

Innovate or Die

The Need for Business Model Transformations - a Case Study on Business Model Innovations through Professional Service Platforms

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Abstract

Keywords: Business Model Innovation, Digital Disruption, Digital Service Platforms, Professional Service Provider, Small and Medium-Sized Enterprises

Over the last decade, the concept of business model innovations was increasingly recognised by both scholars and practitioners as an effective measure to enhance corporate future readiness. This thesis aims to enhance existing knowledge in this field by analysing the influence of digital service platforms on business model innovations of small and medium-sized enterprises. A cross-sectional multi-case research design is employed to address the exploratory research question. Using data/interviews on fifteen companies that are all headquartered in Germany, the transformative impact of digital service platforms is measured.

The respective findings suggest that process and organisational innovativeness are decisive in business model transformations among small and medium-sized enterprises. The perceived main advantages of digital service platforms for SMEs are positive network-effects, the joint development of products and services, access to external knowledge and resources, lowered transaction costs, and newly available distribution channels. Key success factors of digital service platforms are low entry barriers, open interfaces to external platforms, a large and heterogeneous user group, and the accumulation of data.

The results suggest that joining digital service platforms affects the business model transformation of small and medium sized enterprises positively. Furthermore, it is found that these digital solutions also sustain the future competitiveness of professional service providers.

“If you always do what you always did, you will always get what you always got.”

Albert Einstein

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List of Abbreviations

AR	Augmented Reality
B-2-B	Business-to-Business
B-2-C	Business-to-Consumer
BM	Business Model
BMI	Business Model Innovation
BMT	Business Model Transformation
DSP	Digital Service Provider
EC	European Commission
EU	European Union
FTE	Full Time Equivalent
IoT	Internet of Things
MNE	Multinational Enterprise
PSP	Professional Service Provider
ROI	Return on Investment
OECD	Organisation for Economic Co- Operation and Development
SME	Small and Medium Sized Enterprise
VR	Virtual Reality

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Finally, without the continuous support and willingness of my family and friends to assist me during the past months of researching and writing this thesis, I would not have reached this point.

Sincerely,

A handwritten signature in black ink, consisting of a stylized 'S' followed by a checkmark-like flourish.

Enschede, 04/07/2017

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1. Introduction

“We have to keep disrupting ourselves, otherwise we will be disrupted by someone else.”

Budi Gunadi Sadikin, 2015

1.1. Research Background

The transformational power of the current digital revolution generates in an unparalleled pace elemental transformational effects on individuals as well as on corporates. Although this phenomenon is already visible over more than a decade, one is increasingly able to witness the disruptive strengths of this trend in our direct environment. Consequently, the public and the private sector are both confronted with greater uncertainty in their long-term decision-making processes as a result of this technological revolution.

The remodelling effects of the digital transformation on traditional economies as introduced in the opening statement are manifold. Many formerly innovative companies lose their competitiveness by not being able to capitalise their advanced product-innovation capabilities any longer. This trend already led to the abolishment of a variety of former segment leaders. *RIM, Kodak, Wincor Nixdorf, and Yahoo* are just a few prominent examples of corporates failing to survive within their transformed, digitalised environment. And yet, many studies suggest that the upcoming transformations bear an even greater impact on our known ecosystems and established business models than widely anticipated (Accenture, 2015; Ross, 2016). Specifically, in 2015, the *World Economic Forum* defined the most rapidly changing future technologies with the greatest impact on traditional business sectors as follows:

1. Artificial intelligence
2. Autonomous mobility
3. Big data analytics and cloud services
4. Custom manufacturing and 3D-print
5. Internet of Things (IoT) and connected devices
6. Robotics and drones
7. Social media and platforms (WEF, 2015).

It is rightly assumed that within the nearer future, the battle for digital survival will produce even more losers among established companies of all sectors (Gassmann et al., 2013).

Yet, do traditional businesses still have any chance to participate in this technological transformation and defend their individual niche? The academia as presented in the subsequent section provides a clear answer to this assumption: the time of technology-enabled product innovations as the main growth advantage for companies is long gone. Only those are expected to survive that successfully compete based on their business-model innovation capabilities rather than those which rely on individual service- or product-innovations (Barjak et al., 2014).

Apparently, the majority of executives has gradually realised the necessity to innovate the business models (BMs) of their firms or currently is even in the phase of preparing ground for concrete transformative initiatives as a study by *IBM* found in 2012. Still, the shifts in market capitalisation among international conglomerates but also smaller Multinational Enterprises (MNEs), show exemplarily a massive gap arising between the realisation of the transformational need on one side and the execution of concrete business model innovations on the other. And as research by the *St. Gallen Institute on Business Model Innovation* (BMI) has shown, 90% of all BMI is solely composed out of a recombination of “already existing ideas, concepts and technologies” (Gassmann et al., 2015). Consequently, not many BM reinventions can be considered to be entirely new to the market. However, even minor adaptations of BMs proved to bear the potential to provoke disruptive transformational powers as exemplarily seen in the case of *Nestlé* with its spin-off *Nespresso*. Placing this race for comparative competitive advantages in the context of this thesis, the high road for the vast majority of corporates to achieve digital supremacy and secure future competitiveness lies in technology-enabled platform-based business models. These allow corporates to harvest growth-opportunities through positive network-effects within their demand-sided, digitalised ecosystem.

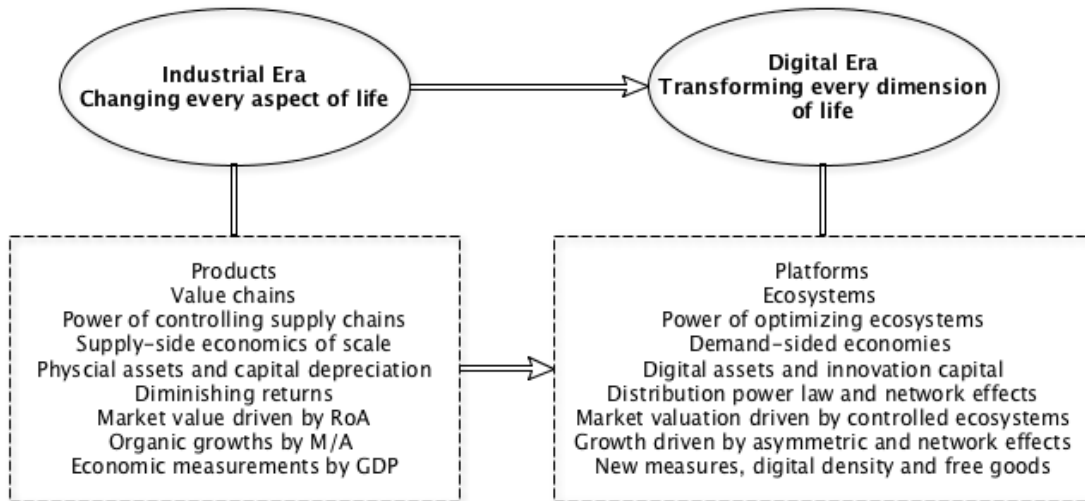
Specifically, the features which shaped the asset-heavy industrial era are about to turn into an obstacle considering the impacts of the digital business era as presented in Figures 1 and 2 below.

Various studies further suggest that companies which created their own external digital ecosystem are assumed to dominate this decade. This is likely to be achieved by two factors of significant impact: the continuous creation of value by enabling and stimulating third parties within a self-operated environment to jointly generate profits through knowledge-, resource- and technology-sharing and second, through the accumulation of data. To put these developments into a different and more concrete perspective, *CBInsights* (2015) found that the fifteen highest-rated public-platform firms account for 2.6

trillion USD in total market capitalisation with reference to 2015, emphasising the massively growing and hyped importance of platform-based business models.

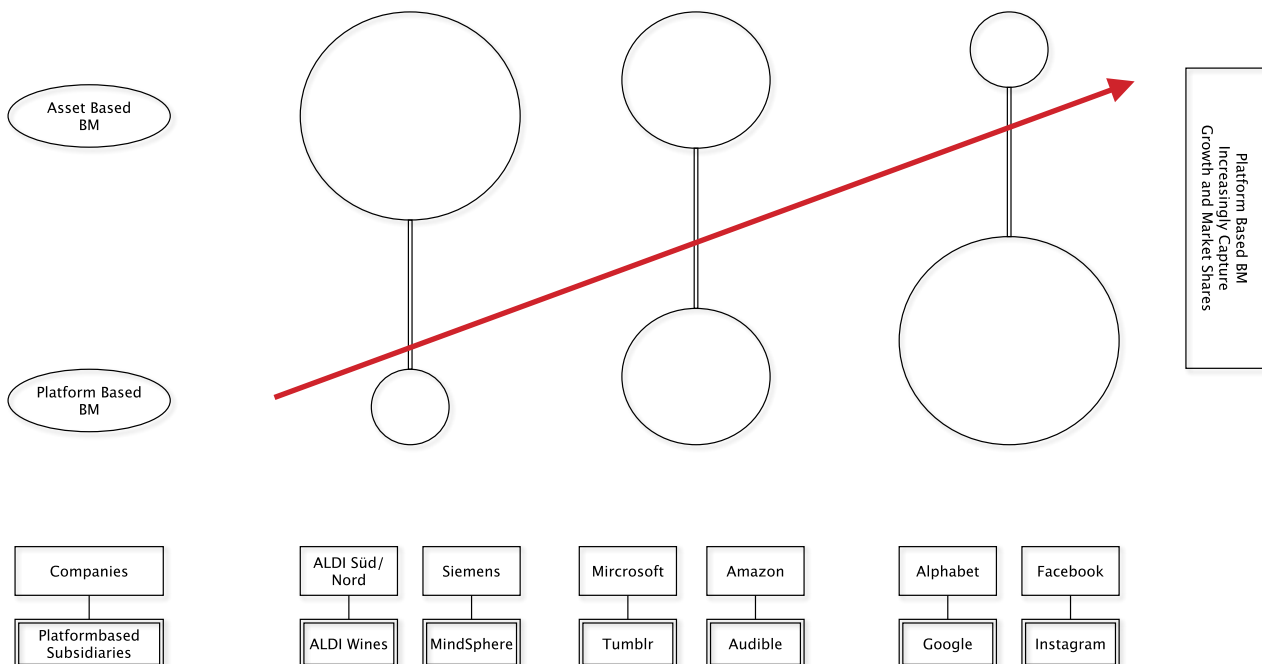
As already stated, this trend will further expand in traditional business sectors, being shaped by a strategic shift of asset-heavy to asset-light business models (see Fig. 2).

Figure 1: From the Industrial towards Digital Era



Source: Composed by author, 2017

Figure 2: Shift from Asset-Based to Platform-Based Business Models



Source: Composed by author, 2017

1.1.1. Transformational Disruptions within Professional Services and SMEs

A report published by the *McKinsey Global Institute* suggests that the professional service industry did not yet experience transformational centrifugal forces as compared to branches such as telecommunication or financial services. Still, analyses from within the professional service sector anticipate that major BM-disruptions will arise from the usage of:

1. *Artificial intelligence systems*
2. *Big data analytics and*
3. *Digital service platforms* (KPMG, 2016).

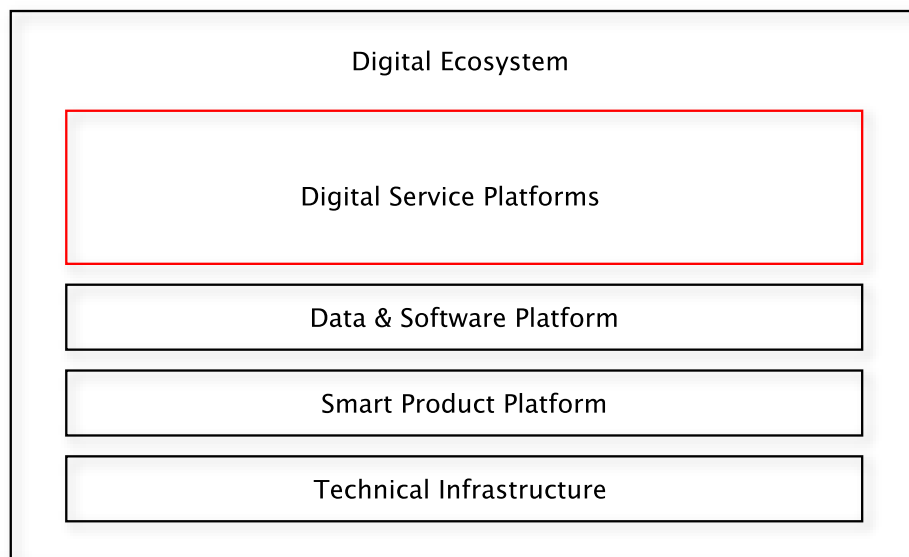
In consequence, it remains highly questionable if the factors having protected the professional service sector during the past decades, such as regulatory requirements, exclusive service delivery competences, and long-contractual relationships, remain unaffected by the current digital revolution or are even capable in maintaining a competitive position. Several studies suggest that also SMEs fall behind in adopting newly arising technologies and competencies to successfully compete within a transforming and digitalising environment (Accenture, 2016). Organisational structures and limited operational efficiency widen the already existing gap between the international frontrunners of the digitalisation and those corporates with lower adaptive capacities. As a result, small- and medium-sized enterprises, accounting for approximately 70% of all job opportunities within OECD-countries (OECD, 2016), are significantly challenged in their operational survivability.

1.2. Research Problem

The existing literature has put much emphasis on investigating the effects of business model innovations in general and value creation through digital platforms in particular. Yet, the concept of digital platforms is oftentimes analogically understood in academia as internal technical infrastructure and smart product platforms or external software platforms providing a specific solution within a narrow business segment (see Fig. 3). In contrast, the strategic dimensions of business model innovations through externally digitalised and technology-driven ecosystems, facilitating the exchange and co-creation of knowledge between network-participants, experienced rather little academic attention (Ross, 2016). Furthermore, the vast majority of existing publications in this area is released predominantly by private research institutes (e.g. *Accenture Research* or the *McKinsey*

Global Institute), leaving scientific studies on innovations through digital service platforms the exception.

Figure 3: Platform Concepts



Source: Composed by author, 2017

1.3. Research Objective and Research Question

As a consequence of the identified research gap, this thesis will aim to deepen the existing knowledge by assessing the discrete factors facilitating business model innovations through digital service platforms (hereafter “DSP”) within the context of SMEs. Specifically, it will be investigated:

- 1) how the current digital transformation impacts the established business models of PSPs and SMEs
- 2) which effect digital ecosystems have on involved companies
- 3) and which strategic dimensions digital service platforms need to offer in order to bear the greatest benefit for the participating stakeholders.

The previous elaborations lead to the overarching exploratory research question of “Which features distinguish successful digital service platforms?” Two additional sub-research questions complement the research, asking: “How do digital service platforms affect

business model innovations of small and medium sized enterprises?” and “How do digital service platforms affect business model transformations of digital service providers?”

1.4. Research Methodology

To assess the introduced research gap, digital platform-business models will function as unit of analysis whereas individual partners that collaborate on these platforms are considered as units of observation.

In order to answer the preliminary stated exploratory research question, an extensive literature review will be conducted, assessing a necessary variety of academic and professional publications in the fields of the defined concepts. Based on the findings of this investigation, a cross-sectional multi-case research design is applied that will analyse the functioning and evolution of parameters facilitating the exchange of heterogeneous parties on DSPs.

1.5. Key Concepts

The predefined key-concepts as further assessed in the following literature review are *digital service platforms*, *business models* and *business model innovations*, *corporate governance structures*, *innovativeness*, *professional service provider* and *small and medium sized enterprises*. As the course of the thesis will predominantly focus on digital ecosystems in general and digital service platforms in particular, platforms targeting the B-2-C market are not considered to be part of this research and are hence neglected.

1.6. Scientific and Practical Relevance

As introduced before, the specific niche of academic knowledge concerning the impact of the current digitalisation on PSPs and SMEs and potential high-roads provided by platform-based ecosystems to meet future digital disruptions is highly uninvestigated. Therefore, this thesis aims at providing recommendations on how to develop DSPs further in order to facilitate business model innovations among PSPs and SMEs. In addition, the empirical results of this investigation have the potential to function as the basis for future longitudinal studies analysing the impact of digital service platforms on the SME-sector and their subsequent impact on business model transformations. Also, a cross-sectional research-

design focusing on the interplay of various DSPs could serve as the logical future extension of this study.

1.7. Thesis Outline

The following chapter elaborates on the pre-defined concepts as presented in 1.5. by referring to scientific studies and white papers published by the *World Economic Forum*, the *OECD* and private research institutes. Chapter 3 presents the methodology, followed by chapter 4, providing the studies' findings to each concept whereas chapter 5 discusses these in the light of the specific research focus. Chapter 6 continues to provide recommendations and is succeeded by the chapter 7, containing the conclusion, the study's limitations and suggestions for future research.

2. Literature Review

“The hardest thing is working out whether what’s happening is hype, trend or tsunami.”

Faik Açıklalın, 2015

2.1. Introduction to the Analysed Literature

As introduced in the previous section, it is widely known that an “era of technological advances and hyper-competition”, especially within the professional service sector, has arisen, requiring technological parity between the different market participants (Sedera et al., 2015). Yet, the academic knowledge base remains rather limited concerning the chances and challenges of business model transformations (BMTs) by PSPs and SMEs through automatised service platforms to compete successfully within digitalised environments (Ross, 2016). Moreover, recent research solely assessed the concept of BMT in the PSP and SME sector from sociological and eco-psychological viewpoints (Park, 2013; Davison & Ou, 2017), leaving this domain rather un-investigated from the perspectives of business and innovation research.

In the following, the identified concepts of this research as first introduced under 1.5. and as visible in Figure 9 are assessed by referring to relevant scholars and the available respective literature.

2.2. Professional Service Provider

The developed economies of the 21st century are predominantly characterised by two distinct features: “knowledge dependence and outsourcing” (D’Antone and Santos, 2016). Furthermore, the past decade witnessed a massive increase of corporate digital infrastructure, oftentimes meeting latest available technological standards. This resulted in technological but especially procedural advances at an unparalleled high pace with massive shifts of values and resources between individual conglomerates and economic regions. Yet, a variety of studies found that managerial thinking and human capabilities often lack the necessary competencies to make effective use of it (Davison & Ou, 2017). A majority of private corporates responded to this fast-changing environment by outsourcing former internally-developed services and activities (D’Antone and Santos, 2016).

Consequently, knowledge-intense, complex and demanding B-2-B-service profiles emerged, laying the ground for PSP (La et al., 2009). Thus, the provision of former in-house-services to these companies can be considered as the core business model of professional service providers. Madhavaram and Hunt concretise professional services as “highly tailored for one, specific customer involving many creative options [by addressing] numerous individualized customer requirements and are produced in highly context-specific, environments” (2017). Chesbrough adds that these offerings are highly systematic as the final service is composed of a variety of seamlessly intermeshed, individual components (2003). Furthermore, a certain adoptive capacity needs to be given to allow for unpredictably occurring events within the highly customised business relations (Hunt, 2000). Typically, these services are developed within a dense, heterogeneous partner network offering a variety of business solutions such as IT-, audit- and consultancy-services (Chesbrough, 2003). Generally, these can be grouped into “1) advisory services, book-keeping and auditing activities, market research, business and management activities; and 2) technical services” as exemplarily the development and operation of IT-infrastructure and software solutions (D’Antone and Santos, 2016). Consequently, recent research suggests to differentiate and classifies PSP into “service-provider” and “technology-provider” (Miles et al., 1995). Together, in many industries both types of PSP account for 80% to 90% of the entire supply chain as the result of the high attractiveness of reducing operational risks and procedural inflexibility through outsourcing activities (Johnson et al., 2014). This high share is explained by Hertog (2000) as the consequence of their high-level expertise and technical ability within specific segments. This facilitation of developing and launching new products, services or even organisational models can therefore be directly linked to the *process-dimension* of Fig. 5, *Visualised BMI Dimensions*. In addition, Lau et al. (2011) see a second major contribution of PSP for the business development of SMEs in their large and usually dynamic network, allowing an acceleration of business contacts and interactions with third parties. It is found that this enfolds positive externalities on both, the R&D processes but also on the marketing and distribution of the offered goods and services (Lau et al., 2011).

Referring to the *product-innovation* dimension of Figure 6, D’Antone and Santos differentiate between three different types of in-housing professional services which facilitate new product-developments, namely:

- pre-commercial activities, focussing on basic research and organisational procedures to ease the subsequent prototyping processes,

- adaptations, meaning that services focussing on a transfer of business intelligence between different geographical units or markets
- and developmental processes with “completely new to the world products or systems” (2016).

Summarising, PSP do not provide a specific tool nor market-ready product/service but instead assist firms to achieve their internally set targets. Therefore, clients of PSP do not purchase goods but solutions (D’Antone and Santos, 2016). Consequently, the business models of professional service providers need to be redefined to deliver and capture prospective value and revenue streams (Osterwalder and Pigneur, 2010; Bharadwaj, 2013).

2.3. Small and Medium-Sized Enterprises

In contrast to large multinational PSPs and MNEs, the concept of small and medium sized enterprises, commonly abbreviated as SMEs, is defined “as non-subsiary, independent firms which employ fewer than a given number of employees” (OECD, 2000). Even though this number varies between different countries and organisations, a maximum of 250 FTEs is set by the *European Union* and 500 FTE by the *United States* (OECD, 2000). Additional established characteristics are an annual turnover of not exceeding 53 million USD (Eurostat, 2016) and assets below 46 million USD (with reference to the *European Commission* recommendation of 6 May, 2003; EC, 2012).

Table 1: SME Classification

Company Types	Number of FTE	Annual Turnover in MM \$	Assets in MM \$
Large and medium-sized companies	500 - 250 FTE	< 53	< 46
Small-sized companies	< 50 FTE	< 12	< 12
Mirco-sized companies	< 10 FTE	< 2.5	< 2.5

Source: European Commission Recommendation 2003, EC, 2013

In *OECD*-countries, studies by the *European Commission* and the *World Bank* found that SMEs stand for nearly 60% - 70% of the annual gross value added (EC, 2012) whereas in developing countries this share even reaches 99% (OECD, 2014). Overall, the importance of this economic sector for developed countries can be regarded as very high as it stands for the majority of all registered businesses and private employment opportunities (98%) (Özdemir et al, 2011; OECD, 2014). Moreover, absolute but also relative growths figures

concerning the employment market of all major economies originate in the business activities of SMEs (Özdemir et. al, 2011). Within the group of SMEs, further distinctions can be made based on the number of employees, the total amount of assets, and the turnover (Eurostat, 2013). Following this classification and taking the *Eurozone* as reference, micro-SMEs constitute the largest share of companies within this group of 91%, followed by small-sized enterprises with 7%, and medium-sized firms with nearly 2% (Eurostat, 2013). Among small- and medium sized enterprises, firms controlled by individual families make up the majority with more than 60% (European Commission, 2017). These businesses are usually characterised by a long-lasting ownership structure surviving several generations, stable economic developments over decades, and on average lower capital-outflows (Shah et. al, 2013). Yet, despite their past economic successes, Craig and Moores attest SMEs a lower innovative capability compared to MNEs and start-ups (2005). This assumption is linked to the findings of Littunen and Hyrsky (2000), indicating that SMEs show a lower profitability on market positions compared to publicly listed MNEs. A possible explanation for this claim can be explained by the findings of Figener (1994), indicating that medium to larger-sized SMEs show highly formalised and task-oriented procedural structures, limiting the creative independency of their workforce. A second but slightly contradicting explanation to the previously quoted study results from the paper of Harvey and Evans (1995): The authors state that strategic decisions are oftentimes based on subjective performance measures and can be directly linked to the companies' performance. However, SMEs frequently experience difficulties in "financing, [...] exploiting technology, constrained managerial capabilities and low productivity" (OECD, 2012) due to their limited resources, requiring the temporarily insource of so-called professional services (Karadag, 2015). In contrast, MNEs do not face these difficulties since these organisations usually maintain a variety of internal departments providing the full spectrum of corporate services ranging from R&D over legal to auditing services (Motwani et. al, 2006). Still, SMEs are perceived to manage their assets over-proportionally effectively and consequently maintain competitive advantages within their respective niches over external entrants (Shah, 2013). Transitions into professionally managed organisations which operate in more than their initial home-market are a key factor for long-term growth and success of SMEs. Tan and Fock (2001) found that in order to achieve this goal, it is necessary to separate ownership from management to accelerate a company's growth. Yet, the consequent shift of authority from the founding parties and shareholders towards external executives is not necessarily a common phenomenon, especially within medium-sized SMEs (Sharma, 2004). In the long-run, this trend is perceived to create a significant

gap between SMEs owned but also exclusively managed by the founding families and those corporates in which the initial entrepreneurs left the firm (Dawson, 2012). These limitations in the development of family business, making up the majority of SMEs within the German Mittelstand (approximately 90% of all registered corporates; Stiftung Familienunternehmen, 2017), are assumed to be the consequence of three conditions. First, founders tend to have weaker experiences concerning the management of larger, multi-faceted organisations (Gassmann et al., 2013). Second, even though entrepreneurs often benefit from their direct and competent community, they lack a diverse and international network which also provides access to external resources and especially capital (Lopes et al., 2012). And third, the presence of family values appears to conflict the formal institutional values of the free market (Bhat et al., 2013).

In consequence, a SME's innovative capacity depends not only on the industry the company operates in but also on the ownership structure and delegation mechanisms (Aguilera & Jackson, 2003).

2.4. Business Models

The following sub-section will assess in detail the different business model ontologies by categorising the concepts into general *business models*, *e-business models*, *business model innovations* and concrete *BMI characteristics*.

2.4.1. Business Model Taxonomy

“Beat your competitor without beating your competitor.”

Gassmann et al., 2015

The concept of business models led over the past years to a large amount of academic but also private publications, introducing a variety of different definitions. Unexpectedly, Zott et al. found that since the serious and quantitatively measurable beginning of BM-research in the early 90's, 80% of all relevant publications of BM-articles in the fields of business- and management-research were released in non-academic journals (2011). The variety of available publications on business models therefore appears to maintain a certain “divergence of understanding among people and particularly between business-oriented

and technology oriented ones” (Osterwalder et. al, 2005). Especially within the academic sphere, business model definitions vary contextually, most often between value-/customer-oriented BM definitions and those concerning specific, activity-oriented enterprise models (Gebauer and Ginsburg, 2003). In the words of Zott et al., this diversity in explanations “represents a potential source of confusion, promoting dispersion rather than convergence of perspectives and obstructing cumulative research progress on business models” (2011).

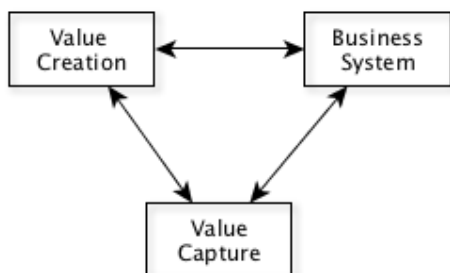
The main topics of recent research originated in the domains of “e-business, information systems, strategy and management” (Pateli and Giaglis, 2003). The ongoing globalisation, digitalisation and the drive for sustainable solutions revolutionises the way firms operate and generate wealth, accelerating even further the academic interest in BM-research (Chesbrough and Rosenbloom, 2002). In the academia, further differentiations are discussed as either an overarching concept, analysing the way firms conduct business operations in general, as a set of various sub-types of business models within specific domains or as specifically conceptualised business models in concrete settings (Cavalcante et al., 2011). This taxonomy is understood by various scholars as hierarchical, allowing deductions between the three different levels (Galper, 2011; Giesen et al., 2011; Osterwalder et al., 2005).

2.4.2. Business Model Definitions

Osterwalder et al. approach this broad concept by first defining separately the two semantic elements of business models, “business” and “model” (2005). *Models* are understood as “a simplified description and representation of a complex entity or process” whereas *business* is defined as “the activity of providing goods and services involving financial, commercial and industrial aspects”. Generally, Osterwalder (2004) phrases business models as the conceptual tool that “expresses the logic of earning money” while Casadesus-Masanell & Ricard add that it reflects a firm’s realised strategy of making profits (2010). Chesbrough and Rosenbloom (2002) expand this first definition by specifying business models as the “theoretical framework orchestrating a company’s business operations and mediation of the conversation of resources into an economic output of any kind.” Similarly, Itami and Nishino (2010) also conclude that “a BM is [furthermore] composed of two elements, a business system and a profit model”.

The business system is understood as the micro-environment facilitating organisationally the company's value creation (Magretta, 2002) whereas the profit model defines the customers and "explains how the focal firm is embedded in, and interacts with, its surrounding ecosystem" (Gassmann et al., 2015) to generate revenue (Shafer et al., 2005).

Figure 4: Business Model Triangle



Source: Composed by author, 2017

More specifically, Timmers (1998) argues that a business model is "an architecture of the product, service and information flows". This includes the three elements of a "description of the various business actors and their roles; a description of the potential benefits for the various business actors; a description of the sources of revenues" (Timmers, 1998). Phrased differently, Magretta (2002) elaborates in his definition that BM are the "stories that explain how enterprises work, [...] answering Peter Drucker's age old questions: Who is the customer? And what does the customer value? It also answers the fundamental questions every manager must ask: How do we make money in this business? What is the underlying economic logic that explains how we can deliver value to customers at an appropriate cost?" David Teece (2010) exported this explanation into his BM-value creation process as:

1. the selection of relevant technologies and features that are ought to be embedded in the later product/service
2. the determination of the gained benefit for the later client
3. the definition of the relevant ecosystems to operate in
4. the determination of available funds and resources for pursuing this process
5. and the precise definition of how to capture value from the business operations (Teece, 2010).

Following the proposed taxonomy of Osterwalder et al. (2011), Zott et al. conclude that BM on firm-level are regularly composed of "a statement [...], a description [...], a representation

[..], an architecture [..], a conceptual tool or model [..], a structural template [..], a method [..], a framework [..], a pattern [..] and a set.”

Summarising the previous definitions by referring to another publication by Osterwalder et al. (2005), business models resemble “the value a company offers [...] to customers and of the architecture of the firm and its network of partners for creating, marketing and delivering this value and relationship capital in order to generate profitable and sustainable revenue streams.” In short, it is explained “who is the customer” (Magretta, 2002) and “how do we earn money with him” (Johnson et al., 2008).

2.4.3. e-Business Model Definitions

The recent developments in the computing and telecommunication industries resulted in massively declining costs for digital products and services. The cost advantage has significantly impacted the functioning of traditional business models (Clemons, 2009). This allowed the “advancements of new ways to create and deliver value which have offered scope for the creation of unconventional exchange mechanisms and transaction architectures” (Amit and Zott, 2001). It is therefore essential to also assess e-Business models in the context of this paper in order to cover the theoretical foundations of business model innovations facilitated through the current digital transformation (referring to the BM-navigator of Gassmann et al., 2013). Concretely, the term e-Business model stands for electronically conducted business operations. e-Business models enable companies to manage in a highly flexible manner their business interactions, transaction architectures and organisational forms (Dunbar and Starbuck, 2006).

Despite the given findings, literature reviews by Amit and Zott (2011), Yannopoulos (2013) and Osterwalder et al. (2005) found that this concept is not extensively investigated at this stage and would potentially benefit from further academic research.

2.5. Business Model Innovation

In contrast, many studies have concentrated on the concept of BMI. Business model innovations reach far beyond simple product- or service improvements. Instead, business model innovations concern the way how corporates generate profits, structure their organisation and allocate resources (Lindgardt et al., 2009). Preferably, established BM are constantly analysed and put in question by the responsible managers to ensure a constant and dynamic corporate development (Shah et al., 2013). Consequently, “every new product

development effort should be coupled with the development of a business model which defines its 'go to market' and 'capturing value' strategies" (Teece, 2010). In turn, the absence of BM innovations directly compromises "the capacity of a firm (or nation) to capture value [...] unless the capacity exists to create new business models" (Teece, 2010). According to Yannopoulos (2013), the two most prominent reasons why corporates have to adopt their business models are:

- 1) environmental changes affecting the effectiveness of the established BM and
- 2) the incapability of the existing BM which does not exploit effectively the given revenue opportunities within the markets and leading to competitive disadvantages.

Yannopoulos further suggests that the level of disruption and the difficulty to harvest revenues directly correlate with the necessity to adapt traditional BMs (2013). Chesbrough (2007) extends this statement by suggesting that "today, innovation must include business models, rather than just technology and R&D." In extreme cases, highly innovative BM transformations have even the potential to create entire industries as it exemplarily happened in the case of *Apple* and its *Appstore* (Markides and Oyon, 2010). Still, also this concept experienced over the past decade a variety of diverging definitions as a result of scientific research for further insights in the characteristics fostering the occurrence of innovation (Barjak, Niedermann and Perrett, 2014). These authors even go further by stating that BM innovations are neither sufficiently operationalised to be considered as "type of innovation nor as a combination of other innovation types".

Concerning the current models on BMI, Lopes et al. (2012) suggest that the vast majority of academic studies are derived "from or follow the logic of "Stage Gate" (Cooper, 1990) and "Funnel" (Wheelwright & Clark, 1992) models" (see App., Fig. 1 and 2), explaining to some extent the underlying conceptual homogeneity within this field of research. Based on these broad concepts, recent research continued at narrowing down these concepts into general clusters. One scientific movement which is based on this ideology was further expanded by Bock et al. (2012) and Giesen et al. (2007). It follows the argumentation of Barjak et al. (2014) who suggest that BM innovations can be generally linked to the domains of product/service/market and process/operational innovations.

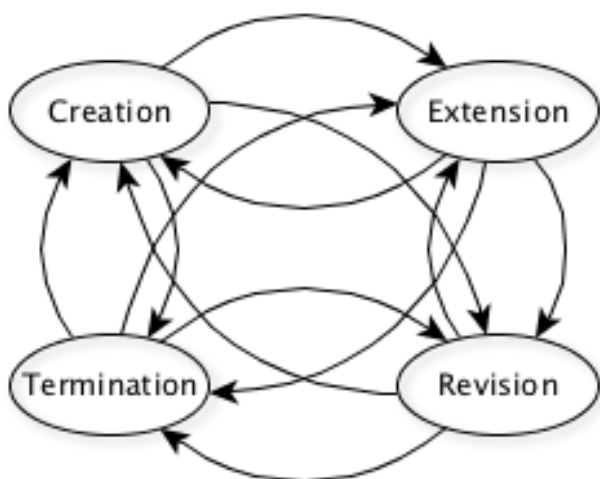
2.5.1. Business Model Innovation Characteristics

The probably most simple definition of BM innovations is provided in one of Chesbroughs (2010) many publications in this field of research by referring to it as the simple process of "trial - error - *ex-post* evaluation and -adaptation". Even though this is a time- and resource-

consuming process, it is perceived by the author as the most effective and direct approach to innovate the own organisation. Yet, even though a variety of different explanations in the shaping of this concept exists, the academic community appears to agree on the “need of fundamental changes” as the characterising feature of BMI innovations (Michtell and Coles, 2003).

Sosna et al. (2010) add to the previously given explanation the necessity to involve all hierarchical levels of an organisation into transformational processes to ensure the long-term success. Cavalcante et al. (2011) link BM innovations to either a a) creation, b) extension, c) revision, or d) termination of existing structures (see Fig. 5). These four individual types differ in their influence on business models and require specific managerial approaches. Barjak et al. (2014) went into greater detail about this theory, suggesting that these four elements are not exclusive but bear the greatest impact on the transformational speed of companies if multiple of these occur at the same time (see Fig. 6). An innovation input is assumed to trigger some form of output, directly enhancing the company’s productivity and ultimately overall growth (see Fig. 7; Cavalcante et al., 2011).

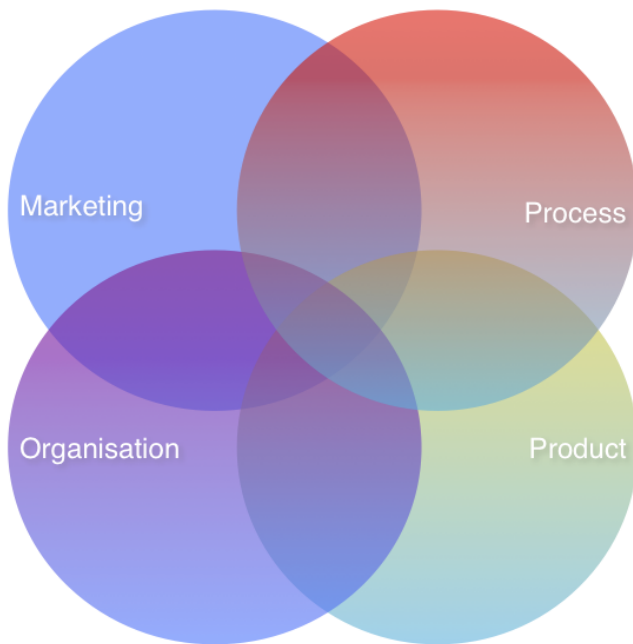
Figure 5: Transformational Characteristics



Source: Composed by author, 2017

A second study published by Barjak, Perret and Niedermann (2015) on behalf of the *European Commission* distinguishes between four types of innovation being based on the taxonomies of the *OECD Oslo Manual* (2005), namely 1) process innovation, 2) product innovation, 3) marketing innovation and 4) organisational innovation (see Fig. 6, incorporating the previous statements by Giesen et al., 2014).

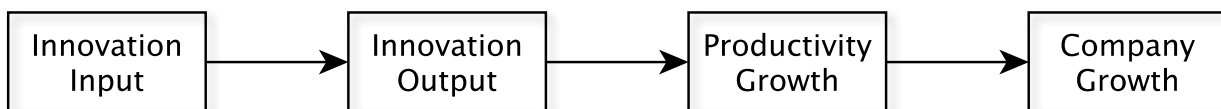
Figure 6: Four-Dimensional Innovation Helix Derived from Theories of Perret (2014)



Source: Composed by author, 2017

The authors put the argument forward that companies expressing solely one of these four types of innovation might appear but cannot truly be considered as BM innovators. This means that the hot spot of innovativeness is considered to lie within the intersection of these four elements (Barjak et al., 2015).

Figure 7: Innovation Process



Source: Composed by author, 2017

Consequently, the positive impact of BM innovations on the competitiveness of companies of all sizes appears to be striking. Chesbrough (2007) and Teece (2010) both provided in their studies confirmative findings on successfully innovating corporates increasing their medium-termed competitiveness BM-transformations. Yet, several business models types are perceived to experience particular successes in platform-based economies. Sponsor-based BMs, one example being *Google*, are benefitting from positive two-sided network

effects and are therefore over-proportionally viable in digitalised environments (Gassmann et al., 2013). The nucleus of this BM is the provision of cost-free B-2-C services which are cross-financed through B-2-B-data utilisation. A second example of newly-emerging BMs is given by the literature with reference to Flightradar24 as a “freemium”-BM, providing basic services for free to a larger audience while charging for specific add-ons. The opportunities as consequence of the digital revolution and customer-empowerment allow companies to fundamentally renew their revenue models, “taking into account self-selection effects of clients for which the new value proposition was attractive” (Barjak et al., 2014).

Yet, BMI are not automatically a self-propelled success for any company engaging in business model transformations. Failures of BMI are regularly outshone by the successes of so-called “early-adopters” (Chesbrough, 2013) such as General Electric or GoPro. A variety of reasons exists decelerating organisation re-organisations. An often cited and still valid analysis of these limitations for the implementation and execution of innovation strategies by corporates was developed by Harvard University scholar Constantinos Markides in 2000. The most relevant factors impeding BMI read as follows:

- corporate inertia and aversion to innovate
- corporate contentment and ignorance
- inflexible organisational structures and processes
- conservatism and protective attitudes
- politicised structures
- managerial incapacibilities and arrogance
- blind trust in past financial innovations and technological supremacy
- uncritical and passive reflection (Markides, 2000).

Overcoming the vast majority of these obstacles is perceived as the distinct success factor of innovative companies without distinction to firm size and market segment (Gassmann et al., 2012).

Concluding, the current strive for innovativeness of the majority of private corporates turns BMI almost into a self-propelled success-story (Gassmann, 2013) whereas “the main challenge of business model innovation is to overcome the dominant industry logic” (Frankenberger, 2016).

2.5.2. Business Model Innovations at SME-Level

Building upon the previously provided definitions, this section will further expand this concept by assessing how SMEs manage and prioritise their business innovations and strategies.

A recent longitudinal study by the *European Commission* (2014) found that SMEs generally lack the capacity for business model innovations. Based on CIS data, the study suggests that in Europe, solely one out of 20 SMEs could be considered as a BM innovator. This observation is in line with the analyses by Clarysse (2007), indicating that SMEs have highly underestimated the relevance of BM innovations in the past years. Based on his research, Duarte (2004) expands that SMEs do not seem to play a central role in the overall sustainable product development in terms of R&D. Research by Gassmann et al. (2015) adds that still only a minority of SMEs attempts to compensate for these strategic failures. Frick and Ali (2013) explain this trend by referring to their constant strive for operational survival, leaving little to no room for costly try-and-error strategies. If business model innovations occur in this sector, 90% of them are conducted by concentrating on minor adaptations of existing BMs through re-combination of previously existing concepts (Gassmann et al., 2015).

Consequently, several studies conclude that SMEs are rather incapable to successfully compete against MNEs and large segment-leaders “on the basis of superior quality and [particular] technological innovation.” Instead, “SMEs attempt to differentiate usually by emphasizing marketing differentiation [...] by employing marketing-related techniques to mimic the image of established rivals” (Caloghirou et al., 2004). The main reason for pursuing such a strategy appears to be determined by the shortage of available funds and resources, managerial constraints and related transaction fees (Pissarides, 1999). Together with the previously stated challenge MNEs regularly experience in the process of commercialising their innovations (Duarte, 2004), the advantages of marketing-innovation become clearly visible. These predominantly lie in the limited resource requirements compared to the capital-intense business competition through product- and technology-innovations and superior quality (Caloghirou et al., 2004).

But similar to the literature on generic BMI, different perspectives concerning the impact of innovative disruptions initiated by SMEs exist in this niche. Exemplarily, Audretsch (2000) takes the opposing opinion “that small firms [...] are not smaller clones of the larger incumbents, but rather agents of change through innovative activity” (Duarte, 2004).

Irrespective of whether SMEs are more or less entrepreneurial and disruptive compared to MNEs, it is common sense among the substantial majority of scholars that these companies provoke a significant and positive influence on the overall innovative capability of economies (Eckhardt & Shane, 2003).

2.5.3. Corporate Governance on Firm Level

Speaking about BMI and digital transformations, one key concept connects all previously introduced concepts through its central relevance for any business operation. Corporate governance as “the structure of rights and responsibilities among the parties with a stake in the firm” (Aoki, 2000) can be conceptualised into two main models: the Anglo-American and the Continental-model (Aguilera and Jackson, 2003). The authors understand the latter as being characterised by long-term debt finance, powerful institutional investors, and rigid labour markets. In comparison, the former concept is shaped by financing based on equity, liberal market mechanisms, dispersed ownership, and flexible labour markets. Still, both taxonomies identified the same stakeholder groups, namely “capital, labor and management.” These three entities shape the way any firm operates and interacts as an organisation.

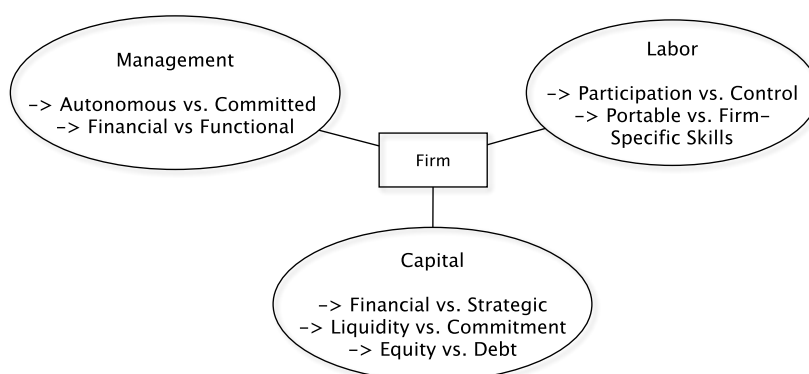
A second, macro-economic research-stream extends the logic of “capital, labor and management” by investigating on the institutional factors influencing the emergence of businesses within specific ecosystems (Scharpf, 1997). As Aoki (2001) further suggested, these two fields of research complement each other due to their high degree of interdependency. Specifically, institutions influence the strategic interactions between organisations whereas in opposite, organisational interactions affect in turn the institutions which characterise their ecosystems (Aguilera and Jackson, 2003; 2007). To put the concept of corporate governance differently and in the words of the previously quoted authors, it can be understood as “the relationship among stakeholders in the process of decision making and control over firm resources [..]”. In contrast, firms are understood as a “collection of resources embedded in a network of relationships among stakeholders” (Aguilera and Jackson, 2003).

In addition, the field of agency theory in corporate governance research is of central importance for understanding dynamics within and between corporates and it is experienced as a result of much scientific attention over the past years (Streeck, 2002; Miles et al., 1995). In short, agency theories concern interest conflicts between the principal, in financial theory the shareholder, and managers as agents due to diverging

goals and incentives (Laiho, 2011). The resulting agency costs grow proportionally to the efforts being spent to close existing information-gaps by principal in order to regain orientation of the corporates processes (Eckholm and Maury, 2009).

The analyses of the beforehand quoted authors led to the widely established corporate governance model as presented below (Fig. 8, Aguilera and Jackson's Dimensions of Corporate Governance), showing the three main entities constituting any firm or economically-oriented organisation.

Figure 8: Aguilera and Jackson's Dimensions of Corporate Governance (2003)



Source: Composed by author based on the model of Aguilera and Jackson (2003), 2017

According to Aguilera and Jackson, capital can be referred to as the group of stakeholders controlling the investments into the firm, typically shareholders or third investing institutions (2003). The pursuit of goals within this cluster concern usually either:

- ROI versus strategic, long-term objectives such as influence over certain value prepositions or the strategic business development
- the ability to quickly liquidise shares versus larger stakes in the company which to dissolve is only possible by accepting proportionate losses
- stable and secured ROI via granting credits versus higher but riskier chances of profit-generation through direct deposits.

The second central element, Labor, is characterised by

- decision making-processes diverging between participatory and hierarchical approaches
- employee knowledge and skills which are easy to transfer to external competitors versus competencies which are closely connected to the specific firm, making it in consequence difficult to exist in the organisation

The last entity concerns the management of firms. A distinction is made between:

- managers who operate to a large extent independently without experiencing much pressure to justify versus managers who have to coordinate their decisions
- financial conceptions referring to management styles through exercising financial mechanisms versus functional approaches which focus on strategic and personal leadership.

These three clusters of corporate governance structures combine the relevant elements explaining modern business operations. By referring to this taxonomy, interactions within ecosystems, social relations, and control mechanisms between shareholders and managers can be assessed and further developed (Eckholm and Maury, 2009; Iaiho, 2011).

2.6. Digital Service Platforms

External digital collaborative business platforms are predominantly characterised by their participating parties to collaboratively share business intelligence and know-how in order to jointly create value (Davison & Ou, 2017). In other words, DSP can be understood as technology-driven, digitalised business models which create benefits by facilitating interactions between different independent parties (Park, 2013). DSPs have increasingly been used in recent times to enhance the collaboration between corporates for new business solutions and innovations (Chesbrough, 2007). These parties could represent start-ups, SMEs, MNEs but also third organisations such as research institutes (Chesbrough, 2007).

The overall success of these ecosystems is assumed to rely on the commitment of the individual stakeholders. Additionally, a platform's success also depends on the availability of a variety of accessible information/data concerning the involved parties (Sedera et al., 2015). In the further stage of operating DSPs, relevant characteristics are weighted and used to determine highly correlating attributes within third accounts. The resulting positive overlaps supplement individual gaps which can be understood - in the context of the professional sector - competence deficits (Davison & Ou, 2017).

The two main success factors of digital platforms are perceived to lie in a complete and up-to-date data set and sophisticated algorithms to generate matching business models (innovations) (Park, 2013). Yet, successful digital ecosystems solely lead to positive externalities if, according to Codexx (2013), corporates in general and PSPs in particular are placed within an environment that enhances and facilitates innovation by positively influencing:

1. Leadership
2. Learning
3. Resources
4. Strategy
5. Climate
6. External Linkages
7. Process (Ross, 2016).

If these conditions are met, it is likely that a certain absorptive capacity is ensured which successfully facilitates the partnership between the respective participating stakeholders (Ross, 2016). Yet, Bharadwaj et al. conclude that despite their great operational opportunities, DSPs also increase the competitive gaps between PSP (2013).

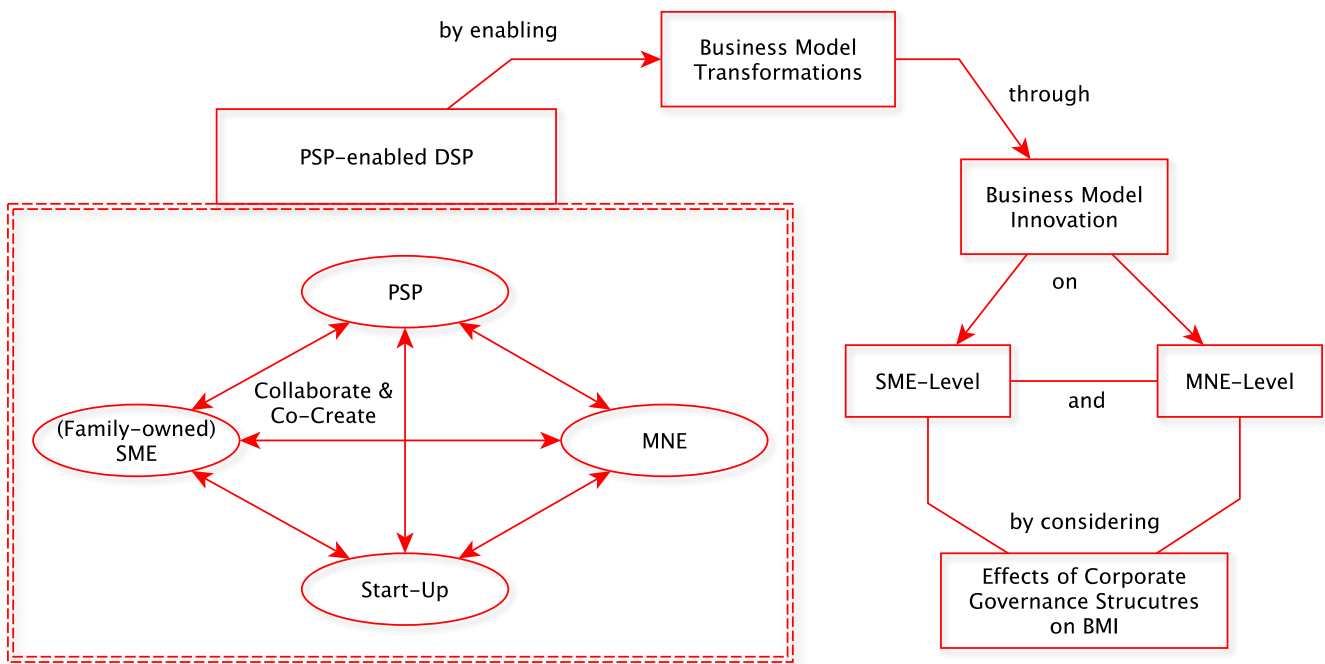
2.7. Literature Summary

This chapter provided various scientific definitions of the assessed concepts. Summarising the previous elaborations:

- PSPs are understood as either technology or service provider, offering complex solutions to their clientele to co-create value
- SMEs are companies with a maximum of 500 FTE and a turnover of less than \$53 MM/annum. While standing for nearly 70% of the annual world gross product, SMEs tend to show a lower operational profitability and ability to exploit innovations compared to MNEs.
- BMs represent the logic of generating profits by providing the theoretical framework to orchestrate business operations and mediate the resource allocation.
- BMI is the further development of a current BM by creating, extending, revising or terminating existing structures to enhance a company's competitiveness
- Corporate governance concerns the mediation of the three parties with a stake in the business - labour, capital and managers.
- DSP are digitalised, technology-driven BMs which facilitate the exchange and co-creation between network-participants

The relationships among these concepts are illustrated in the theoretical framework below and operationalised in the following chapters.

Figure 9: Causal Diagram



Source: Composed by author, 2017

3. Methodology

3.1. Introduction to the Methodology

The goal of this Master thesis is to identify the discrete factors influencing the digitalisation of SMEs and PSPs through their digitalised environment. The following sub-chapters provide the chosen research design, underpinning the subsequent analyses. In addition, this chapter will illustrate the empirical basis for the recommendation-section.

3.2. Research Design

In order to answer the preliminary stated exploratory research question, a cross-sectional multi-case research design will be applied. This method is assumed to measure best the evolution of parameters facilitating the development of innovative digital ecosystems. Specifically, it will be assessed:

1. which exact characteristics shape successful business model transformations
2. how PSP facilitate business model transformation
3. which influence corporate governance structures unfold in the process of business model innovations
4. which type of innovation unfolds the highest impact on business model transformations.

Case study designs benefit the chosen research strategies since this method is an attractive approach “to define cases for an easier understanding” (Gustafsson, 2017). The authors state that case studies typically provide background information on concrete but complex topics, providing a wider audience access to the respective research focus. This aspect is in the context of this thesis of importance, considering the complex and interrelated field of research on business model transformations. In addition, this research design as “an analysis of systems studied with a wide-ranging view” benefits the application of more than one method to gain and analyse data (Thomas, 2011).

3.3. Research Method

To achieve the necessary insights, a two-step approach is conducted. A predominantly qualitative and partially quantitative research framework will be applied, building on 15 interviews with professionals from SMEs, MNEs and service providers. Interviews were in the context of this thesis favourable because they allowed to measure in depth the rather complex research topic. Furthermore, interviews provide primary data which can already be assessed and if necessary, questioned throughout the further course of the interview.

The investigation into business model transformation is complemented by a realistic literature review (section 2 of this thesis). This is the direct consequence of the relatively limited availability of relevant scientific literature on the success-factors of digital ecosystems. Furthermore, several surveys conducted by public organisations such as the *European Commission* and the *OECD* are taken into account to derive further relevant insights for answering the preliminarily posed research questions. Among these, the *IBM Institute for Business Value* survey among CEOs of multinational corporates, conducted in 2015 (IBM, 2015), and the *Community Innovation Survey of Eurostat* (CIS, 2015) bear the greatest contextual significance for this thesis. Specifically, the *IBM* survey concentrated on how CEOs understand BM innovations and to what extent related strategies are present in large businesses. The *CIS* assesses similar research objectives, yet focusses also on smaller corporates such as medium-sized enterprises with up to 500 FTE.

By also relying on data of studies publicly available from established research institutes, it is aimed to substantiate the claims based on the results of the interviews and enhance the generalisability of the given claims.

3.4. Selection and Sampling

The selection of the competent interviewees requires an effective sampling strategy to ensure high standards in the sampling procedure, ultimately leading to representative objects of observation (Curtis, Gesler, Smith and Washburn, 2000). This is relevant since the qualitative research framework considers only a small number of firms compared to 24 million small- and medium sized enterprises within the *European Union* (Eurostat, 2017). According to Patton, the most meaningful results of studies are achieved if multiple sampling schemes are applied (1990). Purposeful sampling as the overarching sampling method was chosen because it “is a technique, widely used in qualitative research for the identification and selection of information-rich cases for the most effective use of limited resources” (Patton, 2002). Furthermore, “when using a purposive sample, the goal is to add to or to generate new theories by obtaining new insights or free perspectives about the

phenomenon of interest” (Miles and Huberman, 1994). Consequently, the following three sampling schemes were applied to gain relevant samples reflecting best stakeholders of interest in the context of DSP.

The criterion-i strategy benefitted the research because it focuses on cases that feature aspects of the research object, here DSP. This method is useful since it allows the identification of relevant cases. Furthermore, the theory-based approach that concentrates at manifestations of the theoretical construct within the responses of the interviewee. And finally, a snowball method helped to extend the group of relevant interviewees based on the recommendations of already interviewed individuals (Palinkas et al., 2013).

Still, these procedures require valid conditions to avoid potential sampling bias. Therefore, the Miles and Huberman sampling terms were practiced to ensure a high degree of representativeness concerning the study’s research goal.

3.4.1. Miles and Huberman Sampling Conditions

Miles and Huberman developed in their 1994-paper on sampling conditions several criteria to ensure a high level of validity and reliability within studies. These conditions were applied in the selection process, leading to the sample as presented in Table 2 in section 3.3.2. The relevance of the sampling strategy to the conceptual framework is predominantly ensured by non-probability sampling techniques, based on the appearance of stakes in the management of innovation, digital platforms or BM transformations by the relevant interviewees. The likelihood of generating useful and significant qualitative data was guaranteed by an extensive and precise pre-selection of potential research objects, excluding those which do not have a meaningful contribution to the study’s objective. The remaining targets all proved to bear valuable components contributing to the final analysis of digital ecosystems. The generalisability of the findings is based on two aspects - the balanced selection methods and the final execution of the data gathering. It remains essential that the individual positions of the interviewees are treated as parts of the overall image, representing facets of the functioning of different business models. By maintaining exact data gathering methods, the results of the field research allow transferable results, bearing a high degree of external validity.

The fourth aspect of the Miles and Hubermans scheme concerns the degree of reliability in research. Threats to reliability are manifold and concern the systematic under- or overrepresentation of parts in the observed sample. To reduce this sampling bias *ex-ante*, the observed units have to match the final selection frame. In addition, the necessity to

address the ethicality of the sampling strategy is predominant and an essential element of every executed study. By obeying to the formal ethical procedures of the *University of Twente* in line with a direct supervision, a maximum of ethical standards is assumed to be achieved. Finally, the sampling strategy has to be feasible to lead to the desired results by not exceeding the estimated research efforts. This is assumed by the proximity to the majority of interviewees, digital communication technologies and the relative small number of relevant interviewees.

Concluding, the key features of samples are their smallness relative to the amount of information they generate, a conceptual, not always pre-specified selection process and their design to allow analytic rather than statistical generalisations (Curtis et. al., 2000). This led to the application of the different sampling techniques and allowed the selection of respective interviewees in line with the standards named by Miles and Huberman (1994).

3.4.2. Concrete Sample

Based on the preliminary introduced research framework, the following set of candidates was selected.

Interviewees within the PSP-sector were selected based on the relevance of their company to the market, the successfulness of their business model and the sophistication and uniqueness of their specific service platform. Furthermore, this research benefitted from the representation of both types of PSP as previously introduced, professional service- and technology provider, to allow a more general overview of the sector. The selection criteria for SMEs focussed on a variety of aspects, namely the industry they operate in (asset heavy vs. asset light), their firm size, ownership-structure, degree of technological sophistication and the compatibility of their BMs with digital ecosystems. MNEs were considered as relevant for this research since several academic studies have emphasised their importance for the development of DSPs (referring to Chesbrough, 2007; Duarte, 2004; Caloghirou et al., 2004). Consequently, similar selection criteria were applied for MNEs as well as for the sampling of SMEs.

The respondents within the selected companies were recruited based on their competent position and experience with respect to the research objective, preferably by recommendation of the company-leadership. Generally, the interviewees resembled the group of relevant future network-participants of established and viable digital service platforms. This selection-strategy led to anonymised table of approached and interviewed companies as visible below.

Table 2: Overview of Interviewed Corporates

Categorisation	Industry Sector	Position of Interviewee	Sequential Nr.
Micro-SMEs & Start-Ups	Platform and Professional Service Provider, Energy Branch	Founder and CMO	1
	Automotive Supplier	CEO	2
Medium-sized SMEs	Digital Platform Provider	Founder and CEO	3
	Steel Industry	Technical Director	4
Large SMEs	Steel Industry	Manager, Production & Technology	5
	Market Research	CEO	6
	Textile Industry	Management Team	7
MNEs	Airline Industry	Manager, International Alliances, Strategy & Innovation	8
	Automotive Supplier	Management Team Assistant	9
	Mechanical Engineering and Automation	Management Team	10
PSP	Service Provider	Manager, Digital Sales & Innovation Management	11, 12, 13, 14
	Technology Provider	Manager, Innovation Management	15

Source: Composed by author, 2017

3.5. Data Measurement

This section introduces a short overview on how the gained data was collected and processed. The interviewees were informed *ex-ante* about the content of the questionnaire via mail, including a brief summary on the intended research, the research’s design and the background of the student. The interviews were semi-structured, allowing for a narrative interviewing technique which was tailored to the individual respondent. The language during the interviews was German as the sample was solely composed of German firms or German-speaking country-organisations. Nevertheless, the anonymised results will be made available also in English. With the consent of the respective interviewees, the majority of the sessions was recorded to allow for *ex-post* analyses.

The fifteen interviews were analogously transcribed and categorised with reference to Table 2 (above). The resulting transcripts were coded because coding can be considered as “a crucial aspect of any qualitative analysis” (Basit, 2003). Still, as Saldana (2009)

argues, most scholars promote the codification of only the most salient aspects which merit examination. Furthermore, since coding does not require specific formulas to follow (Saldana, 2009), it helps the researcher to categorise and classify an interview systematically according to the individual methodical design. The transcription and coding of the interviews took directly place after their recording to benefit from the deepened knowledge of the researcher on the respective topic. As Bazeley (2007) argues, the following codifications should differ “in some important way with the first [...] to maximise the potential for variety in concepts early in the process”.

3.6. Threats and Limitations to Data Analysis

The following three sub-chapters provide an overview about the conceptual limitations of this research. It will be assessed whether the validity, reliability and societal implications are impaired by the chosen research design.

3.6.1. Validity

Case study designs are prone to the potential risk that observations at one single point of time bear a low degree of abstraction (Yin, 2009). Therefore, the research design of this thesis aimed at compensating for this eventual threat to its validity by focussing on interviewees which have the necessary experience and understanding of the subject matter to contribute meaningfully to this research.

Threats to internal validity exist if the relationship between the dependent and independent variable is caused by external, unknown variables (Michael, 2009). The chosen research design is expected to reduce these threats to the internal validity sufficiently since the interviews aimed at revealing the majority of all involved elements within the relationship in digital ecosystems in general and digital service platforms in particular. Additionally, the theoretical framework was designed in order to limit the potential impact of biased statements on the final conclusions. This could be because an interviewee is incentivised to gloss over managerial incapacibilities or weaknesses within the BM. By critically assessing the given statements and comparing these to publicly available information on the company, it is aimed to limit this possibly biasing influence on the correctness of the statement. Therefore, it is assumed that the gained data supports adequately the statements made in the further course of this thesis, yet studies with larger samples would enhance the generalisability of the given claims significantly.

3.6.2. Reliability

Similar to the previously described limitation, reliability as the degree to which the gained findings can produce repeatable and consistent results is ensured via several strategies. Referring to the approaches proposed by Silverman (2009) and Leung (2015), this thesis applied several approaches to enhance its reliability. Specifically, a “refutational analysis, constant data comparison” and the usage of tables were applied throughout the authoring of the paper (Leung, 2015). Summarising, it is assumed that the measures taken guarantee a sufficient degree of reliability for the later statements.

3.6.3. Societal Limitations and Implications

A last limitation to the execution of this research lies in the maintenance of the ethical principles of academic research (Kimmel, 1988). “Specifically in cross-sectional research designs, the confidentiality, the privacy rights of the interviewees and the informed consent have to be respected” (Vaus, 2001). The principle of confidentiality faced in this study special attention since the topic of concern could potentially affect business intelligence. This is certainly true for the interviews being conducted at the two PSP but also with the majority of interviewed SMEs. Still, the interviews were structured in such a way allowing the interviewee to easily avoid these areas of sensitive business intelligence. Additional relevant ethical aspects are regarded as guaranteed since this qualitative investigation relied mainly on voluntary interviews and followed strictly the guidelines of the *Code of Ethics of the University of Twente* (Universiteit Twente, 2017).

Concluding, this section provided the reader with the conceptual limitations of this study in addition to the recognised but eliminated threats to the validity and reliability. Building upon these results, the following section will introduce the reader with the findings of the conducted investigation.

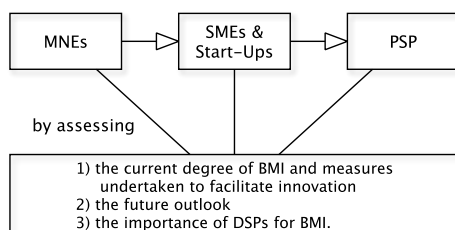
4. Results

4.1. Introduction to the Results

Following on the previous methodological chapter, this section will present the detailed empirical evidence on the willingness of SMEs to innovate, how organisational structures are subject to re-organisation and how DSPs are expected to function within digitalised environments. It will furthermore refer to the introduced concepts as presented in chapter 2, *Literature Review*. The structure of this section follows the categorisation of Table 2, differentiating between SMEs and Start-Ups, MNEs and PSP (see Fig. 10 below) while organising the findings according to the following sub-sections:

- 1) the current degree of BMI and measures undertaken to facilitate innovation
- 2) the future outlook
- 3) and the importance of DSPs for BMI.

Figure 10: Structure of Findings



Source: Composed by author, 2017

The section is followed by a discussion on BMI, building upon the findings as presented in this section.

4.2. Measurements for MNEs (Interviews 8 - 10)

1) *The current degree of BMI and measures undertaken to facilitate innovation*

BMI were perceived by the interviewees of multinational corporates as the key success factor to maintain competitive advantages over third, oftentimes foreign, corporates. All respondents referred to a variety of initiatives being undertaken to increase the absorptive capacity of their organisations. The concept of the “innovation funnel” (see App. 1) was

known and even used within all three organisations to illustrate the challenge to stimulate a process of idea generation. Even more, the two larger companies, one with more than 50.000 employees and the other with approximately 3.800, established in recent years own departments being concerned with innovation management (referring to Interviews 8 & 10). And even the smaller one, an automotive-supplier with ca. 2.500 FTE maintained a small team of two employees being concerned with tasks assignable to innovation management (Interview 9). Interestingly, the activities of the smaller MNE concerning the facilitation and management of innovation predominantly focussed on the process- and product-dimension of the *Four Dimensional Innovation-Helix* (referring to Fig. 6). Solely the largest company among these three firms also engages in marketing- and organisational-innovation (Interview 8). Concretely asked which dimension is perceived as of highest importance for the management to sustain the company's future survivability, the manufacturing-companies referred to the product-dimension of the respective model (Interview 9). In contrast, the interviewee of the large but asset-heavy service-provider highlighted the importance of process-innovation for his organisation (Interview 8).

All three companies had developed concrete roadmaps showing the projected progress of their company over the next five to ten years. It was emphasised that these strategies incorporated measures to allow for a rapidly changing environment by enhancing the organisational agility of the firm. Yet, only one of the three companies seriously considered the input of the own workforce and developed a strategy for the future based on that feedback.

In this very small sample of MNEs, it appeared that firm size correlated positively with initiatives to empower employees to participate in business model innovations. A variety of voluntary (digital) innovation workshops and design thinking sessions was regularly offered and prominently promoted by responsible executives at the largest company (Interview 8). Similar offerings but on a smaller scale were also introduced at the mechanical engineering company (Interview 10). In contrast, the company of interviewee 9 provides its workforce by choice with manuals and rather simple podcasts on how to improve processes and products. Interviewees 8 and 10 confirmed that the internationalisation within their industries pressured the management to constantly question and reposition the own organisation. In consequence, this led to a steady adaptation of their business models, partly even cannibalising existing structures. Yet, whereas the capital and management side of the corporates usually tends to agree on those proposed changes, the workforces opposed these initiatives. It was assumed by the interviewees that the concept of "Innovate or Die" was not sufficiently understood nor accepted by the employees, leading to

subliminal internal barriers to BMI. Furthermore, the corporates' shareholders were not experienced as major change agents since achievements were predominantly measured by assessing medium-term successes.

Concluding, the three different companies all experienced the dynamics of the market and the need to transform their way of operating, yet the speed of adaption and the chosen approach differed.

2) *The future outlook*

All three companies have highly competitive and profitable revenue structures, allowing a successful operation within the international market. Yet, the interviewees confirmed that their management acknowledges the arising challenges through the digital transformation and changed market conditions. Especially the asset-heavy manufacturing sector already experienced disruptions through current technological trends and shifts in market-valuation (Interview 10). The high importance to constantly monitor and re-evaluate the historically-grown structures and value propositions was consequently emphasised. It appeared that especially the smaller MNEs expressed a theoretically higher degree of open-mindedness towards stimuli from their external environment, however favoured at the end in-house NPDs and innovations over these alternative approaches (Interviews 8 & 9). Still, all interviewees indicated that their companies could be to some extent more innovative. Despite the publicly emphasised importance of investing in innovations to ensure the company's viability, executives are quoted stating that this area will be the first to experience cutbacks if the company generates losses (Interviews 8 & 10). Maybe as consequence of such a logic, the three interviewees answered that the management teams were sufficiently confident to find the drivers of innovation within and not outside the firm. Still, these statements mainly concentrated on process- and product-innovativeness. The two other dimensions appeared to experience rather little attention and were consequently of no central relevance for prospective analyses.

3) *The importance of DSPs for BMI*

Concerning digital ecosystems, the interviewees agreed unanimously on one central advantage of DSPs: information procurement and sharing. Information is understood in this context as intelligence on technology trends, latest developments within markets and data providing details on potential business partners. Whereas this characteristic can be considered as rather strategy-oriented, a second benefit is linked to the exchange and mutual exploitation of customer data within digital but protected ecosystems. This was

seen as another main area in which a collaboration with third parties is attractive. Some companies even implemented first interfaces within their databanks and process-chains to share and utilise gained data with business partners. Furthermore, interviewee 8 emphasised the benefits of having access to additional distribution channels of the participating SMEs and their professionals (experienced hire). He went further by mentioning the potential of also (partially) acquiring partnering firms from within the network because the parties are already known to each other, leading to reduced information deficits which hinder potential M/As.

4.3. Measurements for Professional Service Provider (Interviews 11 - 15)

1) *The current degree of BMI and measures undertaken to facilitate innovation*

Throughout the interviews, it was found that professional service provider expose themselves voluntarily to transformational forces and aim to adapt quickly to changed environmental conditions. The main reason for this approach lies in their aspiration to increase their service portfolio for MNEs and SMEs. Consequently, both companies established independent innovation departments to steer the companies' innovation-activities. Directly compared, the departments of the two assessed PSP are at different stages of development. The professional service provider launched its department in 2015 and currently employs 45 FTE. Their main tasks concern the development of an internal roadmap for the transformation of their traditional BM, the digitalisation of offered services such as business consulting or auditing and finally the conceptualisation and execution of design-thinking workshops for internal but also external audiences. Yet, whereas the interviewees (Interviews 11 - 14) experienced the strong commitment and support of the current CIO, the existing organisational structures allowed little flexibility to innovate. It was stated that an over-proportionally high share of resources is consequently consumed by efforts to communicate and implement the proposed innovations within the organisation. In tangible terms, the majority of equity-holding partners was described as sceptical towards the proposed initiatives by the management and innovation team. Still, set in relation to the traditional transformative speed of the firm, the present developments are cause for optimism.

In contrast, the interviewed technology provider (Interview 15) established its first German innovation department already in 2010, growing to 120 FTE in 2016. The main tasks of this division concern the organisation and execution of coaching sessions including design thinking techniques and the publication of industry reports on innovation and digitalisation.

Still, this division can rather be seen as an externally visible flagship-project. The real innovation work, the analysis, evaluation and conceptualisation of new initiatives and proposals, takes place decentralised throughout the entire firm, but especially within the technology- and strategy consulting. Different from the other company, the interviewee (15) named as the main proponents for BMT and cultural change the country management and but also the firm's main shareholders.

Directly asked to assess their degree of innovativeness, the respondents of the service provider (11 - 14) referred immediately to the long way to go in order to achieve the set but ambitious goals. The current degree of BMI was perceived by the interviewees as average, even though the company's usual self-expectation requires a much more mature future-readiness. Contrary to this position, the technology provider was seen as innovative and capable to react organisationally on disruptive changes in the external market environment (Interview 15). To further facilitate innovations, the two companies maintain a digital system allowing their workforce to submit own ideas and proposals. The interviewees described the subsequent evaluation processes as very democratic, allowing all employees to participate and comment on the proposed business innovations (Interviews 11 - 13). The final decision whether to further pursue or send the submission back a lower level is taken at both companies by a central business unit.

With reference to the four-dimensional innovation model, the service provider was described as being predominantly concerned with process-, product- and marketing-innovations (Interview 13). This is mainly due to the development and launch of rudimentary digitalised services over a digital survive platform, affecting the way how the company generates revenues, manages its processes and develops services (products). Quite similarly, the technology provider is described as being strongly committed in product- and to a smaller extend also in organisational- and procedural-innovativeness (Interview 15). This is explained due to the already relatively advanced sophistication of both, the organisational and procedural structures within the company.

Yet, as the manager from the technical provider phrased it (Interview 15), the pace for innovativeness is certainly not put forward by the German market but instead through international developments and trends originating within the global network. Consequently, country organisation such as the interviewed two PSP depend to a significant extent on third parties within their ecosystems to pursue radical transformations.

2) *The future outlook*

The technology provider is described as a highly competitive and innovative corporate, having all the necessary resources (human capital, technological solutions, agile organisational structures and financial resources) at hand to increase their future market share, especially as IT-consultant and digital solution provider (Interview 15). To substantiate his claim, the interviewee referred to the steady internal growth over the past ten years, leading to an increase of employees by approximately 40%. He describes the firm as very attentive towards new technologies and emphasised again their dedication to adapt their business models quickly.

The second corporate is also evaluated as future-ready, yet is expected to face substantial re-organisations in order to maintain its present value propositions and customer base. The main reason refers to high competitive pressures within this specific market segment. In addition, the respondents (Interviews 11 & 14) expect that the ongoing digitalisation will further reduce the switching costs within the industry as currently visible in the private banking sector. This is likely to further reduce the profitability of the sector and put pressure on the existing BM. One interviewee (Interview 13) stated that within the nearer future, more and more customers are likely to request the provision of digitalised professional services and digital consulting. This is because their customers, especially the MNEs, are likely to advance their digital infrastructure and internal digital platforms. He experienced this momentum already several times within his professional environment but was unable to deliver a competent solution. He concludes that if the company does not change its established business model on its own, the customer base will either force a change or approach competing PSPs.

3) *The importance of DSPs for BMI*

All interviewees from the professional service sector evaluated digital ecosystems in general and external digital service platforms in particular as a central tool to digitalise BMs and secure future competitive advantages (Interviews 11 - 15). Some interviewees went even further, referring to DSPs as the connector between the old and the new economy (Interviews 11, 12 & 15). Both companies see DSPs as the enabler of the digitalised economy by 1) facilitating knowledge-transfers between heterogenous but connected parties, 2) making vast amounts of data within a monitored and safeguarded environment available and 3) generating positive, two-sided network-effects. In addition, several interviewees were convinced that DSPs enhance significantly the visibility of the own business and affect positively the company's branding (Interviews 13 - 15). Furthermore,

the interviewees believed that the operation of a DSP increases the chance of retaining existing customers which in turn enrich the platform portfolio by making their own services available to the network.

Also, synergies are expected to occur throughout the regular operation of the platform between the PSP and the platform participants, generating additional returns (Interview 11 & 15). Yet a challenge was mentioned (by interviewees from the service provider; Interviews 12 & 13), referring to the aspect of monetising digitalised services on platforms. Different models were considered to allow for sufficient, self-sustaining revenue flows in the future. The most feasible payment terms focussed on freemium-premium BMs, process support and application fees. An indirect way of refinancing the operating of such a platform could lie in the joint execution of projects, allowing a later but higher ROI. Nevertheless, none of these methods was evaluated as sufficiently convincing. The technology provider (Interview 15) did not experience this challenges since their platform solutions (which differ from the assessed concept of external DSPs focussing on the provision of professional services, joint collaboration and networks) are financed via rather simple but effective service charges due to their different procedural set-up.

4.4. Measurements for Small and Medium Sized Enterprises (Interviews 1 - 7)

“We need to change the way we make decisions. If we empower our employees more and more, we’ll be able to accelerate the speed at which we do business.”

Shogo Ikeuchi, 2015

1) The current degree of BMI and measures undertaken to facilitate innovation

The assessed corporates within this category of Start-Ups and SMEs can be classified into asset-heavy and asset-light business models. The asset-heavy firms are all operating in the German steel industry, with two of them contributing to automotive supply-chains whereas the third firm produces advanced industrial installations. In contrast, the asset-light firms all engage in the digital, B-2-B service segment. Asked for their personal opinion on the sophistication of their companies’ innovation management, the respondents from the service sector (Interviews 1, 3 & 6) all referred to adaptive structures of their firms which successfully facilitated previous BMs. Furthermore, the economic development of the respective corporates was evaluated as very satisfyingly and consequently allowed each

individual firm to invest in their business operations and service portfolio. But only the two digital service provider expanded their service spectrum (Interviews 1 & 3).

In comparison, three interviewees (4, 5 & 7) representing asset-heavy companies were not able to name significant business-transformations which occurred in the past decade. Furthermore, they evaluated the absorptive capabilities for innovation of their companies as rather critical. Set in relation to the previous years, the interviewees confirmed that the current operational development still experiences constant but solely linear growth figures. One executive (Interview 5) is even quoted stating “Why change a winning formula.” As furthermore highlighted by the interviewees, none of the analysed companies planned to grow externally on the short run but instead aimed to invest in existing structures and portfolios. A difficulty which was mentioned by the market researcher (6) and one of the steel processors (Interview 5) concerns the perceived inability to concretely measure the digital maturity of their companies. The two respondents specifically referred to the complexity in assessing what the current market trends are and which software-solutions are applicable within their specific segment to facilitate NPDs.

Three interviewees emphasised the necessity of committed and open minded shareholders (Interviews 3 - 5). Especially within the German Mittelstand, this is of relevance as equity holder are also oftentimes actively involved as CEO or director of the board in the direct steering of their company. Consequently, any innovation initiative depends to a large extent on the willingness to innovate of the respective owner.

2) *The future outlook*

Asked how the individual companies organised their transition into a digital empowered environment, only the two largest and the smallest SME were able to refer to constantly renewed, structured action plans (Interviews 1, 2, 6 & 7). With the help of such analyses, the firms begun to assess their own digital maturity and developed first agendas and in one case even a *so-called “Innovation Roadmap”*. The two larger firms (Interviews 6 & 7) also bought in external consultancy services by larger PSP to secure strategic decisions in their IT-environment as part of their digital transformational processes. Beside these mentioned initiatives, no further outstanding measures are planned to stimulate innovation. Yet, all interviews confirmed that each company has established procedures to monitor their direct competitors and market trends. The two most prominent advocates of this approach were the digital platform provider (Interviews 1 & 3) which affirmed that the viability of their business models largely depends on agility and a high speed of adoption/imitation of successful concepts.

3) *The importance of DSPs for BMI*

All interviewees from the SME-cluster evaluated DSPs as a highly promising technological trend bearing much potential to ease NPDs, BMT and reduce operational but also legal risks (Interviews 1 - 7). Narrowing down the previous three to just one advantageous factor, an interviewee from the steel industry (Interview 5) phrased it as: "It's about the money!" He expanded his initial statement by referring to three resulting advantages which make the participation on DSPs financially attractive: First, such a network, if managed competently, is assumed to reduce the overhead costs of corporates since business services could be executed collectively within the surrounding ecosystem. Second, he expects that collaborations in the new product- and service-development are likely to occur and limit corporate expenditures on NPDs and associated risk-premiums. His last claim concerns the scalability of services. As a result of the further advanced R&D-processes as well as due to the knowledge of and direct access to potential alliance-partners, he assumes that DSP allow higher levels of scalability and ease the product/service management.

Among the approached firms, respondents described blind spots within business models as the future golden trail for BM innovations through DSP (Interviews 1 & 3). A given example referred to a German start-up producing and marketing drones for the private use. This product-provider was introduced via one of their venture capitalists to a construction trader operating large warehouse facilities with an extensive and costly storage management. The blind spots in the BMs of both, the start-up and the mid-sized company, were disclosed through the financier and intermediary. He suggested an inventory control system by utilising the advanced monitoring and scanning capabilities of the drone to reduce the stock-taking costs of the warehouse by nearly 80%. The concrete contribution of the agent was in this given example his ability to recognise the start-up's potential to accelerate its BM through product-innovation by transforming it also into a service-provider without the necessity to mobilise substantial resources. At the same time, procedural improvements in the operations of the SME were detected, including technologies the responsible managers did not anticipate nor were aware of.

Transferring this analogy into the context of DSPs, the interviewees from the platform SMEs (Interviews 1 & 3) claimed that a digital platform-solution has to be capable of realising the following features:

- 1) acquire the ability to automatically recognise patterns in BMs and develop consequent suggestions for improvements,

- 2) provide positive network effects to increase the customer- and channel-partner base, ultimately leading to economies of scale,
- 3) access advanced technologies of platform-participants and make them available for third ecosystem-participants,
- 4) and provide advanced data-management solutions.

One of the two interviewees (Interview 3) added that the high level of sensitive data brought in by the various stakeholders requires extremely sophisticated data protection management systems to ensure the functioning of and trust into the platform by all users.

If this royal discipline is realised, he assumes that DSP experience ground-breaking successes and industry-wide implementations.

Yet, two elements were mentioned which have to be overcome, namely breaking down aversions against relying on external knowhow and enabling the organisation and workforce to participate in digital ecosystems. In contrast, the potential access to new means of financing or resources like R&D-facilities might trigger the necessary pull to stimulate both, the workforce and management and align their diverging goals.

4.5. Key Findings of Conducted Research on DSP

This section summarises the three key findings of the conducted research on the requirements and advantages of digital service platforms. The taxonomy of Table 2 is reused to structure the empirical data.

Table 3: Key Findings of Conducted Research

Categorisation	Top 3 Requirements of DSP	Top 3 Advantages of DSP
Start-Ups and SMEs	Data protection systems and secured interfaces	Widening of the own professional network
	Attractive network partner	Access to sophisticated technologies, data sets, liquidity, knowhow and infrastructure
	Measurable added value to own business performance	Economies of scale and access to new distribution channels
MNEs	Sophistication of offered platform services and significant network effects	Access to complementing competencies and services/products/technologies
	Data protection systems + IT-interfaces	Impetus for own BMI
	An active steering and management of the platform	Access to external datasets and human knowhow

Categorisation	Top 3 Requirements of DSP	Top 3 Advantages of DSP
PSP	High degree of automatisisation and scalability	Economies of scale, enhanced customer loyalty and future customers
	High acceptance by third companies to participate	Business model transformation
	Highly advanced data protection systems	Newly available customers and distribution channels

Source: Composed by author, 2017

Based on the gained findings, the next chapter will provide an extensive analysis and is followed by the last section, focussing on consequential recommendations and the conclusion.

5. Discussion

“Only the paranoid survive.”

Andrew Grove

5.1. Introduction and Outline of the Discussion

The subsequent analysis is split into seven sections. It is discussed how innovative the BMs of the assessed SMEs currently are and what effects digital service platforms likely have on their future development and competitiveness. It is then analysed which impact MNEs have on DSPs and how to develop DSPs based on the gained findings. The next paragraph refers back to the four-dimensional model of innovation (Figures 6 & 11) and adapts it accordingly to the empirical findings on the respective four dimensions. This chapter is concluded by revisiting the problem statements and providing brief answers to the three research questions.

5.2. BM-Navigator

In order to develop concrete recommendations on BMI for companies engaging on digital service platforms, the following model will be applied to establish a common ground for current but especially future BMs. Concretely, the research of Gassmann et al. resulted in 2013 in a widely recognised and cited taxonomy of business models. The authors developed 55 different BM-categories which laid the basis for the established St. Gallen Business Model Innovation Map, representing “the core of many new business models” (Gassmann et al., 2012). This taxonomy (see Appendix, App. 3) differentiates between old- and new-economy BMs and conceptualises these into four dimensions: the Who (target customer segment), the What (Value Proposition), the How (Value Chain) and the Value (Revenue Model). This model allows to precisely assess a companies’ BM and subsume it under the given framework by Gassmann et al. Quoting Shafer et al., “[...] it is often referred to as a boundary-spanning concept that explains how the focal firm is embedded in, and interacts with, its surrounding ecosystem” (2005).

In the context of this research, several business model types among the initial 55 stand out due to their high relevance for digitalised business operations. As presented in the following, these patterns will further assist in the subsequent analysis of the gained research results (for the complete list, see App. 3).

Table 4: Selected Business Model Patterns according to St. Gallen BM Navigator (2013)

BM Name	Representatives	Short Description
Digitalisation	SPON, Facebook, Nestlé	The transformation of existing services or products into digital variants.
E-Commerce	Dell, Amazon, Alibaba	Online retail and distribution.
Freemium	Spotify, web.de , United Internet	Basic services offered at no direct costs with the possibility to purchase premium content
Hidden Revenue	Spotify, web.de , United Internet, Facebook	Revenues generated via indirect channels such as advertisement or user behaviour
Leverage Customer Data	Facebook, Google	Monetisation of user behaviour through Big Data algorithms
Make More Of It	Amazon Web Services, SAP	Beside the own business operations, capacities are also marketed outside of the organisation to increase the utilisation-rate
Open Business Model	Abril, Kickstarter-applicants	The joint-execution of projects is the core value proposition of the respective company
Pay Per Use	DBCityBikes, Flinkster	The provision of short-termed usages of goods is the central value proposition in this BM
Peer-to-Peer	Xing, Airbnb, Skype, whatsapp	The business model is based on the co-operation and interaction of the networks' participants
Revenue Sharing	Groupon, Android Store	Revenues are allocated according to a pre-defined distribution key among the participating developers and service providers
Self-Service	Sodexo, Flinkster, Amazon Concept Stores	Products and services are made available for customers which join the supply-chain in an earlier stage and at lowered final costs
Solution Provider	Apple, Amazon, SAP	Corporates which offer holistic service- or product packages within specific segments, allowing their clients to rely on solely one contracting party
Subscription	Audible, Amazon Fresh	In exchange for a regular fee, clients receive within a fixed, recurring period predetermined products or services
Two-Sided Market	LinkedIn, AppStore	An increase of customers generates a pull and in consequence an increase of attractiveness for external service provider such as programmers

BM Name	Representatives	Short Description
User Designed	Amazon Store, Liquid Text	User-designed concepts position the customer also as the manufacturer, marketer and merchandiser of the offered product/service by granting him a high degree of codetermination of the future design and concept of the respective company
White Label	Refresco, Finanzcheck	Companies offering their products not only under their own label but allow third competitors to market and distribute it also under their own brand

Source: Composed by author based on data by Gassmann et al. (2013), 2017

These BMs are all assumed to be of relevance for digitalised environments and consequently for future professional service platforms. This explains why these represent current but especially prospective revenue models which are expected to have the greatest influence on the interactions within digital ecosystems (Gassmann et al., 2013).

In the following course of this chapter, references are being made to this selection of new-economy business models.

5.3. Implications on the Digital Transformation of Small and Medium-Sized Enterprises

The analysed SMEs within this given sample can be classified into two segments: heavy-asset manufacturers and asset-light, digital service provider. An evaluation of the future-readiness of the interviewed SMEs by assessing their 1) digital strategy, 2) digital governance structures, 3) digital culture, 4) customers and distribution channels, 5) technology management, and 6) digital process intelligence illustrates the primary differences between these two clusters. Whereas the asset-light, digital service companies (Interviews 1, 3 & 6) reached within these six given categories basic degrees of digital maturity, the manufacturers appeared to lack the necessary competencies in several dimensions. Deficits in facilitating innovation were especially visible in their digital culture to inspire for innovation, in their digital governance and organisational structures. This observation suggests that the responsible executives have room for improvement concerning their role as the company's change agents. This is especially valid since the highest leverage to achieve BMI lies with the management of the company (Chesbrough, 2003). Yet, it implies that the shareholders have to enable the board of directors to lead the

company independently and set long-term remuneration systems allowing for a sustainable development (Laiho, 2011). Furthermore, managers have to align the goals of the workforce with those of the capital to reduce organisational tensions, hindering significantly BMIs. An analysis of the manufacturing companies (4, 5, 7, & 9) showed that this is not naturally given. Underlying conflicts appeared to exist between the management and capital fraction on one side and labour on the other. Since BMI flourishes in participatory, proactive and sufficiently funded environments (Eckholm and Maury, 2009), corporate governance practices counterbalancing these three stakeholder groups are assumed to lead to higher performances among the six analysed dimensions (referring to Aguilera and Jackson, 2003; supported by Interviews 1 & 3).

In contrast to the asset-heavy manufacturers, the asset-light corporates among the analysed SMEs showed several characteristics of digital BMs according to the taxonomy of Gassmann et al. (2013; see Table 4), concretely 1) digitalisation, 2) e-commerce, 3) hidden-revenue, 4) leverage customer data, 5) open business model, 6) pay-per-use, 7) solution provider, 8) two-sided markets and 9) white label. It is particularly striking that the assessed medium-sized service provider (Interviews 1 & 3) have very agile and user-centric BMs, allowing for short-termed operational adaptations and show a high absorptive capacity for innovation. As an explanation for this circumstance, the interviewees referred to their young and flexible BMs, the commitment of their tech-affine workforce and their dynamic, digital business ecosystem.

Yet, this investigation has shown how difficult it is for corporates to develop a “think outside of the box”-attitude to unlock mental barriers hindering innovations. It was frequently confirmed that leading executives experience serious difficulties to abandon their traditional way of approaching product- or process innovations (e.g. Interviews 5 & 10). Consequently, it appears to be one of the central obstacles to change the own mindset and accept the new logics of their formerly “familiar” industry to allow for BMI.

Furthermore, it is recognisable that the observed companies had a latent aversion against external knowledge and stimuli to accelerate their own business innovation processes. As the interviewees indicated (Interviews 4 - 6), management teams tend to prefer in-house solutions over insourced services to generate product-innovations. This observation could be explained by studies of the *St. Gallen Business School* on BMI. The scientists found that many corporates suffer from the so-called “not-invented-here”-attitude which blocks any external stimulus and prevents innovation ecosystems from functioning (Gassmann et al., 2015). A further explanation for this behaviour can be seen in the desire to first utilise internal capacities before insourcing potentially expensive, external know-how. It is

therefore remarkable that three interviewees from the concerned firms still emphasised the importance of “fresh ideas” for their companies through external and unbiased experts (Interviews 2, 9, & 10). Their claim is supported by the growing emergence of platform-based BMs, highlighting the increased importance of an active knowledge exchange between firms for future value creation.

Another observation points to an additional and relevant hindrance of successful BMs. The phenomenon is already known to such an extent that a quote by H. J. Harrington grew over the past years substantially in popularity: “Measurement is the first step that leads to control and eventually to improvement. If you can’t measure something, you can’t understand it. If you can’t understand it, you can’t control it. If you can’t control it, you can’t improve it.” Therefore, innovation and technology roadmaps require from the responsible executives a deep understanding of technological, procedural and organisational trends at both, the macro and micro level. Such a comprehension allows the localisation of the company within the process of BMI and helps identifying the firm’s competitive gaps. If the corporate governance structures and leadership capabilities are furthermore insufficiently aligned, it turns nearly impossible to successfully innovate as the interviews and several studies have shown (e.g. see Aguilera and Jackson, 2003; Pliete, 2015; Interview 10). Consequences are manifold and affect the long-term profitability of the business by leading to an increased internal dissatisfaction and a reluctance to initiate and pursue future transformational processes (Interviews 8, 11, & 12).

5.4. Impact of Digital Service Platforms on Business Model Transformations of Small and Medium-Sized Enterprises

Whereas internal product or service platforms are already in use at several interviewed companies (5, 7 - 10), the potential of external PSPs on the process of BMI appears to be a still not clearly defined concept for several interviewed managers (e.g. Interview 5 & 7). Still, it was common ground among all interviewees of the SME-sample to stimulate innovations of all kinds (referring to the four-dimensional innovation helix). Yet, several managers were confident to realise this by predominantly relying on their firm’s own capability to innovate (Interviews 2, 4 & 6). In line with the assessed literature (Davison & Ou, 2017; Park, 2013), it can therefore rightly be assumed that it is more likely to attract SMEs on DSPs which already engage in some form of collaborative value creation with external partners. This is because these firms already established procedures allowing for the exchange of knowledge between the partnering corporates, the joint allocation of

resources and are managed by executives recognising the advantages of networks. Furthermore, potential tensions between the managerial and capital side versus the labour dimension (Aguilera and Jackson, 2003; Fig. 8) are expected to be of less importance because the concepts of modularity and co-creation are already partially known to the company's workforce.

These various factors enhance the likelihood of successfully attracting those corporates to DSPs since potential barriers on the customer side are already reduced. Once participating in external DSPs provided by PSPs, the companies are likely to advance their technology management and digital process intelligence. This is achieved by taking the dual role of a *service offerer*, making their own knowhow and resources available for third network participants, and of a *service recipient*, benefiting from the supplied competencies of other firms within the digital network. The consequence of simultaneously offering and insourcing competencies and resources yields to permeable company boundaries, enhancing new product and service innovation opportunities (referring to Lusch & Numbisan, 2015). Yet, the necessary precondition for achieving this permeability, especially for SMEs as the interviews suggest (e.g. Interviews 1 & 3), lies in the need to open up own corporate processes and enhance the overall organisational transparency to external actors. This allows a more realistic expectation management of the external environment but also enables employees to achieve a greater understanding of the own company and its processes (Jeppesen & Frederikson, 2006), ultimately stimulating a sense of identification. In consequence, two more dimensions of future readiness characteristics (as presented in 5.3.) of SMEs are likely to be positively affected by digital service platforms, namely their digital culture and digital governance structures.

Linking these observations to the St. Gallen BM navigator (see Table 4, and App. 3), traditional BMs of the assessed firms such as the "Integrator" (BM 23, given exemplarily at firms 4, 5, & 9) and the "Solution Provider" (BM 47, given exemplarily at firms 3, 4, & 6) are likely to adapt features of the following BM-patterns:

- *Open Business Model*, being characterised by the joint execution of projects and R&D
- *Digitalisation*, concentrating on the transformation of existing services and/or products into digital variants
- *Make More Of It*, making own infrastructure available for external partners to enhance the overall exploitation rates and generate additional revenues
- *Revenue Sharing*, establishing a model which directly compensates involved product/service developers for their contribution along the supply chain

- *White Label*, allowing corporates to market their solutions under the label of third corporates within their network
- *Leverage Customer Data*, making customer data available for a larger group of partnering corporates, therefore enhancing the utilisation rate and maximising the profitability among the digital network-participants
- *E-Commerce*, raising the online marketing and sales activities for products and services via digital distribution channels

Concluding, DSPs are likely to influence the means how SMEs 1) innovate their BM, 2) generate revenues, 3) take decisions on joint R&D activities, 4) market their products and services, 5) compensate their managers and workforce, 6) finance their operations, and 7) define their long-term strategic goals.

5.5. Importance of Multinational Corporates for Digital Service Platforms

As already mentioned in the methodology chapter, this research also considered MNEs as potential future participants of DSPs and therefore as relevant study objects to assess the success factors of digital platforms. The gained empirical data confirmed findings by Chesbrough (2007) and Duarte (2004) suggesting that MNEs have a positive influence on the innovative capacity of their ecosystem (Interviews 8 & 9). Furthermore, it was emphasised that the inclusion of MNEs on DSPs is likely to benefit the entire digital ecosystem by 1) easing the access of SMEs to additional resources (Interview 1), 2) facilitating NPDs and joint project executions at lower costs for SMEs on the platform (Interview 1 & 8), 3) enhancing the overall network effects of DSPs (Interviews 11 - 13), and 4) by triggering a strong signalling effect (Interview 3). Furthermore, two interviewees, employed at the PSP (12 & 13), were convinced that existing customer relationships of their firm with large MNEs would be strengthened if these corporates would be successfully attracted by a digital platform solution of their employer.

The inclusion of MNEs on DSPs therefore does not only benefit the participating SMEs but also provides several advantages for the hosting PSP, the further development of the DSP and the MNEs itself.

5.6. Implications for Professional Service Provider and the Development of Digital Service Platforms

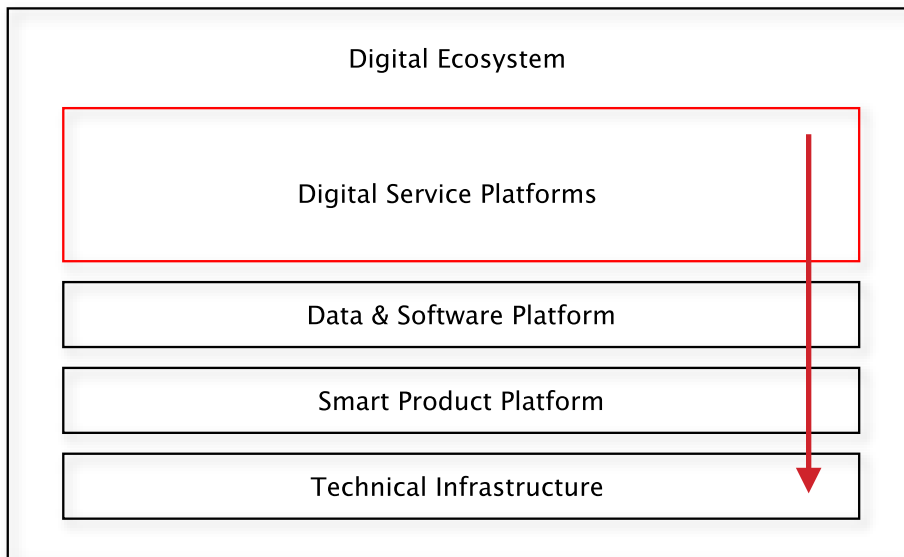
The findings of the research suggest a non-uniform picture: the PSP-sector is aware of the current digital disruption, the resulting opportunities and challenging implications for the own business model. Whereas some PSP, in particular technology provider, are actively involved in setting trends and applying new technologies, others struggle with a dedicated and structured transformation agenda (Interviews 11, 12, & 15). The majority of BMs within the German *Mittelstand* does not reflect the innovative concepts as presented above in Table 4 but instead resembles traditional ways of operating as visible in the complete taxonomy, presented in the Appendix (Tab. 1) (Interview 11). Consequently, it has to be the goal of any DSP to attract corporates which already operate with digital BMs or are about to digitalise their current BM. This is assumed to yield in relative short time to a dynamic digital ecosystem with first interactions, further increasing the external attractiveness of DSPs (Interview 12). Typically, start-ups or younger SMEs fall under this categorisation.

In contrast, SMEs reflecting traditional business sectors and established revenue models are assumed to require assistance and/or stimuli to create the internal preconditions which enable those firms to successfully join and operate within a digital ecosystem. As mentioned before, the inclusion of MNEs or the provision of exclusive services made available by the hosting PSP are assumed to trigger such a pull (Interviews 11 - 13).

Furthermore, the interviews emphasised the importance of creating an open digital ecosystem with low entry barriers but high data protection standards. This positively affects the perceived benefits of accessing DSPs and participating in an actively steered ecosystem.

Consequently, the long term goal of any DSP has to be the continuous evolution away from a service platform moderating joint value-creation and BMI in favour of an integrated digital ecosystem with a common network infrastructure, therefore a vertical integration of different platform-layers (see Fig. 11 below).

Figure 11: Adapted Platform Concepts



Source: Composed by author, 2017

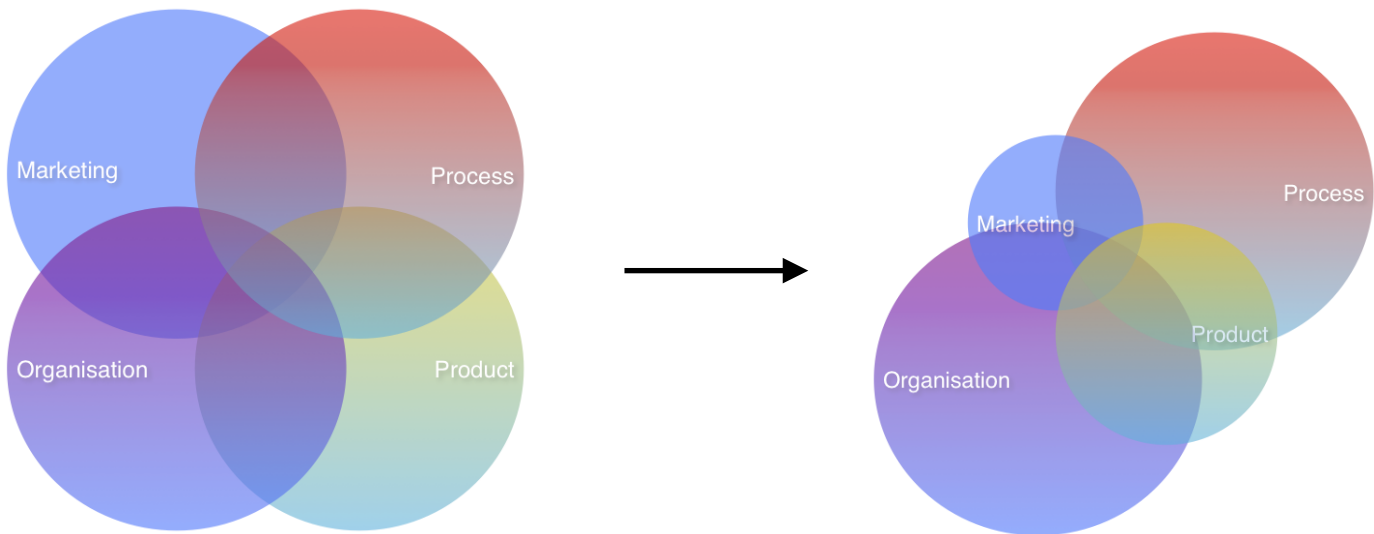
5.7. Adaption of Four-Dimensional Innovation-Helix

In line with the introduced theories by Bajkat et al. on business model transformations (2014), the findings among SMEs suggest that the following taxonomy on BMI exists:

- Product innovations appear to conjointly occur if new value propositions are obtained.
- New product- and service-offerings to the clientele-base are likely to yield radical product innovations.
- Radical process- and organisational innovations concur with changes in the organisational structure of the company.
- Changes in the revenue structure concur with process- and marketing innovations.

These findings led to the adaptation of Figure 6, “*Four-Dimensional Innovation Helix*” as shown below in Figure 12. Based on the conducted analyses, the formerly equally-sized dimensions are adjusted to their actual relevance for BMI on SME-level. It becomes visible that the conducted field research supports BMI-theories, proposing that radical BM transformations require the existence of at least two types of innovations. This pre-requisite distinguishes effectively incremental from radical innovations and allows concrete conclusions on future business strategies.

Figure 12: Adapted Four-Dimensional Innovation Helix



Source: Composed by author, 2017

5.8. Problem Statement Revisited

Based on the previous chapters, this section provides in short the main and secondary research questions and an argumentation to what extend these were answered throughout the conducted research among fifteen practitioners of potential future network participants. The primary RQ was “Which features distinguish successful digital service platforms?”, complemented by the two subsequent sub-research questions, “How do digital service platforms affect business model innovations of small and medium sized enterprises?” and “How do digital service platforms affect business model transformations of digital service providers?”

By thoroughly assessing the available literature on BMIs, DSPs, and interconnected concepts, the theoretical foundation for the case study has been laid. This resulted in five central characteristics benefiting the long-term viability of DSPs and positively affecting the BMIs of the involved SMEs:

- 1) *Positive network effects*, ensured through the attraction of a large and heterogenous number of platform users.
- 2) *Low entry barriers*, accelerating the adoption of DSPs through an increasing number of participants.

- 3) *Open interfaces to competing platforms and third systems*, increasing the accumulation of data as a key value proposition of DSPs.
- 4) *High degrees of automatisation*, ultimately lowering the operational costs and increasing the scalability of the offered service.
- 5) *Open platforms* which reduce the switching costs of customers, ultimately increasing the external attractiveness of DSPs.

To briefly answer the first sub-research question, DSPs benefit business model innovations of SMEs by:

- 1) Pressuring SMEs to define a long-term digital roadmap including concrete ecosystem strategies.
- 2) Allowing access to additional resources within the digital ecosystem.
- 3) Stimulating joint NPDs and further cooperations with network partners, positively influencing:
 - 1) the sophistication of the product / service that is being developed
 - 2) the occurrence of knowledge spillovers
 - 3) the reduction of operational risks as consequence of NPDs
 - 4) the permeability of company boundaries
- 4) Enhance organisational transparency, benefitting the internal but also external expectation management and employee identification.
- 5) Reducing agency problems.

The answer to the second sub-research questions is short and concrete: Professional technology provider are likely to launch software and data platforms or operate technical infrastructures. In contrast, professional service provider with rather perishable value propositions have to establish pervasive DSPs to develop and market their service offerings in order to capture future revenue streams. The long term goal of DSP-strategies has to be a vertical inclusion of software- or product platforms to increase the service portfolio and benefit the client retention.

6. Recommendation

6.1. Introduction to the Recommendation

As the final element of this thesis, a set of recommendations on the strategic development of DSPs and SMEs will be provided. By doing so, existing barriers hindering the emergence of heterogeneous digitalised ecosystems are named and tools provided to circumvent these obstacles. Throughout the research, it became evident that the start of any BMI requires from the involved parties to first define the own value propositions and revenue models, the company's organisational set-up and the interactions with the external environment (in line with theories by Chesbrough, 2003). This section follows the structure of the previous chapters and differentiates between recommendations for SMEs and those for PSPs.

A first and general recommendation concerning BMI is derived from Fig. 1 and Fig. 2 (Appendix) as introduced in the theory chapter. Without distinguishing between industries or firm size, companies have to implement structured mechanisms to screen both, the internal and the external environment for potential innovations (referring to Shah et al., 2013). It is of central importance to establish formalised and iterative procedures which allow for:

- 1) the systematic screening of newly generated ideas and proposals,
- 2) the preliminary assessment of the input,
- 3) further repetitive screenings and evaluations,
- 4) the development of prototypes,
- 5) the set-up of a potential business case and
- 6) a final economic and technological feasibility-analysis by the responsible managers/executives.

Referring to the central "*Four-Dimensional Innovation Helix*" (Fig. 6), this structured approach impacts three of the four dimensions, making it a holistic and assumably effective strategy to allow for the recognition and implementation of innovations and consequently BMTs.

6.2. Implications for Small and Medium-Sized Enterprises

First and foremost, any SME has to develop a concrete innovation strategy, specifying the different roles and duties within the organisation to facilitate innovation and allow for subsequent BMT (with reference to Barjak, Niedermann & Perrett, 2014). It is highly recommended to maintain structures and measures as suggested in the following:

- *Ecosystem strategy*: Each individual company is highly encouraged to also implement a concrete ecosystem strategy, analysing and evaluating the interactions within the own environment and constantly challenging the existing business relations. By doing so, unprofitable interactions are identified and collaborations with new partners initiated.
- *Let others innovate for you*: It gets increasingly common to generate a high share of value creation outside of the own organisation. By allowing the DSP-partner network to collaborate on NPD and innovations, resources are saved, risks are spread and product innovations enabled through the cooperation of heterogenous partners. Consequently, pursue an collaborative and open innovation strategy to maximise the final outcome by making corporate boundaries permeable.
- *Rewarding mechanisms*: The conducted research emphasises the importance of stimulating the own workforce to engage in product- and process innovations. It is self-evident that there are no better consultants concerning improvements within the own organisation than the own employees. Consequently, it is necessary to trigger this potential by providing monetary incentives, flexibility and competitions to stimulate innovation. Empirical evidence shows that if managed actively and backed by the management board, this measure is highly effective and allows for significant improvements of the existing BM.
- *External managers*: To unlock mental barriers within the board of directors and allow for unbiased evaluations of the current strategies and new impetuses, the hiring of individual, external board members has to be ensured.
- *Definition of long term goals*: It is not only necessary to establish a concrete innovation and ecosystem strategy but also define strategic long term goals. By reducing at the same time the availability of bonuses for operational short-term successes, higher degrees of managerial commitment and sustainability are expected to occur. This also means that problems originating in the agency theory are minimised.
- *Lower hierarchies*: Lowering internal hierarchies is suggested as it is likely to stimulate a higher degree of employee participation in innovational and business transformational processes.

The majority of these proposed measures for SMEs is assumed to be accelerated by engaging in digital platform concepts (D'Antone & Santos, 2017; Davison & Ou, 2017). Especially for SMEs, given their financial and human resource constraints, the participation in DSPs bears key advantages sustaining their future viability (referring to Chesbrough, 2007). The direct access of a wide network of competent partners allows to benefit from new distribution channels, potentially complementing value propositions, supply chains, co-financing and additional know-how.

6.3. Implications for Digital Service Platforms and -Provider

“Products will come with a ‘virtual layer’ such as information or services.”

Ralph Körfgan, 2015

This research has considered many statements of interviewees from within the sector in addition to a variety of industry white-papers and publications on BMIs through DSPs. It appears that the majority of recommendations has reciprocal effects. The following catalogue presents the key findings of this investigation on the design and set-up of professional DSPs:

- *Start small, scale fast:* It is highly recommended to start with a manageable platform solution in order to have full control over the different operations. By focussing on an exclusive but small number of platform participants, weaknesses can be easily identified and repaired. The next logical step has to concentrate on the attraction of strategic partners which provide access to new marketing channels and offer a significant added value to the platform. Cross-industry cooperations enhance in the following stage the range of the network and enfold positive network-effects which in turn continuously attract new partners.
- *Number and heterogeneity of platform-users:* The attraction of a critical number of users is the central success-factor of any platform. This enfolds positive network-effects and generates an even greater pull for additional users. The findings of this research furthermore highlight the need of composing the ecosystem of heterogenous but complementary partners such as start-ups, SMEs and international corporates from various industries. This measure stimulates disruptive and innovative interactions and is assumed to facilitate BMIs.

- *Low entry barriers*: This factor is connected to the previous suggestion. Network-participants are only successfully attracted if the barriers to enter the platform remain low and do not impose significant transaction costs on the applicant. In the context of DSP, it has to be considered to offer different types of membership, allowing for a first testing of the offered services at no or very limited costs.
- *Economies of scale through automatised services*: The automatised operation and provision of the majority of professional services is central for a sustainable economical success of platform providers. The industry analysis on professional services has pointed to the fact that future competitiveness depends to a large extent on the reduction of staff expenses and overhead costs. The achievement of these economies of scale therefore requires, direct from the beginning, automatised procedures, an advanced IT-infrastructure and as soon as possible competent AI methods.
- *Open Interfaces*: Harmonising the interfaces of the platform with its environment is assumed to benefit both, the platform adoption and acceptance. Interviewees emphasised the attractiveness of being able to transfer, analyse and further exploit their own data through potential network participants within a dynamic environment, ultimately optimising the value chain and reducing multi-homing costs. In addition, open interfaces could also be applied in the context of competing service platforms, allowing for positive cross-sided network effects. This eases product imitations by one company which in turn are understood to reduce the risk of the *so-called* “The winner takes it all”-principle (referring to the findings of Ruutu et al., 2017). This strategy is also likely to accumulate quickly large amounts of data as one of the central value propositions of DSPs. Following this path benefits PSPs which are with their specific platform-solution not first to the market.
- *Open Platforms*: This suggestions refers to the previously given advice but extends that logic to also lowering barriers hindering corporates to leave DSPs. Even though this measure negatively affects the planning stability for future revenues, it supports in contrast the perceived attractiveness of DSPs and allows firms to “try” this service without the need for strong commitments.
- *Platform management*: Similar to other networks, DSPs have to be managed in compliance to national legislation, data protection regulations and corporate governance guidelines. This requires effective and competent systems ensuring the safety of accumulated data, information concerning the contracting parties and the interactions within the network. Furthermore, the governance of DSPs as a new business model demands from the respective management teams to apply adapted codes of conduct

compared to the traditional BM. Since these are usually codetermined with working councils, it is advised to pay early in advance much attention to this small but highly relevant procedural detail. Furthermore, any platform has to be managed in a dynamic and agile manner to allow for short-termed adaptations as consequence of external technological disruptions.

- *Professional onboarding programme*: The service provider has to ensure that all new network-entrants comply to the set rules and provide the necessary information which are essential for accurately conducting gap-analyses. Based on this service and advanced information-technologies, recommendations on potential partnerships, M/As and project executions have to be developed.
- *Operational resources*: Since digital service platforms are only considered as an attractive business tool for innovation and acceleration if the long-term viability is ensured, the responsible managers of DSPs have to guarantee for a sufficient and long-lasting equipment of financial resources. In addition, the initial attractiveness of these platforms is significantly increased if the organising PSP allows (partial and exclusive) access to his accumulated business intelligence and data pools. Such a commitment is assumed to constitute an unique selling proposition of particular DSPs in contrast to competing offerings within the digital economy.
- *External visibility*: The attraction of network participants requires a far-reaching and dedicated marketing campaign. As trend-analyses by Stermann et al. (2009) have shown, exogenous factors are a central contributor for a platform's success and have to be maintain until self-reinforcing tendencies are achieved. Scaling back marketing efforts before reaching this tipping point results in rapidly declining applications of new network participants.
- *Overcome prejudgements*: PSP have to concentrate their efforts to market their network-based, digital solutions on the still existing prejudices of SMEs. Especially corporates controlled by single families need to experience much attention in order to trigger the interest into the strategic chances of DSPs.
- *Terms of payment*: A sustainable operation of DSPs requires well-balanced and effective compensation systems for the efforts being provided by the PSP. Therefore, decisions have to be done far in advance how to finance a platform without offending potential customers. Potential accounting systems are visible in Table 4. In the context of digital platforms in the professional service industry, one could consider a freemium-premium model or mechanisms being based on the logic of provision payments. Still, this decision

has to be tailored to the specific customer segment and aligned to the own corporate strategy.

Digital ecosystems are expected to benefit the process-, resource-, and product-innovation capacity of each participating firm and result in new organisational structures (Chesbrough, 2007; Davison and Ou, 2017; Park, 2013). Following the logic of this model (see Fig. 12), the individual manifestations of the respective companies within such an ecosystem will fluctuate between these four dimensions over time in orientation and strength.

The following section provides the reader with the conclusion and take-away message.

7. Conclusion

“We need to ask ‘what’s next?’ and be proactive, not just react to what’s already happened. And we need to do this whether we’re considering the short- or longer-term future.”

Jyrki Mäki-Kala, 2015

This research has elaborated on a variety of different concepts which all influence the emergence of digital ecosystems and how these influence business model transformations of SMEs. The complexity of the chosen topic is evident and still leaves much space for future research. Yet, barriers of implementation for digital service platforms quickly became apparent. Surprisingly, the expected demand among small- but especially medium-sized enterprises among the assessed sample existed only to a smaller extent. In contrast, professional service provider recognised the need to change and adapt to newly arising technologies within their ecosystem. Still, the general concept of business model innovation is assumed to be of major importance for any corporate.

In summary, digital service platforms assist small and medium-sized enterprises to innovate their business models by triggering organisational changes, internal transparency, and by granting access to external resources, know-how and distribution channels. Therefore, digital platforms provide the necessary tools to increase the overall competitiveness of SMEs by facilitating innovativeness. In addition, digital service platforms enable professional service providers to approach new clients and strengthen business relationships to existing corporates, position themselves as change agents by acquiring advanced digital competencies and ultimately establishing an ecosystem allowing the provision of digitalised professional services.

It can be concluded that the overall economic effect of digital service platforms is to bridge the gap between the varying degrees of innovativeness among the different network participants by providing a dynamic and stimulative digitalised environment.

7.1. Scientific and Societal Relevance

As already stressed in the introduction, the scientific and social relevance of this contribution lies in the importance of creating cross-fertilised connections in the B-2-C and

B-2-B market in order to maintain and even expand a strong position within an highly globalised and competitive environment. Future research following up this compelling topic bears the potential by applying time-series analyses to evaluate potential changes in the mindsets and perceptions of the involved interviewees and dynamics within the setting.

7.2. Limitations of the Thesis and Future Research

Research on BMI and its impact on the operations of SMEs and PSP is still in its evolutionary stage. In consequence, identifying the limits of this research allows an outline for future studies focusing on this particular topic of high importance for the German *Mittelstand* but also beyond. This thesis assessed the characteristics of business model innovations through digital service platforms among SMEs and derived recommendations for the further development of DSPs. As such, a limitation of this thesis is that implications were only derived for SMEs and did not consider MNEs beyond a superficial stage to analyse the advantages of those companies on the digitalised ecosystems.

Furthermore, the empirical meaningfulness of this paper would benefit from an increased sample size in future studies, allowing a much more holistic view on the chosen research topic. The same argument is also valid for longitudinal research designs, leading to deeper insights into the fast development of this highly topical and dynamic subject.

8. Reference List

8.1. Academic Literature

Aguilera, R., Filatotchev, I., Gospel, H., Jackson, G. (2007). An organizational approach to comparative corporate governance: Costs, contingencies, and complementarities. *Organisation Science*, 19 (3), pp. 475-492

Aguilera, R., Jackson, G. (2003). The Cross-National Diversity of Corporate Governance: Dimensions and Determinants. *The Academy of Management Review*, 28 (3), pp. 447-465

Aoki, M. (2000). Information, Corporate Governance, and Institutional Diversity: Competitiveness in Japan, the USA, and the Transnational Economies. Oxford: Oxford University Press.

Audretsch, D. (2000). The economic role of Small-and Medium-Sized Enterprises: the United States. *Institute for Development Strategies*.

Barjak, F. (2014). The Need for Innovations in Business Models. Final Policy Brief (Deliverable 5)

Barjak, F., Niedermann, A., Perrett, P. (2014). The Need for Innovations in Business Models. European Commission.

Basit, T. (2003). Manual or electronic? The role of coding in qualitative data analysis. *Educational Research*, 45 (2), pp.143-154

Basely, P. (2007). *Qualitative data analysis with NVivo*. London: Sage

Bhat, M., Shah, J., Baba, A. (2013). A Literature Study on Family Business Management from 1990 To 2012. *Journal of Business and Management*, 7 (6), pp. 66-77

Bharadwaj, A., El Sawy, O.A., Pavlou, P.A., Venkatraman, N. (2013). Digital business strategy: toward a next generation of insights. *MIS Q*, 37 (2) (2013), pp. 471–482

- Caloghirou, Y., Protogerou, A., Spanos, Y., Papagiannakis, L. (2004). Industry-Versus Firm specific Effects on Performance: Contrasting SMEs and Large-sized Firms. *European Management Journal*, 22 (2), pp.231-243
- Carayannis, E. G., Campbell, D. F. J. (2012). Mode 3 Knowledge Production in Quadruple Helix Innovation Systems. New York, NY: Springer New York.
- Carayannis, E. G., Sindakis, S., & Walter, C. (2014). Business Model Innovation as Lever of Organizational Sustainability. *The Journal of Technology Transfer*, 40 (1), 85-104
- Casadesus-Masanell, R., Ricart, J. (2010). From strategy to business models and to tactics. *Long Range Planning*, 43, pp. 195–215
- Cavalcante, S., Ulhoi, J., Kesting, P. (2011). Business Model Dynamics and Innovation: (Re)establishing the Missing Linkages. *Management Decision*, 49 (8), pp. 1327-1342
- Chesborough, H., Rosenbloom, R. (2002). The Role of the Business Model in Capturing Value from Innovation: Evidence from Xerox Corporation's Technology Spinoff Companies. *Industrial and Corporate Change*, 11(3)
- Chesbrough, H. (2003). Open Innovation: The New Imperative for Creating and Profiting from Technology. Boston: Harvard Business School Press.
- Chesbrough, H. (2007). Business model innovation: it's not just about technology anymore. *Strategy & Leadership*, 35(6), 12–17
- Chesbrough, H. (2010). Business Model Innovation: Opportunities and Barriers. *Long Range Planning*, 43(2-3), 354–363
- Clarysse, B., Wright, M., Lockett, A., Mustar, P., Knockaert, M. (2007). Academic spin-offs, formal technology transfer and capital raising. *Industrial and corporate change*, 16 (4), pp. 609-640.
- Comes, S., Berniker, L. (2008). Business Model Innovation. Springer Berlin Heidelberg
- Cooper, R., Edgett, S., Kleinschmidt, E. (1990). Portfolio management for new product development. *R&D Management*, 31 (4), pp. 361-380
- Craig, J., Moore, S. (2005). Balanced Scorecards to Drive the Strategic Planning Of Family Firms. *Family Business Review*, 18 (22), pp. 105-122

- Crespo-Gonzalez, C., Cardenas-Garcia, V., Benrimoj, S. (2017). The next phase in professional services research: From implementation to sustainability. *Research in Social and Administrative Pharmacy*, 1, pp. 1-6
- Curtis, S., Gesler, W., Smith, G., Washburn, S. (2000). Approaches to sampling and case selection in qualitative research: examples in the geography of health. *Social Science & Medicine*, 50 (2000), pp. 1001-1014
- D'Antone, S., Santos, J.B. (2016). When Purchasing Professional Services Supports Innovation. *Industrial Marketing Management*, 58, pp. 172-186
- Davison, R., Ou, C. (2017). Digital work in a digitally challenged organization. *Information & Management*, 54 (1), pp. 129–137
- Dawson, A. (2012). Human capital in family businesses: Focusing on the individual level. *Journal of Family Business Strategy*, 3, pp. 3–11
- Duarte, N. (2004). The Role of SMEs for Development: A Literature Review. Paper submitted to ERSA 2004 CONGRESS.
- Ekholm, A., Maury, B. (2009). Owner Incentives and Stock Returns: Evidence from Individual Owners' Portfolio Weights. Retrieved 10.06.2017 from https://www.researchgate.net/publication/256000207_Owner_Incentives_and_Stock_Returns_Evidence_from_Individual_Owners%27_Portfolio_Weights
- Fiegner, M. (1994). A Comparison of Successor Development in Family and Non family Business. *Family Business Review*, 7 (4), pp. 313-329
- Fock, S., Tan, W. (2001). Coping with Growth Transitions: The Case of Chinese Family Businesses in Singapore. *Family Business Review*, 14 (2), pp. 123-140
- Fortune (2015). The real reason Verizon bought AOL. Retrieved on 01.04.2017 from <http://fortune.com/2015/06/24/verizon-gains-aol/>
- Frankenberger, K. (2016). BMI Lab. Retrieved on 12.06.2017 from <https://www.bmilab.com>

- Frick, J., Ali, M. (2013). Business Model Canvas as Tool for SME. *Advances in Production Management Systems*. Springer.
- Gustafsson, J. (2017). Single case studies vs. multiple case studies: A comparative study. Conference Paper.
- Davison, R., Ou, C. (2017). Digital work in a digitally challenged organization. *Information & Management*, 54 (1), pp. 129-137
- Den Hertog, P. (2000). Knowledge-Intensive Business Services as Co-Producers of Innovation. *International Journal of Innovation Management*, pp. 491-528
- De Vaus, D. (2001). Research Design in Social Research. Sage Publications.
- Dunbar, R., Starbuck, W. (2006). Learning to design organizations and learning from designing them. *Organization Science*, 17, pp. 171-178
- Galper, J. (2001). Three Business Models for the Stock Exchange Industry. *Journal of Investing*, 10 (1), pp. 70-78
- Gassmann, O., Frankenberger, K., Csik, M. (2013). The St. Gallen Business Model Navigator. Working Paper, University of St.Gallen
- Gassmann, O., Winterhalter, S., Zeschky, M. (2015). Managing dual business models in emerging markets: An ambidexterity perspective. *R & D Management* (forthcoming), pp. 1-33
- Gebauer, J., Ginsburg, M. (2003). The US Wine Industry and the Internet: An Analysis of Success factors for Online Business models. *Electronic Markets*, 13(1), pp. 59-66
- Giesen, E., Berman, S., Bell, R., Blitz, A. (2007). Three ways to successfully innovate your business model. *Strategy & Leadership*, 35 (6), pp. 27-33
- Harvey, M., Evans, R. (1995). Life after succession in the family business: Is it really the end of problems? *Family Business Review*, 8 (1), pp. 3-16
- Hertog, P. D. (2000). Knowledge-intensive business services as co-producers of innovation. *International Journal of Innovation Management*, 4(4), pp. 491–528

- Hunt, C. (2000). What have we learned about generic competitive strategy? A meta-analysis. *Strategic Management Journal*, 21 (2), pp. 127–154.
- Itami, H., Nishino, K. (2010). Killing Two Birds with One Stone. Profit for Now and Learning for the Future. *Long Range Planning*, 43, pp. 364 - 369
- Jeppesen, L., Frederiksen, L. (2006). Why Do Users Contribute to Firm-Hosted User Communities? The Case of Computer-Controlled Music Instruments. *Organization Science*, 17(1), pp. 45-63.
- Johnson, M., Clayton, C., Kagermann, H. (2008). Reinventing your business model. *Harvard Business Review* 2008, pp. 51 - 60
- Johnsen, T., Howard, M., Miemczyk, J. (2014). *Purchasing & supply chain management: A sustainability perspective*. Routledge.
- Karadag, H. (2015). The Role and Challenges of Small and Medium-sized Enterprises (Smes) in Emerging Economies: An Analysis from Turkey. *Business and Management Studies*, 2015, 1 (2), pp. 179-188
- Laiho, M. (2011). Global HRM and the dilemma of competing stakeholder interests. *Social Responsibility Journal*, 7 (2), pp.166-180
- Lau, A. K., & Lo, W. (2015). Regional innovation system, absorptive capacity and innovation performance: An empirical study. *Technological Forecasting and Social Change*, 92, pp. 99–114.
- Leung, L. (2015). Validity, reliability, and generalizability in qualitative research. *Journal of Family Medicine and Primary Care*, 4 (3), pp. 324-327
- Lindgardt, Z., Reeves, M., Stalk, G., Deimler, M. S. (2009). *Business Model Innovation*. BCG, Boston, MA.
- Littunen H., Hyrsky, K. (2000). The Early Entrepreneurial Stage in Finnish and Non Family Firms. *Family Business Review*, 13 (1), pp 41-53
- Lopes, A., Rumiko, O., Salerno, M., Laurindo, F., Carvalho, M. (2012). *Innovation management: a literature review about the evolution and the different innovation models*. ICIEOM, Guimarães, Portugal

- Lusch, R., Nambisan, S. (2015). Service Innovation: a Service-Dominant Logic Perspective. *MIS Quarterly*, 39 (1), pp. 155-175
- Madhavaram, S., Hunt, S. (2017). Customizing business-to-business (B2B) professional services: The role of intellectual capital and internal social capital. *Journal of Business Research*, 74 (2017), pp. 38-46
- Magretta, J. (2002). Why business models matter. *Harvard Business Review*, 80, pp. 86–92
- Markides, C. (2000). Strategic Innovation: Constantinos Markides on Strategy and Management. *The Academy of Management Executive*, 14 (3), pp. 43-45
- Miles, I., Kastrinos, N., Flanagan, K., Bilderbeek, R., Den Hertog, P., Huntink, W., Bouman, M. (1995). Knowledge-intensive business services. EIMS publication.
- Miles M., Huberman A. (1994). *Qualitative data analysis: An expanded sourcebook*. 2nd Sage; Thousand Oaks, CA
- Motwani, J., Levenburg, N., Schwarz, T., Blankson, C. (2006). Succession Planning in SMEs. *International Small Business Journal*, 24 (5), pp. 471-495
- Oestreicher-Singer, G., Zalmanson, L. (2013). Content or community? A digital business strategy for content providers in the social age. *MIS Q*, 37 (2), pp. 591-616
- Oestreicher-Singer, G., Libai, B., Sivan, L., Carmi, E., Yassin, O. (2013). The Network Value of Products. *Journal of Marketing*, 77 (1), pp. 1–14
- Osterwalder, A., Pigneur, Y., Tucci, C. (2005). Clarifying Business Models: Origins, Present, and Future of the Concept. *Communications of the Association for Information Systems*, 16 (1)
- Osterwalder, A., Pigneur, Y. (2010). *Business Model Generation: A Handbook for Visionaries, Game Changers, and Challengers*. ISBN: 978-0-470-87641-1
- Osterwalder, A., Pigneur, Y., Wegberg, J. (2010). *Business Model Generation: Ein Handbuch für Visionäre, Spielveränderer und Herausforderer*. Campus Verlag.
- Özdemir, S., Ersöz, H., Sarioğlu, H. (2011). Küçük Girişimciliğin Artan Önemi ve KOBİ'lerin Türkiye Ekonomisindeki Yeri. *Sosyal Siyaset Konferansları Dergisi*, 12 (3), pp. 67-83

- Palinkas, L. A., Horwitz, S. M., Green, C. A., Wisdom, J. P., Duan, N., Hoagwood, K. (2015). Purposeful sampling for qualitative data collection and analysis in mixed method implementation research. *Administration and Policy in Mental Health*, 42 (5), pp. 533–544
- Park, J. (2004). International and Intersectoral R & D Spillovers in the OECD and East Asian Economies. *Economic Inquiry*, 42 (4), pp. 739-757
- Patton M. (2002). *Qualitative research and evaluation methods*. 3rd Sage Publications; Thousand Oaks, CA.
- Pateli, A.G., Giaglis, G.M. (2004). A research framework for analysing eBusiness models. *European Journal of Information Systems*, 13 (9), pp. 302-314
- Patton, M. (1990). *Purposeful Sampling*. Sage Publications; Beverly Hills, CA.
- Precire (2017). Precire Technologies. Retrieved on 02.04.2017 from <https://www.precire.com/en/home-2/>
- Ross, A. (2016). Establishing a system for innovation in a professional services firm. *Business Horizons*, 59, pp. 137-147
- Ruutu, S., Casey, T., Kotovirta, V. (2017). Development and competition of digital service platforms: A system dynamics approach. *Technological Forecasting & Social Change*, 117 (1), pp. 119–130.
- Saldana, J. (2009). *The Coding Manual for Qualitative Researchers*. SAGE Publications Ltd.
- Scharpf, F. W. 1997. *Games real actors play: Actor-centered institutionalism in policy research*. Boulder, CO: Westview.
- Sedera, D., Gronau, N., Mary, S. (2015). *Enterprise Systems. Strategic, Organizational, and Technological Dimensions*. Springer International Publishing, Switzerland
- Shafer, S. M., Smith, H. J., Linder, J. (2005). The power of business models. *Business Horizons*, 48, pp. 199-207
- Sosna, M., Trevinyo-Rodribuez, N., Velamuri, S. (2010). Business Model Innovation through Trial-and-Error Learning. *Long Range Planning*, 43, pp. 383-407

Streeck, W. (2002). Introduction: Explorations into the origins of nonliberal capitalisms in Germany and Japan. Ithaca, NY: Cornell University Press

Teece, D. (2010). Business Models, Business Strategy and Innovation. *Long Range Planning*, 43 pp. 172 - 194

Timmers, P. (1998). Business Models for Electronic Markets. *Electronic Markets*, 8 (2), pp. 3-8

Upward, A., Jones, P. (2015). An Ontology for Strongly Sustainable Business Models. *organisation & Environment*, 29 (1), pp. 97 - 123

Wheelwright, S. C., Clark, K. (1992). Creating project plans to focus product development. *Harvard Business Review*, 70 (2), pp. 67–83

Yannopoulos, P. (2013). Business Model Innovation: Literature Review and Propositions. *Proceedings of International Business and Social Sciences and Research Conference*, 2013

Yin, R. (2003; 2009). *Case Study Design*. Sage, 2003

Zott, C., Amit, R., Massa, L. (2011). The Business Model: Recent Developments and Future Research. *Journal of Management*, 37 (4), pp. 1019-1042

8.1. Web Content

Accenture (2016). Digital disruption: The growth multiplier. Accenture Strat. Publishing

Accenture (2016). Platform strategies: How the rules of competitiveness have changed in the era of ecosystems. Accenture Strat. Publishing

Accenture (2016). Platform Economy: Technology-driven business model innovation from the outside in. Accenture Strat. Publishing

Codex (2017). Study of Innovation. Retrieved on 24.05.2017 from <http://www.codexx.com/2014/study-of-innovation-in-35-uk-german-law-firms-report-published/>

Deloitte Insight (2016). Over 100,000 legal roles to be automated. Retrieved on 01.04.2017 from <http://www.legaltechnology.com/latest-news/deloitte-insight-100000-legal-roles-to-be-automated/>

Deloitte (2016). Audit Automatisisation. Retrieved on 02.04.2017 from <https://www2.deloitte.com/uk/en/pages/careers/articles/audit-automation.html>

European Commission (2017). Family Businesses. Retrieved on 27.06.2017 from https://ec.europa.eu/growth/smes/promoting-entrepreneurship/we-work-for/family-business_en

European Commission (2014). The Business Model Navigator. Retrieved on 20.06.2017 from http://ec.europa.eu/newsroom/itemdetail.cfm?item_id=17059&newsletter=126

Eurostat (2015). Community Innovation Survey (CIS). Retrieved on 20.05.2017 from <http://ec.europa.eu/eurostat/web/microdata/community-innovation-survey>

IBM (2015). Global C-suite Study. Retrieved on 29.05.2017 from <https://www-935.ibm.com/services/c-suite/study/study/>

KPMG (2017). Annual statements. Retrieved on 01.04.2017 from https://home.kpmg.com/xx/en/home/campaigns/2016/12/international-annual-review.html#financials_financials-global-revenue.

KPMG (2017). Performance. Retrieved on 28.03.2017 from <https://home.kpmg.com/de/de/home/ueber-kpmg/performance.html>

KPMG (2016). Quality Growth. Retrieved on 02.04.2017 from <http://www.kpmg.com.br/relatoriodesustentabilidade2013/en/business-model.html>

KPMG (2017). Business Model Improvement - Room for Improvement. retrieved on 02.04.2017 from <https://home.kpmg.com/qm/en/home/insights/2017/01/business-model-reporting-room-for-improvement.html>

KPMG (2017). KPMG Atlas. Retrieved on 01.04.2017 from <https://atlas.kpmg.de/business-assessments/digital-readiness-assessment.html>

KPMG (2015). KPMG Transparenzbericht 2015. Retrieved on 20.06.2017 from <https://assets.kpmg.com/content/dam/kpmg/pdf/2015/04/kpmg-de-transparenzbericht-2015-online-sec.pdf>

McKinsey Global Institute (2016). Which industries are the most digital. Retrieved on 03.04.2017 from <http://www.mckinsey.com/mgi/overview/in-the-news/which-industries-are-the-most-digital>

Stiftung Familienunternehmen (2017). Daten, Fakten und Zahlen. Retrieved on 29.06.2017 from <http://www.familienunternehmen.de/de/daten-fakten-zahlen>

Techcrunch (2017). Goodbye Accountants. Retrieved on 10.04.2017 from <https://techcrunch.com/2016/06/28/goodbye-accountants-startup-builds-ai-to-automate-all-your-accounting/>

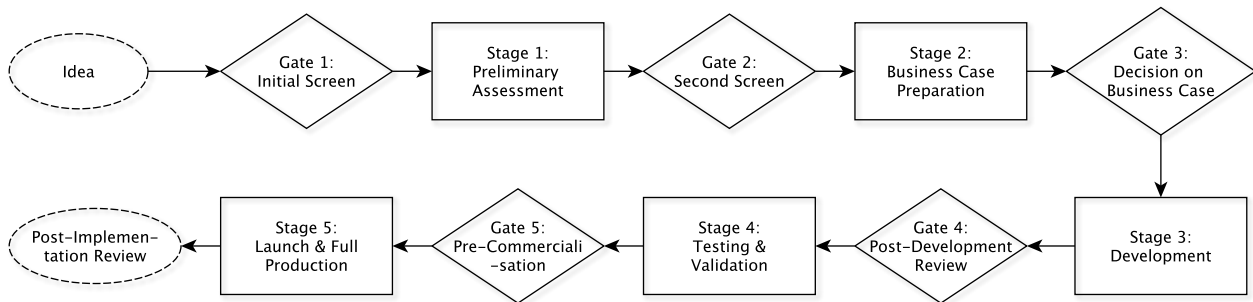
The Economist (2017). The thirst great wave. Retrieved on 01.04.2017 from <http://www.economist.com/news/special-report/21621156-first-two-industrial-revolutions-inflicted-plenty-pain-ultimately-benefited>

Worldbank (2015). Small and Medium Enterprises (SMEs) Finance. Retrieved on 20.05.2017 from <http://www.worldbank.org/en/topic/financialsector/brief/smes-finance>

World Economic Forum (2017). Digital Transformation Initiative. White Paper, 2017

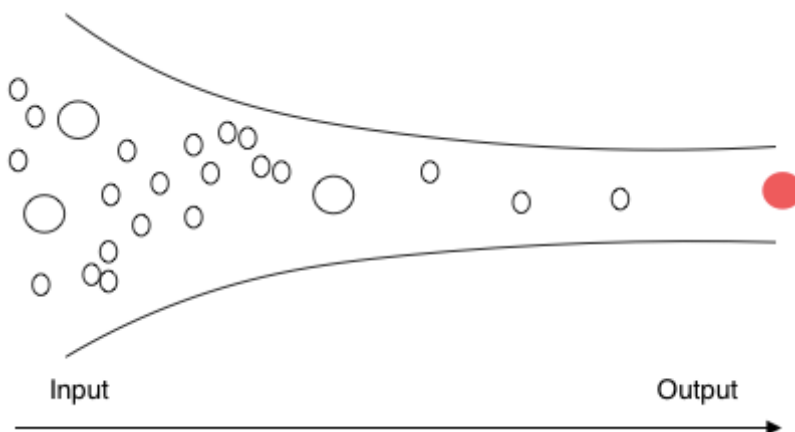
9. Appendix

Fig. 1: Stage-Gate Process according to Cooper (1990)



Source: Adapted by author according to “stage-gate”-concept by Cooper (1990)

Fig. 2: Innovation-Funnel according to Wheelwright & Clark (1992)



Source: Adapted by author according to “Funnel”-concept by Wheelwright and Clark, 1992

Table 1: St. Gallen Business Model Taxonomy (from Gassmann et al., 2013)

The 55 Business Model Patterns as Overview

No	Pattern name	Affected BM components	Exemplary companies	Pattern description
1	ADD-ON	What Value	Ryanair (1985), SAP (1992), Sega (1998)	The core offering is priced competitively, but there are numerous extras that drive the final price up. In the end, the customer pays more than he or she initially assumed. Customers benefit from a variable offer, which they can adapt to their specific needs.
2	AFFILIATION	How Value	Amazon Store (1995), Cybererotica (1994), CDnow (1994), Pinterest (2010)	The focus lies in supporting others to successfully sell products and directly benefit from successful transactions. Affiliates usually profit from some kind of pay-per-sale or pay-per-display compensation. The company, on the other hand, is able to gain access to a more diverse potential customer base without additional active sales or marketing efforts.
3	AIKIDO	Who What Value	Six Flags (1961), The Body Shop (1976), Swatch (1983), Cirque du Soleil (1984), Nintendo (2006)	Aikido is a Japanese martial art in which the strength of an attacker is used against him or her. As a business model, Aikido allows a company to offer something diametrically opposed to the image and mindset of the competition. This new value proposition attracts customers who prefer ideas or concepts opposed to the mainstream.
4	AUCTION	What Value	eBay (1995), Winebid (1996), Priceline (1997), Google (1998), Elance (2006), Zopa (2005), MyHammer (2005)	Auctioning means selling a product or service to the highest bidder. The final price is achieved when a particular end time of the auction is reached or when no higher offers are received. This allows the company to sell at the highest price acceptable to the customer. The customer benefits from the opportunity to influence the price of a product.
5	BARTER	What Value	Procter & Gamble (1970), Pepsi (1972), Lufthansa (1993), Magnolia Hotels (2007), Pay with a Tweet (2010)	Barter is a method of exchange in which goods are given away to customers without the transaction of actual money. In return, they provide something of value to the sponsoring organisation. The exchange does not have to show any direct connection and is valued differently by each party.
6	CASH MACHINE	How Value	American Express (1891), Dell (1984), Amazon Store (1995), PayPal (1998), Blacksocks (1999), MyFab (2008), Groupon (2008)	In the Cash Machine concept, the customer pays upfront for the products sold to the customer before the company is able to cover the associated expenses. This results in increased liquidity which can be used to amortise debt or to fund investments in other areas.
7	CROSS SELLING	How What Value	Shell (1930), IKEA(1956), Tchibo (1973), Aldi (1986), SANIFAIR (2003)	In this model, services or products from a formerly excluded industry are added to the offerings, thus leveraging existing key skills and resources. In retail especially, companies can easily provide additional products and offerings that are not linked to the main industry on which they were previously focused. Thus, additional revenue can be generated with relatively few changes to the existing infrastructure and assets, since more potential customer needs are met.
8	CROWD-FUNDING	How Value	Marillion (1997), Cassava Films (1998), Diaspora (2010), Brainpool (2011), Pebble Technology (2012)	A product, project or entire start-up is financed by a crowd of investors who wish to support the underlying idea, typically via the Internet. If the critical mass is achieved, the idea will be realized and investors receive special benefits, usually proportionate to the amount of money they provided.

No	Pattern name	Affected BM components	Exemplary companies	Pattern description
9	CROWD-SOURCING	How Value	Threadless (2000), Procter & Gamble (2001), InnoCentive (2001), Cisco (2007), MyFab (2008)	The solution of a task or problem is adopted by an anonymous crowd, typically via the Internet. Contributors receive a small reward or have the chance to win a prize if their solution is chosen for production or sale. Customer interaction and inclusion can foster a positive relationship with a company, and subsequently increase sales and revenue.
10	CUSTOMER LOYALTY	What Value	Sperry & Hutchinson (1897), American Airlines (1981), Safeway Club Card (1995), Payback (2000)	Customers are retained and loyalty assured by providing value beyond the actual product or service itself, i.e., through incentive-based programs. The goal is to increase loyalty by creating an emotional connection or simply rewarding it with special offers. Customers are voluntarily bound to the company, which protects future revenue.
11	DIGITIZATION	What How	Spiegel Online (1994), WXYC (1994), Hotmail (1996), Jones International University (1996), CEWE Color (1997), SurveyMonkey (1998), Napster (1999), Wikipedia (2001), Facebook (2004), Dropbox (2007), Netflix (2008), Next Issue Media (2011)	This pattern relies on the ability to turn existing products or services into digital variants, and thus offer advantages over tangible products, e.g., easier and faster distribution. Ideally, the digitization of a product or service is realized without harnessing the value proposition which is offered to the customer. In other words: efficiency and multiplication by means of digitization does not reduce the perceived customer value.
12	DIRECT SELLING	What How Value	Vorwerk (1930), Tupperware (1946), Amway (1959), The Body Shop (1976), Dell (1984), Nestlé Nespresso (1986), First Direct (1989), Nestlé Special.T (2010), Dollar Shave Club (2012), Nestlé BabyNes (2012)	Direct selling refers to a scenario whereby a company's products are not sold through intermediary channels, but are available directly from the manufacturer or service provider. In this way, the company skips the retail margin or any additional costs associated with the intermediates. These savings can be forwarded to the customer and a standardized sales experience established. Additionally, such close contact can improve customer relationships.
13	E-COMMERCE	What How Value	Dell (1984), Asos (2000), Zappos (1999), Amazon Store (1995), Flyeralarm (2002), Blacksocks (1999), Dollar Shave Club (2012), Winebid (1996), Zopa (2005)	Traditional products or services are delivered through online channels only, thus removing costs associated with running a physical branch infrastructure. Customers benefit from higher availability and convenience, while the company is able to integrate its sales and distribution with other internal processes.
14	EXPERIENCE SELLING	What Who Value	Harley Davidson (1903), IKEA (1956), Trader Joe's (1958), Starbucks (1971), Swatch (1983), Nestlé Nespresso (1986), Red Bull (1987), Barnes & Noble (1993), Nestlé Special.T (2010)	The value of a product or service is increased with the customer experience offered with it. This opens the door for higher customer demand and commensurate increase in prices charged. This means that the customer experience must be adapted accordingly, e.g., by attuning promotion or shop fittings.
15	FLAT RATE	What Value	SBB (1898), Buckaroo Buffet (1946), Sandals Resorts (1981), Netflix (1999), Next Issue Media (2011)	In this model, a single fixed fee for a product or service is charged, regardless of actual usage or time restrictions on it. The user benefits from a simple cost structure while the company benefits from a constant revenue stream.
16	FRACTIONAL OWNERSHIP	What How Value	Hapimag (1963), Netjets (1964), Mobility Carsharing (1997), écurie25 (2005), HomeBuy (2009)	Fractional ownership describes the sharing of a certain asset class amongst a group of owners. Typically, the asset is capital intensive but only required on an occasional basis. While the customer benefits from the rights as an owner, the entire capital does not have to be provided alone.

No	Pattern name	Affected BM components	Exemplary companies	Pattern description
17	FRANCHISING	What How Value	Singer Sewing Machine (1860), McDonald's (1948), Marriott International (1967), Starbucks (1971), Subway (1974), Fressnapf (1992), Naturhouse (1992), McFit (1997), BackWerk (2001)	The franchisor owns the brand name, products, and corporate identity, and these are licensed to independent franchisees who carry the risk of local operations. Revenue is generated as part of the franchisees' revenue and orders. The franchisees benefit from the usage of well known brands, know-how, and support.
18	FREEMIUIM	What Value	Hotmail (1996), SurveyMonkey (1998), LinkedIn (2003), Skype (2003), Spotify (2006), Dropbox (2007)	The basic version of an offering is given away for free in the hope of eventually persuading the customers to pay for the premium version. The free offering is able to attract the highest volume of customers possible for the company. The generally smaller volume of paying 'premium customers' generate the revenue, which also cross-finances the free offering.
19	FROM PUSH-TO-PULL	What How	Toyota (1975), Zara (1975), Dell (1984), Geberit (2000)	This pattern describes the strategy of a company to decentralize and thus add flexibility to the company's processes in order to be more customer focused. To quickly and flexibly respond to new customer needs, any part of the value chain - including production or even research and development - can be affected.
20	GUARANTEED AVAILABILITY	What How Value	NetJets (1964), PHH Corporation (1986), IBM (1995), Hilti (2000), MachineryLink (2000), ABB Turbo Systems (2010)	Within this model, the availability of a product or service is guaranteed, resulting in almost zero downtime. The customer can use the offering as required, which minimizes losses resulting from downtime. The company uses expertise and economies of scale to lower operation costs and achieve these availability levels.
21	HIDDEN REVENUE	What How Value	JCDecaux (1964), Sat.1 (1984), Metro Newspaper (1995), Google (1998), Facebook (2004), Spotify (2006), Zattoo (2007)	The logic that the user is responsible for the income of the business is abandoned. Instead, the main source of revenue comes from a third party, which cross-finances whatever free or low-priced offering attracts the users. A very common case of this model is financing through advertisement, where attracted customers are of value to the advertisers who fund the offering. This concept facilitates the idea of 'separation between revenue and customer'.
22	INGREDIENT BRANDING	What How Value	DuPont Teflon (1964), W.L. Gore & Associates (1976), Intel (1991), Carl Zeiss (1995), Shimano (1995), Bosch(2000)	Ingredient branding describes the specific selection of an ingredient, component, and brand originating from a specific supplier, which will be included in another product. This product is then additionally branded and advertised with the ingredient product, collectively adding value for the customer. This projects the positive brand associations and properties on the product, and can increase the attractiveness of the end product.
23	INTEGRATOR	What How	Carnegie Steel (1870), Ford (1908), Zara (1975), Exxon Mobil (1999), BYD Auto (1995)	An integrator is in command of the bulk of the steps in a value-adding process. The control of all resources and capabilities in terms of value creation lies with the company. Efficiency gains, economies of scope, and lower dependencies from suppliers result in a decrease in costs and can increase the stability of value creation.

No	Pattern name	Affected BM components	Exemplary companies	Pattern description
24	LAYER PLAYER	How Value	Dennemeyer (1962), Wipro Technologies (1980), TRUSTe (1997), PayPal (1998), Amazon Web Services (2002)	A layer player is a specialized company limited to the provision of one value-adding step for different value chains. This step is typically offered within a variety of independent markets and industries. The company benefits from economies of scale and often produces more efficiently. Further, the established special expertise can result in a higher quality process.
25	LEVERAGE CUSTOMER DATA	What How	Amazon Store (1995), Google (1998), Payback (2000), Facebook (2004), PatientsLikeMe (2004), 23andMe (2006), Twitter (2006), Verizon Communications (2011)	New value is created by collecting customer data and preparing it in beneficial ways for internal usage or interested third-parties. Revenues are generated by either selling this data directly to others or leveraging it for own purposes, i.e., to increase the effectiveness of advertising.
26	LICENSE	How Value	BUSCH (1870), IBM (1920), DIC 2 (1973), ARM (1989), Duales System Deutschland (1991), Max Havelaar (1992)	Efforts are focused on developing intellectual property that can be licensed to other manufacturers. This model, therefore, relies not on the realization and utilization of knowledge in the form of products, but attempts to transform these intangible goods into money. This allows a company to focus on research and development. It also allows the provision of knowledge, which would otherwise be left unused and potentially be valuable to third parties.
27	LOCK-IN	What How Value	Gillette(1904), Lego (1949), Microsoft (1975), Hewlett-Packard (1984), Nestlé Nespresso (1986), Nestlé BabyNes (2012), Nestlé Special.T (2010)	Customers are locked into a vendor's world of products and services. Using another vendor is impossible without incurring substantial switching costs, and thus protecting the company from losing customers. This lock-in is either generated by technological mechanisms or substantial interdependencies of products or services.
28	LONG TAIL	How Value	Amazon Store (1995), eBay (1995), Netflix (1999), Apple iPod/iTunes (2003), YouTube (2005),	Instead of concentrating on blockbusters, the main bulk of revenues is generated through a 'long tail' of niche products. Individually, these neither demand high volumes, nor allow for a high margin. If a vast variety of these products are offered in sufficient amounts, the profits from resultant small sales can add up to a significant amount.
29	MAKE MORE OF IT	Who What How Value	Porsche (1931), Festo Didactic (1970), BASF (1998), Amazon Web Services (2002), Sennheiser Sound Academy (2009)	Know-how and other available assets existing in the company are not only used to build own products, but also offered to other companies. Slack resources, therefore, can be used to create additional revenue besides those generated directly from the core value proposition of the company.
30	MASS CUSTOMIZATION	What Value	Dell (1984), Levi's (1990), Miadidas (2000), PersonalNOVEL (2003), Factory121 (2006), mymuesli (2007), My Unique Bag (2010)	Customizing products through mass production once seemed to be an impossible endeavor. The approach of modular products and production systems has enabled the efficient individualization of products. As a consequence, individual customer needs can be met within mass production circumstances and at competitive prices.
31	NO FRILLS	How What Value	Ford (1908), Aldi (1913), McDonald's (1948), Southwest Airlines (1971), Aravind Eye care System (1976), Accor (1985), McFit (1997), Dow Corning (2002)	Value creation focuses on what is necessary to deliver the core value proposition of a product or service, typically as basic as possible. Cost savings are shared with the customer, usually resulting in a customer base with lower purchasing power or purchasing willingness.

No	Pattern name	Affected BM components	Exemplary companies	Pattern description
32	OPEN BUSINESS MODEL	What Who Value	Valve Corporation (1998), Abril (2008)	In open business models, collaboration with partners in the ecosystem becomes a central source of value creation. Companies pursuing an open business model actively search for novel ways of working together with suppliers, customers, or complementors to open and extend their business.
33	OPEN SOURCE	Who What How Value	IBM (1955), Mozilla (1992), Red Hat (1993), mondoBIOTECH (2000), Wikipedia (2001), Local Motors (2008)	In software engineering, the source code of a software product is not kept proprietary, but is freely accessible for anyone. Generally, this could be applied to any technology details of any product. Others can contribute to the product, but also use it free as a sole user. Money is typically earned with services that are complimentary to the product, such as consulting and support.
34	ORCHESTRATOR	How Value	Procter & Gamble (1970), Li & Fung (1971), Nike (1978), Bharti Airtel (1995)	Within this model, the company's focus is on the core competencies in the value chain. The other value chain segments are outsourced and actively coordinated. This allows the company to reduce costs and benefit from the suppliers' economies of scale. Furthermore, the focus on core competencies can increase performance.
35	PAY PER USE	What How Value	Hot Choice (1988), Google (1998), Ally Financial (2004), Better Place (2007), Car2Go (2008)	In this model, the actual usage of a service or product is metered. The customer pays on the basis of what he or she effectively consumes. The company is able to attract customers who wish to benefit from the additional flexibility, which might be priced higher.
36	PAY WHAT YOU WANT	How Value	One World Everbody Eats (2003), NoiseTrade (2006), Radiohead (2007), Humble Bundle (2010), Panera Bread Bakery (2010)	The buyer pays any desired amount for a given commodity, sometimes even zero. In some cases, a minimum floor price may be set, and/or a suggested price may be indicated as guidance for the buyer. The customer is allowed to influence the price, while the seller benefits from higher numbers of attracted customers, since individuals' willingness to pay is met. Based on the existence of social norms and morals, this is only rarely exploited, which makes it suitable to attract new customers.
37	PEER-TO-PEER	What Value	eBay (1995), Craigslist (1996), Napster (1999), Couchsurfing (2003), LinkedIn (2003), Skype (2003), Zopa (2005), SlideShare (2006), Twitter (2006), Dropbox (2007), Airbnb (2008), TaskRabbit (2008), RelayRides (2010), Gidsy (2011)	This model is based on a cooperation that specializes in mediating between individuals belonging to an homogeneous group. It is often abbreviated as P2P. The company offers a meeting point, i.e., an online database and communication service that connects these individuals (these could include offering personal objects for rent, providing certain products or services, or the sharing of information and experiences).
38	PERFORMANCE-BASED CONTRACTING	What Value	Rolls-Royce (1980), Smartville (1997), BASF (1998), Xerox (2002)	A product's price is not based upon the physical value, but on the performance or valuable outcome it delivers in the form of a service. Performance based contractors are often strongly integrated into the value creation process of their customers. Special expertise and economies of scale result in lower production and maintenance costs of a product, which can be forwarded to the customer. Extreme variants of this model are represented by different operation schemes in which the product remains the property of the company and is operated by it.

No	Pattern name	Affected BM components	Exemplary companies	Pattern description
39	RAZOR AND BLADE	What How Who	Standard Oil Company (1880), Gillette (1904), Hewlett-Packard (1984), Nestlé Nespresso (1986), Apple iPod/iTunes (2003), Amazon Kindle (2007), Better Place (2007), Nestlé Special.T (2010), Nestlé BabyNes (2012)	The basic product is cheap or given away for free. The consumables that are needed to use or operate it, on the other hand, are expensive and sold at high margins. The initial product's price lowers customers' barriers to purchase, while the subsequent recurring sales cross-finance it. Usually, these products are technologically bound to each other to further enhance this effect.
40	RENT INSTEAD OF BUY	What How Value	Saunders System (1916), Xerox (1959), Blockbuster (1985), Rent a Bike (1987), Mobility Carsharing (1997), MachineryLink (2000), CWS-boco (2001), Luxusbase (2006), Flexpetz (2007), Car2Go(2008)	The customer does not buy a product, but instead rents it. This lowers the capital typically needed to gain access to the product. The company itself benefits from higher profits on each product, as it is paid for the duration of the rental period. Both parties benefit from higher efficiency in product utilization as time of non-usage, which unnecessarily binds capital, is reduced on each product.
41	REVENUE SHARING	What How Value	CDnow (1994), HubPages(2006), Apple iPhone/AppStore(2008), Groupon (2008)	Revenue sharing refers to firms' practice of sharing revenues with their stakeholders, such as complementors or even rivals. Thus, in this business model, advantageous properties are merged to create symbiotic effects in which additional profits are shared with partners participating in the extended value creation. One party is able to obtain a share of revenue from another that benefits from increased value for its customer base.
42	REVERSE ENGINEERING	What Value	Bayer (1897), Pelikan (1994), Brilliance China Auto (2003), Denner (2010)	This pattern refers to obtaining a competitor's product, taking it apart, and using this information to produce a similar or compatible product. Because no huge investment in research or development is necessary, these products can be offered at a lower price than the original product.
43	REVERSE INNOVATION	What Value	Logitech (1981), Haier (1999), Nokia (2003), Renault (2004), General Electric (2007)	Simple and inexpensive products, that were developed within and for emerging markets, are also sold in industrial countries. The term 'reverse' refers to the process by which new products are typically developed in industrial countries and then adapted to fit emerging market needs.
44	ROBIN HOOD	How What	Aravind Eye Care System (1976), One Laptop per Child (2005), TOMS Shoes (2006), Warby Parker (2008)	The same product or service is provided to 'the rich' at a much higher price than to 'the poor'. Thus, the main bulk of profits are generated from the wealthy customer base. Serving 'the poor' is not profitable per se, but creates economies of scale, which other providers cannot achieve. Additionally, it has a positive effect on the company's image.
45	SELF-SERVICE	What How	McDonald's (1948), IKEA (1956), Accor (1985), Mobility Carsharing (1997), BackWerk (2001), Car2Go (2008)	A part of the value creation is transferred to the customer in exchange for a lower price of the service or product. This is particularly suited for process steps that add relatively little perceived value for the customer, but incur high costs. Customers benefit from efficiency and time savings, while putting in their own effort. This can also increase efficiency, since in some cases, the customer can execute a value-adding step more quickly and in a more target-oriented manner than the company.

No	Pattern name	Affected BM components	Exemplary companies	Pattern description
46	SHOP-IN-SHOP	Who Value	Tim Hortons (1964), Tchibo (1987), Deutsche Post (1995), Bosch (2000), MinuteClinic (2000)	Instead of opening new branches, a partner is chosen whose branches can profit from integrating the company's offerings in a way that imitates a small shop within another shop (a win-win situation). The hosting store can benefit from more attracted customers and is able to gain constant revenue from the hosted shop in the form of rent. The hosted company gains access to cheaper resources such as space, location, or workforce.
47	SOLUTION PROVIDER	What How	Lantal Textiles (1954), Heidelberger Druckmaschinen (1980), Tetra Pak (1993), Geek Squad (1994), CWS-boco (2001), Apple iPod/iTunes (2003), 3M Services (2010)	A full service provider offers total coverage of products and services in a particular domain, consolidated via a single point of contact. Special know-how is given to the customer in order to increase his or her efficiency and performance. By becoming a full service provider, a company can prevent revenue losses by extending their service and adding it to the product. Additionally, close contact with the customer allows great insight into customer habits and needs which can be used to improve the products and services.
48	SUBSCRIPTION	How What	Blacksocks (1999), Netflix (1999), Salesforce (1999), Jamba (2004), Spotify (2006), Next Issue Media (2011), Dollar Shave Club (2012)	The customer pays a regular fee, typically on a monthly or an annual basis, in order to gain access to a product or service. While customers mostly benefit from lower usage costs and general service availability, the company generates a more steady income stream.
49	SUPER-MARKET	What Value	King Kullen Grocery Company (1930), Merrill Lynch (1930), Toys“R”Us (1948), The Home Depot (1978), Best Buy (1983), Fressnapf (1985), Staples (1986)	A company sells a large variety of readily available products and accessories under one roof. Generally, the assortment of products is large but the prices are kept low. More customers are attracted due to the great range on offer, while economies of scope yield advantages for the company.
50	TARGET THE POOR	What How Value	Grameen Bank (1983), Arvind Mills (1995), Bharti Airtel (1995), Hindustan Unilever (2000), Tata Nano (2009), Walmart (2012)	The product or service offering does not target the premium customer, but rather, the customer positioned at the base of the pyramid. Customers with lower purchasing power benefit from affordable products. The company generates small profits with each product sold, but benefits from the higher sales numbers that usually come with the scale of the customer base.
51	TRASH-TO-CASH	Who What How Value	Duales System Deutschland (1991), Freitag lab.ag (1993), Greenwire (2001), Emeco (2010), H&M (2012)	Used products are collected and either sold in other parts of the world or transformed into new products. The profit scheme is essentially based on low-to-no purchase prices. Resource costs for the company are practically eliminated, whilst the supplier's waste disposal is either provided, or associated costs are reduced. This also addresses customers' potential environmental awareness ideals.
52	TWO-SIDED MARKET	What How Value	Diners Club (1950), JCDecaux (1964), Sat.1 (1984), Amazon Store (1995), eBay (1995), Metro Newspaper (1995), Priceline (1997), Google (1998), Facebook (2004), MyHammer(2005), Elance (2006), Zattoo (2007), Groupon (2008)	A two-sided market facilitates interactions between multiple interdependent groups of customers. The value of the platform increases as more groups or as more individual members of each group are using it. The two sides usually come from disparate groups, e.g., businesses and private interest groups.

No	Pattern name	Affected BM components	Exemplary companies	Pattern description
53	ULTIMATE LUXURY	What Value	Lamborghini (1962), Jumeirah Group (1994), MirCorp (2000), The World (2002), Abbot Downing (2011)	This pattern describes the strategy of a company to focus on the upper side of society's pyramid. This allows a company to distinguish its products or services greatly from others. High standards of quality or exclusive privileges are the main focus to attract these kinds of customers. The necessary investments for these differentiations are met by the relatively high prices that can be achieved - which usually allow for very high margins.
54	USER DESIGNED	What How Value	Spreadshirt (2001), Lulu (2002), Lego Factory (2005), Amazon Kindle (2007), Ponoko (2007), Apple iPhone/AppStore (2008), Createmytattoo (2009), Quirky (2009)	Within user manufacturing, a customer is both the manufacturer and the consumer. As an example, an online platform provides the customer with the necessary support in order to design and merchandise the product, e.g., product design software, manufacturing services, or an online shop to sell the product. Thus, the company only supports the customers in their undertakings and benefits from their creativity. The customer benefits from the potential to realize entrepreneurial ideas without having to provide the required infrastructure. Revenue is then generated as part of the actual sales.
55	WHITE LABEL	What How	Foxconn (1974), Riche-lieu Foods (1994), Printing-In-A-Box (2005)	A white label producer allows other companies to distribute its goods under their brands, so that it appears as if they are made by them. The same product or service is often sold by multiple marketers and under different brands. This way, various customer segments can be satisfied with the same product.