Interpretive research assumes that access to given, or socially constructed, reality can be granted via social constructions such as language, consciousness, shared meanings, and instruments (Myers, 2013; Orlikowski & Baroudi, 1991). Dominant perspectives on the SIS research consider IT-enabled organizational change to have unforeseen consequences that emerge from interaction of physical and social technologies, such as IS/IT, structures, processes and roles. This implies that nuanced understandings of IT-enabled organisational can be achieved through investigating interactions between IS/IT functions, organizational processes, human intentions (Chen et al., 2010; Markus & Robey, 1988; Merali et al., 2012).

As the name implies, interpretive studies rely on empirical data that is gathered from interview transcripts and documents through researchers’ interpretations (Mason, 2002). Giddens (1979) calls this relationship double hermeneutics to highlight the fact that social scientists interpret their phenomenon of interest through research subjects’ interpretations, which is also affected by the presence and the interpretation of the researcher. In order to maintain rigor, interpretive research needs to be evaluated according to underlying philosophical assumptions and best practices defined for specific methods. Klein and Myers (1999) presented seven principles for the conduct and evaluation of interpretive research.
The fundamental principle of the hermeneutic circle
This principle is fundamental to all other principles and suggests all human understanding is shaped through consideration of the interdependent meaning of parts and the whole that they form. In order to comply with this principle constant analysis of events and actions in their natural contexts and in relationship to the internal and external environment was performed. As this research seeks the relationship among digital capability, strategy and business model, having a holistic perspective helps to navigate the empirical data through ideas, appreciations and actions corresponding to the major research constructs. For example, decisions to persuade a specific set of strategies based on a specific configuration of the business model that is operationalised via a specific set of IS competences is analysed through external and internal events and ideas as well as management cognition and agenda. Furthermore, moving between data gathering and data analysis aided rediscovering new insights from the earlier sources as my understanding of the whole was being formed.

The principle of contextualization
This principle implies that social and historical events shape researchers’ interpretations. Therefore, researchers should critically reflect upon the social and historical background of the research setting, so that the intended audience can see how the current situation under investigation emerged. In order to fulfil the promise of this principle, I dedicated several interviews with people both inside and outside (consultants) of the company to form an informed view of the situation. Furthermore, I have read books and articles dedicated to the financial crises and its consequences on the insurance industry.

The principle of interaction between the researchers and the subjects
This principle requires critical reflection on how the research materials (or “data”) were socially constructed through the interaction between the researchers and participants. Just the presence of the researchers and the way they conduct the interview could affect the interviewees’ interpretations and responses. Furthermore, the researchers form new interpretations as they analyse the interviews and aggregate insights from various sources. Therefore, this principle requires transparency on how data gathering and analysis are performed. I will explain how I gathered and analysed data in coming sections.

The principle of abstraction and generalization
This principle requires relating the idiographic details revealed by the data interpretation through the application of principles one and two to general theoretical concepts that describe the nature of human understanding and social action. There are four types of generalisation identified for interpretive IS research: developments of concepts, generation of theory, drawing of specific implications and rich insights (Geoff Walsham, 1995). This research contributes
to developing rich insights and drawing specific implications about the co-evolutionary dynamics of digital capability and business models.

**The principle of dialogical reasoning.**
This principle requires sensitivity to possible contradictions between the theoretical preconceptions guiding the research design and actual findings. This principle followed through reflecting on inconsistencies between theoretical model or some components of it and empirical data. This in effect has brought interesting points for discussion in chapter 5.

**The principle of multiple interpretations.**
This principle requires sensitivity to possible differences in interpretations among the participants as are typically expressed in multiple narratives or stories of the same sequence of events under study. This phenomenon was witnessed first-hand several times during the data gathering phase. Interviewees from different organisational units or positions presented different perspectives on the same events, meetings or decisions that emerged. In order to reconcile different perspectives, I investigated alternative sources, such as documents, to identify the most plausible interpretation that could accommodate as much as all of the different perspectives.

**The principle of suspicion.**
This principle requires sensitivity to possible biases and systematic distortions in the narratives collected from the participants. During this research this principle adhered to via several control loops to make sure first, what interviewees meant was captured and second all they presented was captured not fragmented parts.
Empirical setting

In order to generate empirical findings for my research, I have chosen to investigate an insurance company. The company in question has operations across the Middle East, south Europe, and north Africa. At the request of anonymity by the company prior to their initial public offering (IPO), the company will be called ABC in this document.

ABC’s regional branches enjoy a great deal of autonomy in order to tailor their services for their local markets, yet there are standard processes and systems that are implemented to keep track of the business, cashflow, operational budget, and other matters. For the sake of simplicity and making the research project manageable, the empirical data is gathered from a regional headquarter of the company where all the major decisions about polices, strategies and investment directions are made.

It seems that the insurance context provides the optimal setting for investigating the co-evolution of business models and IT capabilities, as IT-enabled innovations has had, and continue to have, drastic impact on the outlook of the industry in general. Before selecting the case company, other settings such as a software development network and a bicycle shop both located in Växjö Sweden were considered. Both cases could potentially provide interesting insights as they are parts of global supply networks and multisided platforms. Nevertheless, at the end it looked that the insurance company could provide richer insights.

A brief overview of the Insurance Industry

Just over decade ago, the insurance industry was known to be unimaginative and stagnant. In fact, it was often said that Insurance and Innovation only come together in the dictionary. However, the emergence of big data analytics and huge data companies such as google, Facebook and amazon, posed an existential challenge to the local insurers. The insurance industry operates based on the dynamics of imperfect information; policy holders do not face similar risks of ills, such as car accidents, cancer, or unemployment. However, as those with substantially lower risks are not always aware of their good fortune, they seek insurance alongside those with greater risks of hardship. The insurance company then pools those premiums into a collective fund to pay for compensations. Whatever remains in the fund becomes the insurer’s profit.

Over the past decade, however, the number of web-connected devices existed the number of people in the world. Smartphones, fitness bands and other forms of wearable technologies, cars, sensors, and even domestic appliances are only a few examples of machines that generate a constant stream of live data. There

1 https://www.investopedia.com/university/ipo/ipo.asp
2 http://www.economist.com/blogs/economist-explains/2015/03/economist-explains-12
http://www.economist.com/topics/insurance
is a growing awareness among the insurers that uncertainties which underpin the need for insurance are now reduced due to better data driven risk assessments. With predictive techniques that utilize such data becoming increasingly more accurate, they could detect and mitigate the risks involved, thus reducing the need for insurance policies. The growing mountain of data available to individuals and organizations provide means of distinguishing between high-risk and low-risk issues far more clearly, thus disturbing the long-lasting business logic that remained intact for almost 400 years. This in effect could raise premiums for people and organizations that are considered high-risk, e.g., cancer patients or households in certain areas. Nimble has become the new normal for insurance companies as they are confronted with marketplaces that are changing more drastically than perhaps ever before. This has led to a surge across the industry to embrace digital technologies to reinvent the industry and elevate value propositions to satisfy customers’ individual needs.

**Data gathering**

The data gathering phase of this research extended from 2015 to 2016. During this time, more than 20 people interviewed for a total number of 33 times. Adding to that 192 documents were analyzed and the researcher spend two weeks in the company and participated in their annual conference which had tracks and workshops focusing on specific issues. Access to the company was brokered by a member of the consultancy firm who had implemented the company’s ERP system in the mid-2005. As the consultancy firm and ABC continued their collaborations, the mentioned consultant initiated the contact between the researcher and a senior business developer in the company.

**Interviews**

In preparation for the first two interviews, a list of preformulated questions based on the interviewees area of expertise developed. However, it soon became obvious that this was not an optimal approach as conversations became hallow and without substance. This in turn hindered the natural flow of discussion around the phenomenon. As a matter of fact, thinking too much and planning for the interviews backfired in this case; the subjects became bored or even agitated and the conversations became shallow and without real substance. There were two reasons for that. First, perhaps the questions were too loyal to the literature and the questions had an air of intellectual superiority to them, which made subjects feel disconnected. It is important to note that this is not the critique of the existing literature, instead it reflects on lack of the treatment of the substance of the literature for interviewees. Second, as English is not the first or even second language for most of the interviewees, having such polished sentences made them uneasy about the whole process. To remedy this issue, before each interview and depending on the expertise of the interviewee a list of 3 to 5 keywords from the literature was selected to guide the conversation
around those. This strategy helped elevate the conversations to generate fresh insights about the phenomenon.
For this thesis, 28 of 33 interviews were chosen to be analyzed as the remaining 5 covered aspects that do not fall into the current research aim. Interviews had various lengths from 10 minutes to 3 hours, but an average interview took around 90 minutes. Of those 28 interviews, 21 were conducted over skype and 7 were conducted in person.

Table 7, Empirical data: interviews

<table>
<thead>
<tr>
<th>Position</th>
<th>Number of Interviewees</th>
<th>Number of Interviews</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEO</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Actuaries</td>
<td>4</td>
<td>9</td>
</tr>
<tr>
<td>Business Developers</td>
<td>3</td>
<td>8</td>
</tr>
<tr>
<td>Director of Sales</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Chief Information Officer (CIO)</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Chief Financial Officer (CFO)</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>IT Technicians</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Adjusters</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Account Manager</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

With interviewees’ consent, most of the skype calls were recorded with screen record software and face-to-face interviews recorded on a mobile phone. The first two interviews were transcribed, but due to the massive undertaking the rest did not transcribed. However, notes taken during the interviews and summaries that were written immediately after each interview became helpful during the analysis. As both the researcher and interviewees figuring out the underlying phenomenon, transcripts became extensive and incomprehensible, while the notes are to the point and brief.

Documents
During the course of data gathering for this research, access to 1607 documents was granted to the researcher. Those were produced and distributed between 2008 and 2014. As it will be elaborated in detail in the next chapter, the company suffered from lack of transparency and accountability during its early stages. In order to remedy that problem, they have a dedicated inhouse document management system that tags topics discussed in board meetings and clarifies each member’s position and vote. In the same way, it tags users on each major document such as purchase forms, memos and reports.
For the purpose of analysis, 192 documents are chosen as the rest fell outside the scope of this research or contained irrelevant information such as information about software updates or staff training on new systems. The focused remained on the documents that contained information about the firm’s performance, forecasts, service upgrade, or IT purchase or upgrade.

**Data analysis**

The empirical data gathering phase generated a huge amount of data to be analysed. In order to make sense of all that data, Checkland and Casar’s interpretation of Sir Geoffrey Vickers Appreciative Systems Model as explained in (Checkland, 1999) was used. Figure 4 illustrates this model.

![Appreciative Systems Model](image)

*Figure 4 Appreciative Systems Model adopted from Checkland (1999)*

The starting point of the model is the two-stranded rope that illustrates the constant flux of events and ideas unfolding through time. This implies that events and ideas are inseparable and constantly affect one another. However, there are moments in which we can decide to act or intervene. Those moments are called appreciations and form recursive loops in which the flux of events and ideas generates appreciation and appreciation itself contributes to the flux. Through appreciations, individuals perceive some of reality and make judgment about them. Appreciations also lead to actions, which themselves become part of the event stream. Both reality and value judgments stem from standards of fact and value. It is worth noticing that there is no ultimate source for standards; instead the source of standard is the previous history of the systems itself.

**Ethical considerations**

The topic explored in this thesis does not provide immediate ethical issues for the academic community or the public at large. Nevertheless, in order to not
cause any distraction for the case company as it is going through series of organisational and structural changes, the identity of the company and its employees are protected. The first draft of the empirical chapter was reviewed by the company and major changes were made in order to not revile some of the issues that affected decision makings. Actions have been taken to make sure no harm will come to the company and its employees as a result of this research.
Empirical findings

This chapter presents empirical data gathered from the case company between spring 2015 and summer 2016. A brief introduction of the case company and its operations is provided at the beginning of the chapter to familiarize readers with the specific organisational context for the research. After that, a chronological account of the firm’s evolution from 2008 to 2016 is presented to illustrate internal and external events and contingencies, emerging value propositions, technological acquisitions and organizational change.

Introduction of the case company

ABC is a joint stock company that offers a wide range of insurance policies, financial services, and data solutions in selected markets across southern Europe, North Africa and the Middle East. The company was founded in the early 1970s with the aim of offering insurance and financial services to individuals and firms in the fishery industries. Throughout the 1980s and 1990s, ABC established strong partnerships with shipping companies and fishery associations, offering customized insurance and financial services to them, while expanding its operations to offer property and casualty (P&C), health, life and liability policies to the general public. During this time, ABC enjoyed steady growth and became a major insurance provider in its region and began licensing its name to other companies in different markets. By the mid 2000s, ABC had operations in 19 markets which brought a healthy stream of revenue for the company. In the eve of the financial crises of 2007-2008, ABC’s contingency fund included majority shares of a luxury hotel chain and shares of several construction companies and real estate projects that were booming at the time. A total number of 3000 fulltime employees and several hundred part-time or sessional workers were employed by ABC, its franchises and subsidiaries by that time.

By late 2009, when the real-life consequences of the financial crisis were beginning to unfold, ABC had a hard time financing its operations, says the CFO. The company’s cash reserve was disappearing fast as claim compensations were increasing, while there were no additional revenue streams as the economy was shrinking. Business Developer (BD) 1 recalls that the company had to downsize its operations and break ties with long time partners in several markets. The situation was “terrifying” and “sad and unsavoury” in his words.
How to survive a collapsing economy? “…put the house in order…”, says the CEO

In the fourth quarter of 2008, ABC’s earnings report shows hefty losses across different divisions, such as insurance and financial services. The BD1 explained the situation as the following: In order to understand the magnitude of problems that ABC faced with, one needs to understand the company’s historical business logic and value propositions. For almost four decades, ABC’s success was attributed to its founder’s strategy of starvation and exploitation. To starve the competitors, ABC was offering low priced P&C policies that no competitor could match. As a matter of fact, ABC’s net-income on those polices was negative and often extra capital had to be injected to those divisions to settle insurance claims. On the other hand, ABC was, and still is, a well-regarded brand among the actors within the fishery and shipping industries. This meant that lucrative cargo polices not only balanced the losses of other divisions, but also yielded profit for the company. This order of affairs made ABC the major insurance provider in its market section and for a long-time there was not any serious competitor in the market place. However, as international trade had slowed significantly as the result of the financial crises, ABC did not sell enough marine polices to balance its budget. In the meantime, claim compensations from P&C, liability and health polices where “bleeding the company dry” in the CFO’s words.

In addition to the above, ABC’s contingency fund was significantly devalued as construction companies were declaring bankruptcy, real-estate projects were either cancelled or postponed indefinitely and hotel chains did not attract guests or conferences. This meant that the company’s safety net had completely disappeared. A board meeting summary dated early 2009 shows that the CFO predicted that with the current state of affairs ABC would run out of capital within three to five years, depending on the market value of the contingency funds.

Finally, ABC was also feeling the heat of competition from two distinctive sources: global insurers and online (faceless) insurers. The first group had gained stronger footholds in local markets as a result of decades of deregulations and online insurers who offered niche policies. BD1 explained that operational agility, unified processes, and substantial working capital of international conglomerates made them resilient competitors. The second group posed a different form of threat as they were accepting applications for insurance policies online, which had proven to be appreciated by customers. BD1 said that not having an e-commerce channel was a huge disadvantage for the ABC; “…what they [competitors] offered was convenience, not good polices… their customers didn’t have to drive in 42-degree [Celsius] heat [and] then stand in line for 20 minutes to insure a 30-year-old Toyota”.

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During the interview, the CEO mentioned that even in the glory days of the mid 2000s he knew that the company was exposed to risks as a result of the strategy of starvation and exploitation. However, the company did not develop any short-term plan to mitigate the risks as the markets looked healthy and the competitors did not have any significant market share. When it comes to the ABC’s organizational structure, the founder’s children and grandchildren remained in high positions even after the founder’s retirement. While disagreements remained under the surface during the founder’s tenure, after his departure various fractions surfaced among the siblings and their children. The CEO mentioned that there was no transparency and accountability, which made it hard to commit to specific agendas or unify around common goals. For example, he recalled being forced by one group to file for bankruptcy to save some of the firm’s assets, while others were ready to “fight nail and tooth” to save their grandfather’s legacy and bring the glory days back.

To sum up the issues, CEO, CFO and BD1 painted a three-dimensional problem that the company faced. First problem was a direct result of reduced income and increased expenditure due to a surge in the number and volume of claim compensations across the policy types. The second problem was associated with the company’s devalued contingency funds which meant the there was no safety net in case of worsened situation. The third problem was associated with inadequate business logic and organizational structure for emerging competitive landscapes.

**Planning for atomic business units and an e-commerce portal**

In late 2009, company planning began to transform business logic and organizational structure and practices. According to a board meeting memorandum, the CEO announced that a taskforce was being formed to untangle ABC’s businesses by forming atomic units that focused on specific policy types. Each unit had to become sufficient within two years; otherwise, the policy type would be discontinued and the unit dissolve. The unit heads were mandated to streamline and standardize processes to implement an e-commerce portal for offering insurance online.

While ABC was aggressively cost cutting every imaginable way, the task force planned to hire additional actuaries and IT personnel to carry out the task. If there was one silver lining to the financial crisis, it was the sudden availability of “top-notch experts” in the job markets, as prestigious financial institutions were downsizing, according to the HR manager. The CFO came up with a payment plan to hire fifteen experienced actuaries who had expertise in various insurance types. Prior to that point, ABC had four actuaries on its payroll who were mostly involved in the marine and health policies. The newly hired
actuaries were assigned to different divisions to provide the “intellectual backbone” of the desired atomic units in the form of risk assessment models and pricing mechanisms.

At the request of the task force, a subcommittee formed to conduct market research for each unit to identify the market segments that might have remained profitable. Among several suggestions for new market segments for P&C polices, the one that captured the attention of BD1 and BD2 was “suburban middle-aged, middle-class”. The category referred to two income suburban households in upmarket neighbourhoods. The working assumption was that both partners in such families have stable incomes without a serious possibility of both being laid off in the near future. While this was promising, it seemed challenging for ABC to enter to that market segment because ABC had never before invested in campaigns or initiatives to penetrate new market segments. Adding to that, the demographic group had already expressed an appetite for e-commerce solutions and expected to have online services. BD1 said, “They were not on our radar at all…. There was not any specific policy type designed for them…. We did not have an online channel to serve those customers either…. We lived in a different universe than them…. They didn’t care to drive to a branch and bargain with a sales rep over price or terms…. They just wanted to buy a policy every year and be done with it....”

The market report also revealed that actors in the fishery industries on average held more productive assets, such as boats, fishing equipment, refrigerators and trucks, than liabilities, such as loans or legal challenges. However, BD2 concluded that it was impossible to raise the fishermen’s premiums without a major backlash; “They were also feeling the weight of the crisis and could easily take their business elsewhere.”

Reinventing the risk assessment models for each business unit

The newly hired actuaries apprised the task force that ABC’s risk assessment models were significantly lagging behind industry best practices. Actuary number 2 (A2) mentioned that prior to that point there was not any sophisticated risk assessment model for P&C or liability policies. ABC’s risk assessment models did not go beyond the generic attributes (e.g., age, sex, income bracket, customers’ previous claims) to assess individual risks. Even those basic risk assessments were often ignored by the sales representatives when they were intent on securing more marine polices.

In order to develop and implement sophisticated risk assessment models, strong emphasis was placed on data mining techniques to identify patterns from the historical records. Those approaches went beyond consideration of individuals’ records and focused on aggregate behaviour patterns for each policy type. For
example, one data mining insight about P&C polices revealed that, despite the industry standard practice of associating high risk to young men seeking coverage for expensive vehicles, if those men lived in certain neighbourhoods and worked in certain neighbourhoods, their actual risk category was substantially lower than commonly assumed in the industry. This was the direct result of a booming high-tech start-ups in the financial district which is known for its heavy traffic throughout the day. As the younger employees of the tech industry tended to live in adjacent downtown residential neighbourhoods to enjoy the city’s night life, they were always on foot or in heavy traffic. There was not any real opportunity for unleashing the true power of their luxury cars and causing significant accidents.

**Developing the e-commerce gateway**

ABC was not a tech-savvy company by any stretch of the imagination as emphasized by IT-personnel, BD1 and BD2. While the Enterprise Resource Planning (ERP) system tracked customers, payments and policy types, built in activity systems were often manually overridden by the sales personnel. In the same way, internal and external communications were often both verbal and also written, which produced confusion according to the BD1. This had to be changed to streamline processes for applying for polices online and receiving a price quote. Almost all of the interviewees, who were involved in the decision-making processes at that time, mentioned that having the ERP system in place helped to build a new business logic. Implementation of the ERP system was the current CEO’s first significant strategic decision, based on an environmental industry scan and industry benchmarking evidence. BD1 mentioned that the current CEO, who is his cousin, begun introducing modern management instruments into the company in the 1990s when he was in charge of the operational budget and the contingency fund. On the advice of the grandfather almost one decade earlier, DB1 enrolled in an MBA program. He added that his grandfather never failed to brag about his grandchildren’s academic degrees to friends and foes and he allowed them to modernize the company, slowly but steadily. To make a long story short, CEO and BD1 furthered the development of the ERP in the early 2000s.

The ERP’s sign-off phase had the following functionalities according to the historical documents:

- **Client database** which stored information about the customers and the services purchased as well as a purchasing management interface to track the contracts, including existing and expired services
- Contract and follow up management
- Billing, accounts receivable, cash and credit management
- Finance management
- Human resources management

The ERP was implemented by a well-known management consultancy firm with assistance from ABC’s IT-unit. The IT-unit was responsible for enabling the physical infrastructure and assisting the deployment process through running various tests. The company IT-unit was managed by four employees who were capable of maintaining the network and databases, adding or modifying business rules to the ERP, and backing up and restoring databases and personal computers, according to the Chief Information Officer (CFO) who was in charge of the unit at the time. While IT-unit staff had the competencies to maintain the ERP system and other infrastructure services, they did not have authority over the systems and how they were used by the sales personnel. The CFO mentioned that a significant percentage of IT staff time was to reinstall operating systems on client computers infected by viruses because “They were playing LAN games on those machines.... Every weekend I was here reinstalling windows”. IT personnel were also accustomed to relaxing the system’s rules and security alerts in order to allow sales personnel requests to overrule administrative procedures.

To develop the e-commerce portal, ABC hired additional employees for the IT-unit as well. The CFO looked for candidates with measurable knowledge and demonstrated experience. For example, his “network guy” had a range of certificates from Cisco and his “database guy” had certificates from Microsoft and Oracle. “The rest was developed by experience”, he added.

It is fair to say that ABC had a small IT-unit for an organization its size. The CFO says the reason for that was the low cost and convenience of outsourcing IT related problems. In fact, as ABC’s operation grew and office space in the business district became more expensive, it did not make sense to allocate office space to more IT personnel. Obviously, issues of data security, privacy and protection was not recognised in the industry at that time, according to the CIO.

The current IT infrastructure manager, who was one of the original four member of the IT-unit, mentioned that during this transition, the nature of his job and its title changed dramatically. First, ABC had to prepare databases and analytical packages for data mining applications, as actuaries requested. Second, ABC had to revitalise the ERP system, strengthen its subcomponents components, change the user interfaces to enforce new business rules, and finally add an e-commerce web interface.

The IT-unit had to hire new employees to cope with the workload and fill the knowledge and know-how gap as much as possible. The IT-infrastructure manager mentioned that they filled 8 new positions to manage the web-shop and ERP issues. As digital solutions supporting online products and core organizational processes, they became an integral part of the organisation and
its practices. Eventually the IT unit relocated to a new location that was large enough to support its operation.

**Identifying value propositions and strategic direction**

As the initial risk assessment models were developing for each unit, various computer simulations were run to see how each business unit performed under stress conditions. It had become obvious that ABC could not compete on the low-price front anymore. ABC’s marginal costs with several office buildings and around 400 employees were substantially higher than competitors who often ran a franchise with a few employees and almost no infrastructure. Therefore, the new business strategy was formed to align business logic with market realities. In order to do so, revised risk assessment models were planned to be developed in order to offer moderately priced, yet profitable insurance policies through several physical and online channels. BD1 mentions that the advertisement campaign was focused on leveraging ABC’s well-regarded name to create a sense of community or human values, in contrast multinational financial institutions which were being blamed for causing the financial crisis. In fact, ABC’s advertisement campaigns were nostalgic and often focused on human interest stories that highlighted how ABC’s policies, and generous compensations, saved real people from hardship or how its loans were used to renovate infrastructures at the sea port. Another part of ABC’s new strategy was to target suburban households. In order to accomplish that, ABC packaged comprehensive insurance policies that protected property, several vehicles, healthcare and various hazards. ABC’s value proposition for that market segment was the ease of obtaining policies from a well-regarded company. When it came to the core processes, ABC’s website provided an online form for customers to submit their applications. The online form was customised based on the policy types or package boundaries to channel required information from the customers to the relevant risk assessment models and issue a price quotation. In its inception phase, the system had a 24-hour delay so sales personnel could authorise the quotation. After all, ABC could not risk making bad deals anymore. ABC’s risk assessment models, that utilised ABC’s records to issue quotations, were at the heart of this operation. The same gateway was used for all other insurance types; however, application processing time varied between minutes (for marine policies) and months (for health policies). Along the same line, the sales personnel within or outside ABC’s boundaries used the same system without the aforementioned delays for in-person inquiries. Finally, the e-commerce portal offered various payment methods such as online, bank slips in the post, bills and direct transfer to the company’s account.
Results: “living to fight another day” according to a board memo

ABC sold its first online policy in the winter of 2011. By the spring of 2012, more than half of P&C and vehicle quotes were issued through the web interface. By the winter of 2012, ABC was turning profit on its P&C, health, marine and liability policies. While this was good news, particularly as ABC was outperforming its major competitors, the recovery had been far slower than anticipated. The biggest threat for ABC was its almost empty contingency fund, which meant that it could not survive another major financial deficit.

In the final quarter of 2011, ABC’s aggregate revenue per policyholder was the equivalent of 1400 SEK; return on surplus was 4% (almost half of the industry standard in 2016), and its loss ratio was 65% (almost 20% more than industry standard in 2016). Although those key performance indicators (KPI) were lower than the pre-crisis era, they illustrated that ABC had achieved its objectives.

The CEO said that this period defined his professional life. First, ABC’s net employment had gone up by 50, for a record high of 445 employees. Second, ABC had managed to transform its entire business logic. Now the divisions had different goals with actual metrics to evaluate their performance and offerings. While not all business units managed to meet the two-year deadline for self-sufficiency, they were on the right track and it was decided to extend the deadline for another year. Undoubtedly, a great deal of credit should be given to ABC’s organisational capabilities, personnel’s hard work, shareholders’ willingness to make the change happen, and management’s commitment to the cause and their knowledge and experience of the market and industry.

One emerging side effect of the new state of affairs was the changing power structures and roles of people in the organization. All the sudden people who made the products such as actuaries, business developers and IT personnel began operating on a level playing field with the sales personnel. Furthermore, fully documented events and interactions brought a level of accountability to the higher echelons of the company. “this was huge”, says BD1.
Lack of growth and emerging issues: “Increasing the marginal gains”

By mid-2012, ABC was turning a modest profit on its P&C policies. However, the contingency fund remained empty and ABC’s physical assets such as hotels and buildings remained devalued according to the quarterly reports. A board meeting summary dated summer 2012 noted that the CFO informed the board that the state of emergency was over. Nevertheless, ABC would not survive another major hit due to its increased operational budget and gloomy predictions of growth across policy types. This was potentially alarming, according to the BD2, as competitors were also thriving and increasing their market shares. Therefore, ABC had to increase its marginal gains to fill its contingency fund, said the CFO.

BD1 mentioned that during that period, modern day piracy in open waters had become a major problem for insurers. With crewmembers, vessels and goods being held hostage for ransom by pirates, ABC had to settle several hefty compensations as a result of hijacked fishing boats and their crew members. In addition, A1 mentioned that during this time, and on a global scale, complicated and systematic insurance fraud schemes were on the rise. This problem had amplified over the years and could potentially harm ABC in irreversible ways. This was particularly problematic for the health, life and marine polices. For example, there were often life insurance applications based on the stolen identities of deceased individuals, as well as fraudulent healthcare claims based on stolen identities or fraudulent cargo applications that led to reporting missing goods in transportation. BD2 mentioned that it would be a lot cheaper to avoid issuing those polices instead of going through endless litigations to avoid payments.

When it came to the internal issues, ABC was also suffering from inadequate and slow communication with its partners, according to BD 3, BD 1 and the CEO. This was because the relationship between healthcare providers and insurers was complicated, as explained by BD3. Healthcare providers sent batch information to the insurers via physical media (e.g., CD-ROM or USB storage devises) that contained policy information, treatment details and costs incurred. The insurance company then processed the information and forwarded payments to healthcare providers.

In the same way, applicants seeking healthcare policies were referred to the healthcare centres to evaluate their health situation. The healthcare provider then sent the appraisal to the insurance company to finish processing the application. This was an unnecessarily lengthy process and almost all of the interviewees mentioned that the delay reduced ABC’s marginal gains in two ways. First, ABC’s employees had to do the data entry manually and often had to make several phone calls or email inquiries to make sure that the information
was accurate. Second, the inability to foresee claim compensations meant that ABC could not manage its short term working capital. The situation was almost the same for compensation made to P&C claims. In particular, ABC personnel on average were engaged with 43 emails and 6 phone calls for each automobile accident. The price of repairs had to be contained within the policy maximum amount and ABC staff had to coordinate owners, repairs shops, towing companies and police authorities to manage the processes.

**Emerging ideas: digital interconnectivity for efficiency and effectiveness**

BD1, 2 and 3 mentioned that identifying a plan for action was not as complicated then as in earlier times. ABC’s e-commerce portal was appreciated by the customers and had made application processing a straightforward task. While this meant less flexibility for the sales personnel to close custom deals, it had made the entire operation more manageable. Applying lessons learnt from the e-commerce endeavour, ABC devised two major enhancements in late 2012. The first change increased the effectiveness of risk assessment models by feeding them more information. Such information was gathered from external sources such as public databases or third-party information aggregators and transferred digitally and on-demand to ABC. Second, to increase efficiency, ABC began to digitally connect to its partners to transfer information faster and more accurately. This could essentially reduce application processing times, thereby making customers happier and reducing working capital. What was less obvious at the time, however, was what sort of new partnerships were needed to acquire information, and how ABC would reinforce its existing partnerships to achieve those goals.

To know as much as possible about applicants, ABC sought background information such as credit reports, assets and liabilities, defaulted payments, income brackets, employment status, or criminal convictions. ABC subscribed to available databases for each region and made partnerships with aggregator companies to obtain information on applicants.
Figure 5 Marginal gains through interconnectivity
In order to gain efficiency, ABC needed to exchange automated information with a wide range of partners to reduce application processing time and eliminate data entry errors. This could potentially reduce application processing time for health policies from weeks to days and help ABC manage its working capital more efficiently. Such enhancement could also help ABC to reinforce its partnerships and thereby obtain a higher share of marine policies. More specifically, marine policies were still important for ABC. However, it lost market share as the norms of the industry changed and several logistics companies would ensure goods on the same vessel. Providing a point to point system to issue a policy the minute that the mother company made a shipping contract would make ABC the major insurer again. This logic is explained in the figure 5.

In order to operationalise these newly developed ideas, ABC began negotiating with the partners. ABC agreed to assume all the costs of the integration project with the shipping companies and small-scale healthcare providers. This was surprising since partners would clearly benefit from the initiative; however, opening up their systems sounded like a high risk with uncertain benefits for them. Major hospitals did not agree to integrate their systems as there were numerous legal and procedural challenges. The sheer cost and length of this intuitive took ABC by surprise.

In addition, the IT-unit had to open up the digital infrastructure to provide connections to the outside world. They had to re-design their API several times to support different forms of exchange with various security protocols to meet the requirements of various providers. This was manageable because ABC had renovated its infrastructure previously and the people who completed that initiative were still either working for the company or were accessible from the consultancy company where they worked. The hard task was to replicate all the procedures involved for each partner with its specific systems, security issues, data standards, etc. The IT team had to learn about the required connections with each partner, address their issues, evaluate their technical competencies, and invest in new IS/IT to meet those requirements. Besides that, making sense of the data that was transmitted to and from partners was problematic; significant negotiations were needed to make data useful for operations. On top of that, the system had to be smooth and glitch free. Despite these obstacles, ABC managed to develop custom solutions to connect to its two key shipping partners. They would receive an automatically generated quote as soon as customer companies finalized their shipping contracts. Providing digital coactivity with healthcare providers happened to be more complicated due to the regulations and healthcare providers willingness to start such initiatives. Nevertheless, ABC secured digital connectivity with some of the major private practise.

As stated in the previous section, ABC’s IT-unit had grown to accommodate 12 employees who had expertise in database design and manipulation, ERP and ecommerce solutions. Nevertheless, ABC lacked Business-to-Business (B2B)
IT specialists to provide such connections. As the project progressed and the sheer volume of the task became apparent, ABC hired more IT-personnel. The IT-unit became responsible for providing the technological means for:

- Interconnecting ABC’s systems to major partners, such as shipping companies and healthcare providers, through customised solutions
- Connecting to third party information aggregators via standardised solutions (Application Programming Interface or API)
- Analysing strategic marketing experiments via social media analytics

![Figure 6 IS competencies for digital interconnectivity](image)

The development of customised interorganisational solutions required ABC IT teams to work collaboratively with partners’ IT units to find solutions that satisfied both parties. Standardised APIs required developing a shared set of methods and including security measures, to enable outside systems to connect to ABC’s systems. Social media analytics required learning about various social
media API to acquire data or metadata conventions. An IT-technician mentioned that it was a challenging but satisfying time to work for ABC as he had to travel a lot and learn new skills every day.

**Results: mixed**

The second wave of business strategy change, conducted between 2012 and 2014, yielded mixed results for ABC. The company indeed managed to provide point to point connections with its partners in the port. This was clearly beneficial and yielded a positive return on investment. Cargo policies increased in number by 65% and in value by 120% in the third quarter of 2013 compared to the end of 2011. While some of this success is undoubtedly attributable to increased international trade, ABC was outperforming its competitors substantially in that area. Furthermore, utilising external information, ABC refused to issue quotes for almost 5% of marine clients in 2013 and almost 3% in 2014. This is believed to have saved the company substantial amounts of capital.

However, lack of coordination with big hospitals meant that ABC could not manage its working capital as effectively as it hoped. Healthcare compensations absorbed a significant portion of ABC’s working capital and, as a consequence, the contingency fund did not increase as planned for by the management.

Furthermore, as third-party information providers were figuring out their own strategy and business models, there was always changes in the way that information was produced, derived and payed for, which made ABC’s operations ineffective.
Service innovation: “people buy short term policies! who knew?”

Entering the 2014, ABC had managed to partially restore its market dominance. It had become the main provider of marine polices and the contingency fund was growing at a slow but steady pace. Once again, there was no prospect of growth across all the policy types. Also, it seemed unrealistic to plan full scale automated information exchange across the board to increase marginal gains as ABC’s partners were lagging behind the digitalization train, said BD2. In this situation, ABC had to find alternative ways of generating income, as the CFO explained.

One rainy afternoon, when BD3 was waiting inside the airport terminal, he noticed an entire array of Automated Teller Machines (ATM) and rental car companies. Over the years, the number of rental car companies operating in the airport had increased from 5 to more than 20. To his shock, he realised that some of the smaller rental companies offered third-party insurance for extra protection against accidents, damage or theft. By noon the next day, service innovation had become the next major initiative for ABC’s management.

Emerging strategic move: increasing diversity of policy types

Business developers began exploring market appetite for new policy types. ABC’s risk assessment models and simulation techniques were employed to weight alternative policy types such as short-term policies for rental cars, travellers, used car deals, online auctions, extra protection on smartphones, and room sharing services such as Airbnb. This was an aggressive agenda to make sure that ABC would derive benefit from being the first to market for those policy types.

By that point in time, the IT-unit had developed competencies to incorporate external information or processes within house processes to support various policy types or organizational processes. This gave the business developers confidence to persuade an aggressive agenda. To accomplish this, ABC did not fundamentally change its risk models; however, the models were optimised to assess anticipated risks with specific policy types based on new types of information from internal and external sources. For example, a “car make”, which includes its brand, type and year of production, was used to identify the possibility of various mechanical failures for used car sale insurance policies. Risks associated with each car make was gathered from a transportation agency and a third-party information aggregator based on history repair data from various repair shops. Additional information, such as previous owners’ history,
feed into the models. ABC expected that these models would be enhanced as data and analysis grew.
While ABC did not acquire new capabilities or make additional hires at this time, employees’ experience with different systems and solutions reduced performance task time, which lowered costs for introducing and integrating those refinements.

Figure 7 advanced IS competencies for digital interconnectivity

Results: mixed again
Breaking into the rental car industry proved to be more difficult than anticipated. None of the legitimate companies were local, and they had established their own supply chains and insurance divisions. The smaller ones
were open to cooperation but providing the technological infrastructure to communicate with them was not easy. More importantly, customers were unhappy with the services that smaller rental car companies provided, which in turn made ABC’s brand diluted just by association. Almost all of the other initiatives such as online auctions, used car sales and rental rooms faced similar issues.

pursuing service innovation taught the company so many valuable lessons. First, service innovation within the confines of the current insurance models was not profitable. There was too much competition and unforeseen factors that affected the profitability of such services. While some of ABC’s initiatives during this phase were successful, some others faced major structural or technological challenges. For instance, technical difficulties did not allow rental car polices to be successful. However, short term insurance on used car sales, which entitled buyers to refunds or repairs in case of unknown defects, were proven profitable. By late 2015, ABC’s return on each policy holder was the equivalent of 5500 SEK, with a loss ratio pf 55% and a return on surpluses of 9%, which is average by industry standards.

Business transformation by the Virtue of Analytics

In summer 2016, almost all the speakers in ABC’s annual conference retreat focused on how and why ABC’s various innovative solutions either yielded small gains or failed to deliver the planned outcomes. A two-day workshop was held so that employees from different units could work together to address some of those issues.

BD1 simplified the core issue as following: “How much can you charge for extra protection for an iPhone? They charge $129 to change the screen [20% of original price] ... how many have you broken last year?... I can’t see how anyone can break even on these polices, but if you bundle them together it becomes a different ball game ...although I don’t know how to sell that bundle...”. This sentiment reflects insights about a lot of policy types that ABC was persuading between 2014 and 2016.

Nevertheless, by the end of the summer, a memo released by the CEO contained interesting insights about the future direction of the company. First, an initiative involved offering ABC’s risk assessment capabilities to other companies. The first customer was a financial firm seeking risk assessment data for financing the renovation of an oil rig. This was a huge test for ABC to prove that it had gone beyond industry best practices and could offer analytics to institutions that just under a decade ago were far ahead ABC in data driven risk assessment.

The second initiative, which was not as well articulated as the first one, involved changing the way that risk assessment was done to move away from traditional insurance logic and move toward a new and potentially disrupting approach. The idea was to dissect essential components of insurance, such as risk
Chapter summary

The narrative represented in this chapter aims to illustrate the essence of struggles that an incumbent firm went through in order to embrace and customise IS/IT across its value chain. Focusing on an eight-year time period, the narrative highlights at least four periods. During each, the company appreciated the changing technological and environmental landscapes and embarked on actions to elevate its organisational practices and value prepositions to remain competitive. Between 2008 and 2012, the firm’s efforts focused on renovating its practices to be competitive in the new area of IT-enabled insurance. After that, from 2012 and 2014, the firm’s efforts can be seen in terms of improving efficiency to increase marginal gains. Developing B2B solutions is the most notable technological development in that phase, which was supposed to facilitate ABC’s strategic intentions to shorten its application processing time and earn a bigger market share on marine polices. Subsequently, from 2014 and 2016, the firm’s strategic objectives focused on service innovation by leveraging B2B solutions. Finally, from 2016 and ongoing, the firm’s intention can be seen in terms of business transformation to offer new services that do not fall under the umbrella of traditional insurance. In the next chapter, detailed analysis of digital capability development and business model reconfigurations based on the aforementioned periods will be provided.
Analysis and Discussion

This chapter presents analysis and discussion of the empirical data in light of analytical and theoretical frameworks that devised respectively in chapters 3 and 2. This thesis explore the co-evolutionary dynamics of digital capability and business model. With external resources and interorganisational collaborations become increasingly instrumental to emerging business models, specific attention is given to implications of collaborative strategies on business model configurations and digital capability generation. In doing so, this thesis bridges a gap between two highly emphasised dimensions of value from emerging literature, namely: digital capability and business model reconfiguration.

The rest of this chapter is organised as the following: First, the analytical and theoretical models are recapitulated. After that a large portion of this chapter is dedicated to data analysis and discussion with is organised around four phases, or time periods, during which the company goes through significant and consequential business strategy and organizational change. At the end reflections on the major components of the research and theoretical and analytical models are provided.

Analytical and theoretical Models

As a guide for analysing the empirical data, I use Checklnad and Casar’s visualisation of Sir Geoffrey Vickers Appreciative Systems Model as elaborated in Checkland (1999). To its core, the approach presents a pattern of concerns that are formed within the larger context of constantly changing environmental conditions and lead to emerging appreciations and actions. In the organisational context, the model can be applied as mental construct that guides decision making and organisational change through the lens of management perceptions of reality and judgments that are challenged or confirmed by experiences. This logic is presented in the figure 8.
Figure 8 Appreciative Systems Model presented in Checkland 1999 page. A52
The starting point for the appreciative system model is the constant flux of events and ideas that consume our cognition in the daily life. For example, breakthroughs in quantum computing, changes in the tax code that affect an enterprise, disruptions and availability of new means of production are some of the *events* that shape certain environments, while bigdata, machine learning, the Internet of things and concerns about privacy and security on social media are some of the *ideas* that could contribute to the same environment. An *appreciation* represents those moment in which perceptions of such events and ideas lead to formulation of interests and envisioned partnerships based on not only reality judgments, but also value judgments. For example, cutting back carbon footprint might be seen as value judgment in less regulated contexts, while increasing productivity can be based on reality judgments. Appreciation then leads to *action* to facilitate the envisioned direction of the organization. That include planning and executing organizational change process. Both the appreciation and actions contribute to the flux of events and ideas, which in turn becomes the starting point for future appreciations, while challenging or confirming organisational standards that form value and reality judgments.

When it comes to the co-evolutionary path of digital capability and configuration of business models, appreciative systems model can provide nuance understandings of how and why decisions related to IS competency development, strategic moves, organisational change and configuration of business models affect each other due to its inherent attention on implications of past experiences on how events and ideas are perceived and standards are formed. In this context, the flux of events and ideas represent internal and external events, trends or contingencies that could potentially lead to positive or negative consequences on the organisational performance. During this flux, each appreciation formulates intentions in the higher echelons of the organisation to correct direction. Standards that shape such appreciations emerge from the organizational history in terms of performance and relationship with the environment as well as business and technology know-how. With appreciations being communicated to sub organisational units, the action phase involves some degree of organizational change to execute underlying appreciations.

To recapitulate, in order to discuss the findings, I devised a theoretical framework in chapter two, which can be seen in the figure 9. In line with the emerging literature, I define digital capability as the organisational ability to identify IT-enabled opportunities and deploy digital technologies to exploit them. The overall digital capability is composed of various IS competencies, each of which offer a specific set of IS functions to perform specific task. As described extensively in the IS literature, IS is not a source of competitive advantage in itself. Instead, the way that organisations deploy and utilise IS could yield competitive benefits. Therefore, IS competencies are woven into the fabric of the organisations as they are formed in conjunction of organisational culture, practices, processes and know-how. As organizational capabilities are
depreciative in nature, digital capability generative activities are performed to increase IS functions and organisational awareness of emerging IT-enabled opportunities (Bharadwaj et al., 1999; Peppard & Ward, 2004; Sandberg, 2014). Business Model is defined as the system of interdependent activities that are performed by intra- and interorganisational units and the mechanisms that link those activities to each other, such as the contents being transferred, structure of execution and governance of activities such as who does what. An activity can be seen as engagement of resources of any of the parties involved to the overall processes. Business model reconfiguration, therefore, is understood as a managerial mechanism to enforce revised strategic intention through alteration of the content, structure or governance of activity systems (Zott & Amit, 2010). Business Model reconfiguration is understood as a managerial mechanism to enforce emerging strategic intentions. Depending on the magnitude of the strategic change, business model reconfigurations can be innovative, adoptive or evolutionary (Saebi, 2014).

![Image](image.png)

**Figure 9 Theoretical model**

Therefore, digital capability from one hand drives strategic changes that lead to business model reconfiguration and from the other hand gets affected by generating new IS competencies that are required to operationalise ongoing configuration of business models.
Analysis and Discussion

Based on the themes emerged in the empirical data, I have identified four phases between 2008 and 2016, each of which entails major strategic change, business model reconfiguration and digital capability generation. The first phase involved dismantling the legacy and increasingly ineffective strategy of starvation and exploitation that was unaltered for almost 3 decades. That change involved huge investments in human resources and IT infrastructure, which in turn shaped the second phase, between 2012 and 2014, around effective and efficient digital communication with partners for improving service quality and increasing marginal gains. Lessons learned during the second phase empowered ABC to envision new partnerships to persuade an aggressive expansion strategy to develop new services during the third phase which lasted for two more years. Finally, the fourth phase started in 2016 with the aim of business transformation, in which the firm’s perception of insurance is changed. This can be seen in Figure 10.
Figure 10 four identified phases
Phase 1: Self-sustained business units and online application processing

As explained extensively in the previous chapter, by the year 2009 the plethora of external change had made a profound negative impact on ABC’s revenue streams. This had placed ABC’s business logic and organisational practices in total disarray and completely inapt for the emerging competitive landscape that was shaping by a shrinking economy, intensified competition and technological change. As a result, ABC could not balance its operational budget with revenues and was extremely reliant on its massively devalued contingency fund. Adding to that, while the idea of acquiring insurance online was quite new in the ABC’s market, it had gained popularity among consumers.

In the light of above events and ideas, ABC’s appreciation was formed around the idea of elevating ABC’s practices and organisational structure to the level of industry leaders. That involved dismantling the old business logic and developing self-sustained business units. Standards, or value and reality judgments, that led to such appreciation can be understood through both historical and organizational perspectives. From the historical perspective, or value judgment, ABC delayed filing for bankruptcy in order to explore possibilities of continuing to serve the customers and thereby fulfil its historical role for the customers and employees. From the organisational perspective, having the ERP up and running was a decisive factor for embarking on this change journey as it gave management confidence that implementing modern instruments of management was indeed possible.

Action: strategy, business model configuration and digital capability generation

It took another four years to act on this appreciation. It is well described by almost all interviewees that having an ERP system up and running drove the strategic intentions. It involved offering competitively priced and yet profitable insurance policies. A selected few policy types were going to be offered online in order to respond to a growing appetite for ecommerce services in the market. The change project involved defining new job titles, filling them with the right candidates, building sub units around each policy type and developing required IS competencies to execute the underlying strategic intentions.

Adopting Zott and Amit (2010) conceptualisation, the gestalt of ABC’s business model during this phase can be seen as:

Content:

- Application content to be transferred from the customers to the dedicated business unit.
- Contract details to be sent to customers.
- Payment information to be sent to banks or credit card association.
• Applicant starts the process.
• Relevant internal organisational units calculate risk level and set the price.
• Customer choses to pay online or write a bank cheque.
• Policy issued and becomes effective from the defined time.

Governance

• In house governance lacks task delegation beyond the intra-organisational units during this phase.

What made this business model particularly useful for the company is its structure, which brings risk assessment to the core of ABC’s insurance policies. Before this point, ABC did not provide risk assessments for pricing its polices. Another important point here is complete dependence on inhouse or internal operations for risk assessment and application handling. To elaborate, ABC had strong partnerships with shipping companies, healthcare providers and automobile repair shops. However, in this stage the activity systems are not integrated and there are clear boundaries between ABC and its partners. This indeed goes against the fundamental assumptions about the nature of digital business strategy in the literature as strong emphasis is given to external resources and interorganisational exchange and interactions as critical sources of value (Bharadwaj et al., 2013; Ferrier et al., 2010; Merali et al., 2012).

ABC’s business model change in this phase can be seen as an adaptive one, through which ABC tries to elevate its practices to the level of industry leaders. Therefore, there is nothing new to the industry at large, but the company itself goes through substantial change and reform in order to provide service apt for the new realities of the market. This was an adaptive business model change and as literature suggests it involved a wide scope of change through radical interventions with the clear aim of aligning with the environment (Doz & Kosonen, 2010; Massa & Tucci, 2013; Saebi, 2014).

In order to operationalise this business model, digital capability generation activities involved developing two distinct IS competencies: first, e-commerce and web management competencies and, second, Enterprise Resource Planning (ERP) maintenance competency. The former involves all the activities involved in operationalising the ecommerce gateway such as dedicated forms, payment handling and customer support, while the later involves modifying activity systems or processes that the ERP support. Such inhouse ability to maintain and modify the ERP system became instrumental to the future phases, which will be described in the coming sections.
Figure 11 phase 1, acting on appreciaons
This entire process is illustrated in the Figure 11 as the following. First, ABC’s existing digital capability triggers its appreciation to elevate its organizational practices and therefore lands on strategic intention of dismantling the old strategy and offering insurance online. This leads to the configuration of business model, which in turn triggers investments in digital capability generative activities.
Phase 2: Operational efficiency and effectiveness

By the year 2012, ABC had successfully transformed its organisational practices and after several years of negative incomes was finally turning a moderate but steady profit. Nevertheless, the state of the financial crisis was not over yet and there was not any prospect of growth across policy types in the short or medium term. Adding to that, there were constant threats of insurance fraud or hefty compensations due to the rise of modern-day piracy in open waters. This meant that ABC could not survive in the case of another major setback. Internally, ABC suffered from inability to manage its working capital for short intervals as healthcare providers often had delayed communication which added to the complexity of managing the working capital. Adding to that, slow application processing time for health and marine polices were also contributing to the problem. It is also worth mentioning that the term big data, or business analytics, had become a buzz word and there was genuine enthusiasm about analysis based on internal and external data to optimise organisational practices.

Lessons learnt during the previous phase had made management optimistic about application of digital technologies for improving activity systems and organisational practices. Therefore, the second appreciation was formed around the idea of increasing marginal gains through digital interconnectivity with partners and acquiring external information to increase accuracy of risk assessment models.

Action: strategy, business model configuration and digital capability generation

In order to act on such appreciations, ABC’s strategic intents were formed to co-explore the viability of feeding external information to risk assessment models and co-explore value through efficient and effective communication with partners. ABC’s value propositions in this phase can be seen as:

- reducing application processing time for customers seeking health insurance,
- making faster payments and lowering operational costs for healthcare providers, and
- expediting faster application time for customers seeking marine polices, thereby making shipment planning more efficient for shipping companies.

Business Model Reconfiguration

Based on the above value propositions and strategic intentions, ABC had an evolutionary business model reconfiguration with the aim of adjusting strategic intentions. This change can be seen as an incremental and partial business model reconfiguration.

During this phase, ABC had clearly initiated interorganisational strategies through co-exploring, first, possibilities of increasing the accuracy of its risk
assessment model through third-party provided information and, second, co-exploiting possibilities for increasing efficiency and effectiveness of communications with partners. ABC’s co-exploratory initiatives can be seen through a transaction cost economic perspective as ABC created new specific investments to explore the possibility of reducing transaction costs (Geyskens et al., 2006; Parmigiani & Rivera-Santos, 2011).

Partners Roles

- Partners had to integrate communications to and from ABC into their activity systems.
- Information aggregators had to provide the content within the designated time frame.

ABC’s Business Model reconfiguration during this phase can be seen as an evolutionary one through which ABC tries to adjust its strategies and organisational practices (Demil & Lecocq, 2010).

Structure, Content and Governance:

1. Shipping companies send information to ABC (sender, content, weight, dimensions, receiver).
2. ABC might ask for external information from third party information aggregators (sender, receiver).
3. Information aggregators send credit reports, background checks, prohibited items at the destination, or criminal conviction information back to ABC.
4. ABC calculates the risk and issues a quote.
5. The quote is sent to both the shipping company and the receiver.

For healthcare providers:

1. Applicants fill in the form.
2. ABC sends the information to the healthcare providers.
3. ABC sends the information to third party information aggregators.
4. The healthcare provider schedules an appointment.
5. Third party information aggregators send their reports.
6. The healthcare provider sends its estimate to ABC.
7. ABC runs its risk assessment models and issues a quote.

Digital Capability Generation

In order to operationalise the underlying business model, Dyadic B2B IS and analytics competency were generated through staff training and additional hiring. Dyadic B2B IS competencies empowered ABC to provide point to point
communication with specific partners. It advanced organisational abilities to provide bridges between ABC’s ERP system and partners’ ERP system in order to facilitate the two-way communication. Analytics involved making sense of newly acquired sources of information, as illustrated in Figure 12.
Figure 12 phase 2, acting on appreciation
Phase 3: Service Innovation

By the year 2014, the state of the financial crisis was over. ABC had experienced mixed results during the previous phase and therefore formed a new appreciation around service innovation to increase its footprint in the emerging markets for short-term or specific policy types such as online auctions, extra protection for mobile phones or Airbnb rentals.

**Action: strategy, business model configuration and digital capability generation**

ABC’s strategy during this phase can be seen as co-exploring possibilities for new services by making new partnerships and co-exploiting value through refined practices with existing partners.

- For customers: a wealth of new and customised policies for a whole new set of economic transactions such as renting a bedroom for a night or two.
- For smaller businesses such as emerging rental car companies: a strong and reliable partner who provides legitimacy and ease of mind.
- For existing partners: an ability to alter policy conditions dynamically.

ABC’s Business model reconfiguration can be seen as an innovative one, through which ABC introduces new services to the market place. It involves partial changes to introduce new services while the existing business model for previous services does not change (Saebi, 2014). The novelty lies in the way that non-traditionally mass insured entities, such as used car sales or online auctions, could apply and get a quote in real-time. This was seen as a potential game changer for the insurance industry. It is worth noticing that the real mechanics of the business model, which is the idea of feeding information to the risk assessment models, did not change. Rather, what changed was the openness of generic algorithms for consuming information and assessing risks of new policy types.
Figure 13 phase 3, acting on appreciation
Digital Capability Generation

- Developing enhanced Application Programming Interface (API) for mass standard communication
- Advanced Business Analytics
Phase 4: Business transformation

By the year 2016, ABC had experienced mixed results through its previous appreciations and actions. Nevertheless, amidst a perceived threat of further disruptions in the insurance industry by huge data firms such as Google or Facebook, there was a surge in the industry to innovate and thereby stay ahead of disruptions. New ideas were forming in the market place to change the 400-year-old logic of insurance to something more apt for the digital era. To elaborate, insurance as we know it works based on common pools of funds that are gathered from a large number of polices and paid out to the unfortunate ones who suffer damages. The new approach formed around the idea of accurate risk assessment from various data points to not only price polices more accurately but also offer unique insurance policies for specific purposes such as a product launch.

This appreciation generated two direct value propositions:

- Provide risk assessment models for this new idea of insurance as a service.
- Utilise ABC’s analytics capabilities as a service for other companies.
Summary of the four phases

The progression of ABC’s digital capability in relation to its business model can be seen in terms of generating required IS competencies for operationalising the underlying configuration of business model and implications of such generated IS competences in future business model configurations. Table 8 presents this co-evolutionary phase based on the above discussed four phases.

Table 8 Summary of the four phases

<table>
<thead>
<tr>
<th>Time line</th>
<th>Strategic intents</th>
<th>Business Model Reconfiguration</th>
<th>Digital Capability Development</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phase 1</td>
<td>Alignment to the environment</td>
<td>Adaptation</td>
<td>E-commerce and web management ERP maintenance</td>
</tr>
<tr>
<td>Phase 3</td>
<td>Co-exploration through new services Co-exploitation enhanced risk assessment through third-party information</td>
<td>Innovation</td>
<td>Advanced Standard B2B Advanced Analytics</td>
</tr>
<tr>
<td>Phase 4</td>
<td>Business Transformation</td>
<td>Innovation</td>
<td>Unknown</td>
</tr>
</tbody>
</table>

During the first phase, ABC’s digital capability paves the way for an adoptive business model reconfiguration with a clear strategic intention of getting aligned with the environment. in doing so, ABC revitalises its IT unit to perform all sort of modifications on the ERP system and develops web management and e-commerce competencies to make online application handling a reality. With ABC’s digital capability being enriched with those IS competencies, it forms the second phase around the idea of co-exploration of digital interconnectivity with partners. In order to evolve the business model, ABC develops Dyadic and standard IS competencies. once again, the emboldened digital capability leads a business model innovation in the third phase which requires investments in advanced standards and analytics competencies. As ABC becomes a true digital savvy firm, the fourth appreciation is formed around business transformation.
Discussion of the co-evolutionary dynamics of digital capability and business model

the notion of digital capability as the precursor of organisational ability to identify and exploit IT-enabled opportunities has become influential in the IS strategy literature. As explained previously, emerging conceptualisations of the concept have minor, but consequential differences. For example, Peppard and Ward (2004) conceptualisation emphasises on the notion if IS competency generation as the way that organisational digital capability is enhanced. Nevertheless, this conceptualisation offers a generic two-way relationship explanation of the relation between IS competencies and organisational strategies. results of this research indicate that identifying IS competency development in relation to the technological requirements of the underlying business model can provide richer understanding of how and why specific IS competencies are developed.

IS literature does not provide an extensive list of IS competencies required for operationalising various business models, or what sort of business model reconfiguration most likely require what sort of IS competencies. Rai and Tang (2014) argue that dyadic and standard B2B IS competencies, which they call IT capabilities, are instrumental for operationalising business models. While results of this study confirm these assumptions, it seems that this relationship is far more complex than their framework appreciates. In the case of ABC, B2B IS competencies were developed in the second phase they had a significant impact on the way that future strategies formed and translated to business models. Furthermore, despite a sharp distinction between dyadic and standards IS competences in the literature (Grover & Saeed, 2007; Malhotra et al., 2007; Rai et al., 2006; Ross & Beath, 2006), it seems that increasingly dyadic solutions being replaced by standards ones. In the case of ABC, this phenomenon occurred as partners begun to develop their own APIs to communicate with other actors.

In addition to above, the notion of IS competencies as understood from the literature is a static one. that is, once an organisation managed to develop specific IS competencies, it becomes capable of utilising them, presumably, indefinitely. Nevertheless, in the case of ABC, IS competencies were dynamic and constantly evolving to provide additional IS functions in relation to the configuration of the underlying business model. Beside the B2B IT competencies, ABC’s business model in various phases became increasingly more dependent on analytical competencies. That is, B2B IT competencies utilise exchange with partners, which is instrumental in application processing. Nevertheless, ability to utilise the information that is transferred by partners is another instrumental IS competency.

Sandberg (2014) offered another conceptualisation of the digital capability as it shaped through co-evolution of IS and business strategies through dynamic capabilities of sensing, seizing and transforming. Introducing the
aforementioned dynamic capabilities as the synthesising mechanism between IS and business strategies provide a rational and coherent perspective on how an organisational digital capability is formed. Nevertheless, the mere act of focusing on strategies rather than the consequences of such strategies, could potentially divert attention from implications of digital capability. It seems that introducing the notion of business model in relation to the digital capability can provide a way of understanding the implications of digital capability on performance and future strategies. This is particularly interesting as the case of ABC illustrates that failed business strategies during the second and third phase has a significant impact on the way that the appreciation during the fourth phase shaped.

ABC’s business model reconfigurations confirm the serotypes that were listed in the literature. That is, depending on the nature and scope of strategic change, business model reconfiguration could be of evolutionary, adaptation or innovation type (Saebi, 2014). Nevertheless, digital technologies, or IS competencies, seem to have far more implications on the organisational ability to perform any type of business model reconfiguration. In particular, providing interorganisational communications depend not only on the organisational ability to alter internal systems, but also make them compatible with partners’ systems. During the second and third phases ABC’s intended business model was suffered, or not completely operationalised as a result of technological issues to communicate with major healthcare providers, third-party information providers or small-scale rental car companies.

Business model reconfiguration is a time and resource consuming activity. While the IS literature points to the problems of developing interorganisational systems (e.g. Afuah, 2014; Johnson et al., 2008; Koch, 2004; Koch, 2007; Kotha & Srikanth, 2013; Lafley & Charan, 2008; McKnight et al., 2017), which are worth investigating, this research points to a new dimension of the problem which is not elaborated in the literature. That is, once the interorganisational systems elaborated, partners’ own trial and error could affect the focal firm’s ability to create and capture value. During the second phase, third-party information providers would change their essence of business model rapidly (such as subscription based or pay-per-hit) which had negative impact on ABC’s business model. Similar problems occurred during the third phase.

Furthermore, the notion of trial and error to find a perfect configuration of business model is emphasised on in the business model innovation literature (Teece, 2010). Result of this research clearly confirm the idea of trial and error through strategic intentions and business model configuration. In particular, it seems that development of each IS competency is a result of experimenting, or exploring value, while it leads to exploiting value in future reincarnations. Results of this research do not confirm the assumptions that emphasis on ambidexterity would bring opposing forces on the configuration of digital assets. as a matter of fact, as IS/IT had become more modular and decentralised, throughout its recent history, ABC managed to configure its digital assets to
persuade co-exploration and co-exploitation simultaneously within and across policy types.
Utilising the theoretical framework that devised in chapter 2, relationship between digital capability and business model can be elaborated through exploration and exploitation strategies as illustrated in the figure 14.

Starting from the bottom of the model, the organisational digital capability could lead to exploratory strategies, which in turn define the configuration of the underlying business model. Technological requirements of such configuration triggers investments in IS-Competencies, which in turn expands the organisational digital capability and leads to exploitation strategies that lead to another business model reconfiguration.

To summarise this section, digital capability and business model reconfiguration emerge in different streams of research as organisational antecedents of competitive advantage and performance. It seems that investigating the co-evolutionary dynamics of digital capability and business model can enrich our understandings of the two concepts. First, bringing the configuration of business model into the digital capability generation discourse can illuminate how and why various IS competencies developed and reshaped through time. Second, investigating the implications of a firm’s digital
capability on its business model provides fresh insights about organisational issues affecting business model reconfiguration. When it comes to the relation of the two concepts, identifying strategic intentions as an intermediary construct elucidates how digital capability affects strategic intentions and configuration of the business models, and how technological requirements of such configurations affects digital capability generation activities.

**Discussion of the appreciative systems model for analysis**

Checkland and Casar’s (1985) appreciative systems model provided a unique way of analysing the empirical data for this research as illustrated in figure 15. The flux of events and ideas provides a meaningful and holistic way to investigate how a series of strategic decisions made in longitudinal studies such as this one. The model’s inherent distinction between appreciation and action complies with insights from the strategy literature in which strategic intentions and strategic implementations are distinguished as unforeseen issues are likely to change the strategic course. The final remark in this section must be dedicated to the idea of digital capability. Organisational digital capability is what forms an appreciation, which contains a rough idea about strategic intentions or partnerships. However, during the action phase, further IS competencies might be developed, which in turn increase the organisational digital capability that affect future cycles.
Figure 15 Appreciative systems model adopted for strategic decision making
Reflections on the research process

The fundamental idea behind embarking on this research was to understand effects and consequences of digitalisation of value, organisation and competition. Prior to the empirical investigation, a large body of literature was reviewed in order to devise the theoretical model used in this research. This in effect guided the investigation form the beginning. While this approach provided logical and reasonable results, it might have blocked alternative explanations. In particular, the notion of business model that used in this research

In my experience, one cannot seek state of an organisation digital capability on its documents or fragmented interviews with members, instead all the empirical data should provide a holistic picture that informs about state of the organizational digital capability. Such a big picture however, would be prone to intersubjectivity among people with different roles and responsibilities. I did not encounter any mismatching accounts of the timelines or underlying processes that the firm undertook for developing various IS competencies, however interviewees presented different accounts of the implications of such IS competencies on strategic moves and interorganisational collaborations. For example, developing the e-commerce getaway is understood as a natural strategic move by IT personnel and sales personnel (begrudgingly), while the CEO attributes that to the development of the ERP almost a decade earlier. Also, business developers attribute service innovations during the third appreciation as their contribution charged by B2B developments in the previous appreciation, while the CFO and CEO emphasis on external factors and financial stability as the major cause for such experimentations during the third and fourth appreciations. The sales personnel, by large, call it an avoidable mistake. I would have expected that an interviewees position or the hierarchical structure of the firm to be the ultimate source of intersubjectivity among the interviews. However, it seems that the business divisions are more indicator of the viewpoint rather than the hierarchical structure. This is in itself interesting, as illustrates an awareness about strategic moves or the nature of value propositions beyond the top echelons of the company. To this point, the decision to launch data solution services was suggested by the IT-personnel during the company’s annual conference in 2015.

During the course of analysis, I find it extremely hard to apply the concept of business model due to its holistic nature and the sheer size and operations of the case company. Applying Amit and Zott (2001) conceptualisation provides an interesting way of focusing on the essence of value, through interorganisational collaborations. However, it could divert attention from inhouse concepts and operations that are essential for executing strategic intentions such as cost structures, profit margins, human resources or mergers and acquisitions.
When it comes to the method used, applying a qualitative method helps in developing a rich narrative for understanding the relationship between digital capability and business model. Reflecting on the way that the seven principles of the qualitative search shaped the overall process provides interesting insights about the trustworthiness of the research.

Principles of contextualisation and interaction between the researchers and the subjects help to build confidence in the truth of the findings. This adds credibility to the research. The principle of abstraction and generalisation ensures that results are transferable to other contexts. Dependability and confirmability of the findings are tested through adhering to the principles of suspension, multiple interpretations and dialogical reasoning.
Conclusion

While IT-enabled innovations continually disrupt a growing number of industries, emerging theories and concepts try to identify and explore the essence of value and success in such heavily digitalised environments. In recent years, the notions of digital capability and business model reconfiguration, as antecedents of organisational performance and competitive success, have become influential in IS literature.

Digital capability reflects on the organisational ability to identify IT-enabled opportunities and deploy IS/IT to mobilise resources and structures in order to exploit those opportunities. Business model reconfiguration encapsulates management agendas to elevate value propositions for customers, partners and other stakeholders in order to create and capture value. It entails altering organisational resources and processes to enable such value propositions.

In order to reconcile the aforementioned concepts and bridge an important gap in the IS literature, the aim of this research was to explore the co-evolutionary dynamic of digital capability and business model.

Empirical data used in this research was gathered between 2015 and 2016 for the time period starting in 2008 and ending in 2016. Applying the Appreciative Systems Model as the analytical device for making sense of the empirical data, four distinctive phases that contain deliberate strategy and organisational change were identified. The theoretical model presented in chapter 2 was used to understand the relationship between digital capability, strategies and business model during each phase.

Results of this study advance several insights with implications for both academia and practice.

First, this thesis contributes to the IS strategy literature by reconciling two increasingly emphasised value sources, digital capability and business model configuration. By introducing strategic intents as the intermediary construct between digital capability and business models, this research provides a theoretical framework to advance rich understandings of the way management ideas get translated into strategies, business models and IS/IT investments.

Results of this study illustrate that organisational digital capability drives strategic intentions for co-exploration and co-exploitation of value with partners. Such emerging strategies shape the configuration of the firm’s business model, which in turn leads to investments for generating the required IS competencies. This process increases the organisational digital capability, which affects the future cycles.

Development of each IS competency is a result of co-exploration strategies. It is likely that such IS competencies are leveraged for co-exploitation in the future phases. In addition, Business-to-Business (B2B) IS competencies are instrumental in operationalising business models; however, as the number of
partners grow and configuration of business models change, dyadic connections are likely to be replaced by standard ones. Strategies of co-exploration and co-exploitation could lead to innovative, adoptive or evolutionary business model reconfigurations. However, for incumbent organisations, business model innovation seems to follow several business model adaptations and evolutions. That is, a great deal of organisational learning and tinkering with businesses models, strategic intentions and technological backbone is needed to innovate business models.

Figure 15 illustrates this relationship

![Figure 15](image)

*Figure 15 co-evolutionary dynamic of digital capability and business model*

The underlying theoretical framework used in this research provides a new way of understanding the relationship between digital capability and business model. In particular, it appreciates the role of digital capability in defining the required configuration of the business model, while appreciating IS competency development as a result of business model’s technological needs.
By conceptualising digital capability in relation to the business model, this research provides a fresh perspective on the way digital capability is developed through time. In contrast with current understandings, investigating digital capability through the lenses of business model could have several benefits. First, this approach reconciles two distinctive sources of value in the literature, namely digital capability and business model change. This in itself is valuable as it provides a unified front for investigating value in digital business. It can also provide fresh insight for practitioners to manage their investments in IS competencies more strongly. Second, by focusing on IS competency development in relation to business model requirements, this conceptualisation provides a balance among the concept of digital capability as a whole as something that resides in management minds and grassroot activities for developing specific IS functions.

This research also contributes to the business model literature by highlighting the implications of digital technologies, which while discussed in the literature is hardly investigated. In particular, it seems that digital capability has a direct impact on success of business model adaptation, evolution and innovation. Another contribution of this research is the analytical model that is drove from Checkland and Casar’s work. This model provides rich insights in the process of making strategic decisions in the complex environments and how decisions made in the past affects standards that guide future decisions.

**Future research**

Results of this research provides fresh insights about the interdependencies between digital capability and business model. First, the extant literature on both concepts suffers from a lack of consensus about the relationship among core constructs. By providing a unifying model that hinges around the concept of strategic intentions, this research paves the way for future research to theorise about this relationship and thereby better understand both business model and digital capability and their interrelationships. In addition, the theoretical model devised in this thesis can be used to investigate the relationship between various IS competences and business model reconfiguration ontology (innovation, adaptation, and evolution). This could contribute to the organisational dimension of business model reconfiguration.

Second, the empirical data for this study was gathered from a specific industry amidst considerable disruption from both internal and external forces during a timeframe that was characterised by aftermath of the biggest economic recession since the 1920s. Widening the empirical setting even further, to investigate the phenomenon in different industries or in smaller organisations, could enrich understand of the phenomenon. Using the same logic, applying the concept of business model in this particular context was not easy, and eventually
emphasis was given to the components that changed the most. This is due to the fact that the case company is a multi-division company with parallel strategies for different services. Applying the theoretical framework on smaller organisations could provide fresh insights that were not captured during this research.

Third, the analytical model used in this thesis was particularly useful in investigating the co-evolutionary dynamics of the digital capability and business model. The model helped to understand strategic dissensions in the contexts that they were made based on the organisational history. This model can be further elaborated to provide guidelines for practitioners and research subject for scholars.

Fourth, it seems crucial to investigate the ethical issues related to data driven risk analysis on the underlying services. For example, in the case of healthcare insurance policies, individuals who are exposed to illnesses due to genetic factors, occupational hazards or other involuntarily conditions might not get converge or pay substantially more. Identifying measures to protect individual and social dignity, liberty and privacy seems to be the central issue for coming research.
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