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The Impact of Digitalization on Firms' Business Models. Opportunities and Limitations for Digital Leader

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ABSTRACT

Digital innovations are often disruptive and result in a radical organizational change. To overcome this barrier and remain competitive, companies need to transform their business and adapt towards the new customer and market requirements. Especially with the new possibilities arising from Digitalization, Big Data, Internet of Things, and Industry 4.0 firms need to embrace new technological innovations, reflect on their current strategy, and explore new business opportunities systematically at early stages. To understand the impact of digitalization on firms' business models as well as the role of a digital leader in the business model innovation process, a twofold literature review has been conducted using Scopus as the database. The literature reviews have shown that digitalization has a big influence on companies' business models and forcing them to a digital transformation. To be successful in this changing process, dynamic capabilities as well as a digital leader with certain characteristics are playing an important role. Furthermore, a direct and indirect impact of the digital leader on the business model innovation has been identified. This paper contributes to a more precise and comprehensive understanding of business model innovation, digital transformation, and digital leadership, and proposes future avenues for research.

1. Introduction

The number of connected devices is growing tremendously over the last years. According to statista.com currently 8.74 billion devices are connected worldwide and according to their forecast, the number will be tripled to more than 25.4 billion in 2030 (Holst, 2021). Additionally, the need of companies collecting as much customer data as possible has grown, as this amplifies personalization degree of the offer to the smallest detail (Fernández-Rovira et al., 2021, p. 9) and enables the possibility to offer digital services to the customer (Caputo et al., 2020, p. 489). Due to the need of data collection and data interpretation, a new type of company have even appeared, which capture Big Data, analyses it and deliver the insights to the company that has hired them (Fernández-Rovira et al., 2021, p. 4).

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As shown above, terms like "Digitization", "Digitalization", "Big Data", "Digital Transformation" and "Internet of Things" – also known as the fourth Industrial Revolution "Industry 4.0" (Ibarra et al., 2018, p. 5) - are not trendy buzzwords anymore, but topics which are more relevant than ever for companies and brings a disruptive change in companies businesses (Pereira & Romero, 2017, p. 1207). According to Sjödin Parida (2019) the application of digital technologies enables business model innovation, which then leads to a whole business model transformation by changing the way of creating, capturing and delivering value to the customer (Parida et al., 2019, p. 9). Just to name one example from a wide range of opportunities, by collecting and analysing customer data (e.g. user behaviour), companies can increase customer loyalty by creating personalized offers and differentiate themselves from the competition (Fernández-Rovira et al., 2021, p. 10).

Quite a few studies have described three different ways in which digitalization influences and changes firms business models: the digitization of products and services; digital processes and decision making with the aid of Industry 4.0, Big Data or Artificial Intelligence; and, the transformation of the value proposition and operating model as such (Rachinger et al., 2019, p. 1146). Especially new developments like the mobile revolution, social media, the power of analytics, cloud based platforms and Internet of Things - also known as SMACIT (Sebastian et al., 2017, p. 197) - led to the digital transformation of business models (Rachinger et al., 2019, p. 1145). This digital transformation has been pointed out as a competitive advantage and if companies want to survive, they need to adapt to the new environment as fast as possible. However, to be successful it is not only about having innovative technologies in place. A firm's innovation can be remarkably good but if the business model has not been thought through properly, the innovator will fail (David J. Teece, 2010, p. 186). Thereby, the business model is functioning as a connection between firms innovative technology towards the customer needs as well as to their own technological resources (Zott et al., 2011). In other words, if the inventors want to capture value, the technological innovation needs to be matched with the business model innovation (David J. Teece, 2010, p. 186).

It is important to point out, that a business model is not the same as the strategy of a firm. A business model is shaping a firm's strategy, which conversely means that a business model has an impact on the feasibility of a strategy (D. J. Teece, 2018, p. 44). The topic "business model" as such is not very new, as it was already becoming a hype with the rise of e-commerce in the 1990s (Bleicher & Stanley, 2016, p. 62). The first person who wrote an article and used the term "business model" in the headline was G. M. Jones in the year 1960 (DaSilva & Trkman, 2014, p. 380). However, the last few years have witnessed a growing academic interest in this area. As business models are playing a vital role in the success of digital transformation of companies, the first aim of this paper is to gain insights into the impact of digitalization on firms' business models and a comprehensive understanding of the relationship between business model, dynamic capabilities, and innovation by conducting a structural literature review.

Furthermore, a strong relationship between digital leadership, innovation and business model has been reported in the literature (Mihardjo, Sasmoko, Alamsjah, & Elidjen, 2019b, p. 1752). It seems, that digital leadership plays a key role in driving the digital transformation successfully (Mihardjo, Sasmoko, Alamsjah, & Elidjen, 2019b, p. 1752; Sawy et al., 2016, p. 162). Therefore, the second goal of this paper is to elaborate opportunities and limitations of a digital leader and which role, in general a digital leader plays in the business model innovation process.

The structure of this paper is divided into three sections: (i) To increase clarity in the complex area of digitalization in general, the author provides a set of definitions based on a review of

current literature for the terms: Business Model, Business Model Innovation, Digital Leader, Digital Transformation, Digitalization, Digitization, Dynamic Capabilities, and Industry 4.0. Through the analysis of existing literature, a common understanding of the definitions as well as their potential interrelationships can be derived. (ii) In the next step, a twofold systematic literature research has been performed in regards of digitalization and its impact on business model as well as business model and digital leader. (iii) In the last section the role of a digital leadership, its opportunities and the limitations are described.

2. Definitions

With the intention to provide clarity on the used terminology, this section describes definitions of the terms used in this paper and how they are related to the business model topic. The terms are listed in alphabetical order.

Business Model (BM): has as many definitions as there are BMs. The table below show the diversity of the definitions coming from different authors sorted by the years.

Table 1.
Different definitions of "Business Model" over the years

Reference	Definitions of "Business Model"
(R. Amit & Zott, 2001)	BM as a unifying unit of analysis that captures the value creation arising from multiple sources. It describes the design of transaction content, structure, and governance to create value through the exploitation of business opportunities.
(Chesbrough & Rosenbloom, 2002)	A BM is the method of doing and generating revenue. The BM spells out how a company makes money by specifying where it is positioned in the value chain.
(Osterwalder, 2004)	A BM is a conceptual tool that contains a set of elements and their relationships and allows expressing a company's logic of earning money. It describes the offered value of a company to one or several customer segments and the architecture of the firm and its network of partners for creating, marketing, and delivering this value and relationship capital, to generate profitable and sustainable revenue streams.
(Morris et al., 2005)	A BM is a concise representation of how an interrelated set of decision variables in the areas of venture strategy, architecture, and economics are addressed to create sustainable competitive advantage in defined markets.
(Bouwman et al., 2008)	A BM describes the 'business logic' of a firm or service, i.e., the way value is created for customers and providers capture value.
(David J. Teece, 2010)	The essence of a BM is in defining how the enterprise delivers value to customers, entices customers to pay for value, and converts those payments to profit. It thus reflects management's hypothesis about what customers want, how they want it, and how the enterprise can organize to best meet those needs, get paid for doing so, and make a profit.
(Wirtz et al., 2016)	A BM is a simplified and aggregated representation of the relevant activities of a company. It describes how marketable information, products and/or services are generated by means of a company's value-added component. In addition to the architecture of value creation, strategic as well as customer and market components are taken into consideration, to achieve the superordinate goal of generating, or rather, securing the competitive advantage.
(Hacklin et al., 2018)	The BM as the logic and the activities that create and appropriate economic value as well as the link between value creation and value capture.
(Bican & Brem, 2020)	BM describes the concept of generating economic value with a solution.

It can be seen that there is no real common definition of a BM (Bouwman et al., 2018, p. 107). In summary it can be said that a BM encompasses all internal and external activities of a company which is needed to meet customer needs. In other words, it represents how a company buys and sells goods and services and earns money (Osterwalder, 2004). Mainly, it is all about creating and delivering value for the customer and generating revenue (Bouwman et al., 2008, p. 13).

Business Model Innovation (BMI) describes a change in existing BMs in regards of the way a company is creating and capturing value and has an impact on their customers and partners. (Bouwman et al., 2018, p. 105). BMI depicts the adjustment of all internal factors of a BM with the goal to fulfil the new requirements coming from the inside or outside of the BM (Maffei et al., 2019, p. 766).

Digital Leader is understood as a combination of digital culture and digital competence (Mihardjo, Sasmoko, Alamsjah, & Elidjen, 2019b, p. 1750). Digital leadership is a combination of a personal, organizational and market transformation (Fisk, 2002, p. 50).

Digital Transformation (DT) is a change process where companies are adapting to new organizational structures as well as environmental alterations and competences needed to stay competitive (Saarikko et al., 2020, p. 829). DT is the outcome of the interaction between Digital Technology, Digital BM and Digital Innovation and on the other hand, DT is also influenced by the organization of a firm, its digital readiness and the external collaborations (Bican & Brem, 2020).

Digitalization & Digitization: Even though the terms "Digitalization" and "Digitization" are often used like synonyms, there are important differences in the concepts (Saarikko et al., 2020, p. 828). "Digitization" describes the converting process of analog information into digital data sets (Rachinger et al., 2019, p. 1144). "Digitalization" on the other hand, is not just based on various applications but more "the use of digital technologies to innovate a BM and provide revenue streams and value-producing opportunities in industrial ecosystems" (Parida et al., 2019).

Dynamic Capabilities can be defined as the ability of a company adapting to the rapidly changing environments by integrating, building, and configuring internal and external skills. It is mirroring company's capability to achieve new and innovative forms of competitive advantages (D. J. Teece et al., 1997, p. 516).

Industry 4.0 is a term which has been shaped by the previous three industrial revolutions. Technological advancements caused disruptive changes in manufacturing with the same goal as the previous industrial revolutions: increasing productivity and efficiency along the industrial processes (Pereira & Romero, 2017, p. 1207). Industry 4.0 is forcing the creation of new BMs or the adaptation of existing ones (BMI) based on the changing requirements from the customers by using their real-time communication capability along the whole supply chain (Pereira & Romero, 2017, p. 1209).

3. Systematic Literature Review

This chapter explains how the systematic literature review (SLR) has been conducted. The database Scopus was identified as the most relevant one for scientific publications in management science and therefore the focus of the SLR was mainly based on Scopus data (Woschank et al., 2020, p. 3). Additionally, searches have been carried out in alternative databases like Web of Science and Science Direct, but the results did not lead to significant differences. Therefore, Scopus has been selected as the main database for the SLR of this paper. The literature review has been conducted during the months January – March 2021.

In the first step a keyword search has been performed to get a first overview of the research field in general. Hence a complete screening of Scopus data has been performed to capture all literature regarding "business model". Therefore, the keywords were searched both in the title and in the abstract. The search resulted in 32.025 identified studies.

Already the first screening shows how much this research topic has gained exponentially in popularity over the years. Figure 1 shows the number of studies from 1982-2021.

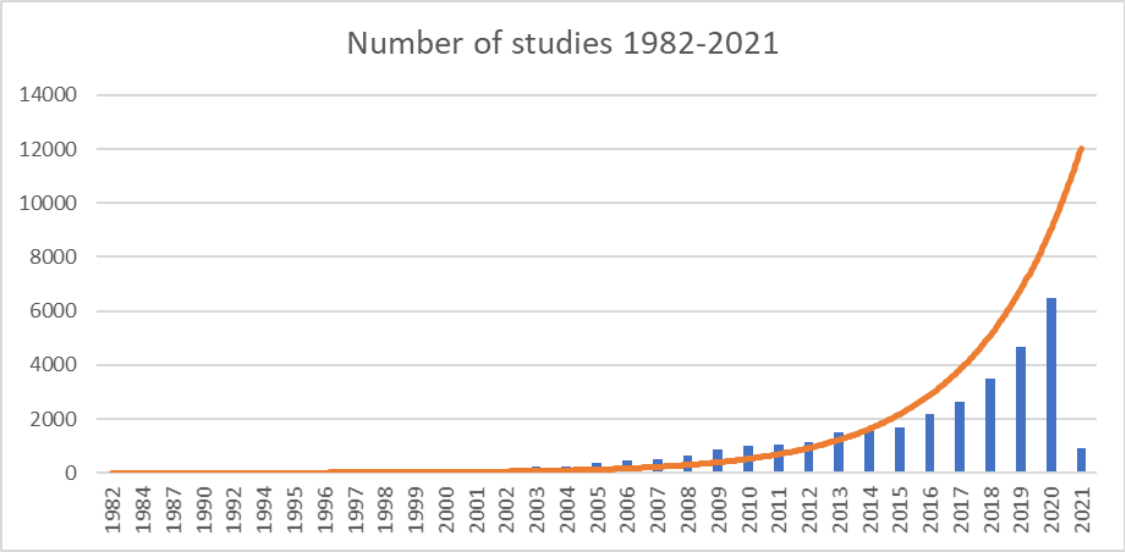

Figure 1: Number of studies related to the topic "Business Model" between 1982 - 2021 (Source: Scopus)

The intention of the first search was primarily to get a first impression of the current state of research. In a second step the author conducted a similar search and narrowed down the number of the studies by using the filter functionalities of Scopus. Figure 3 gives an overview of the article selection process and shows the pre-defined including and excluding criteria to ensure a systematic and transparent literature review.

Firstly, the data search in Scopus was done according to the following search string: to ensure a comprehensive search the keywords *"digital*"* and *"business model"* needed to be present either in the title or in the abstract of the articles. The selected keyword search is in line with previous SLR conducted in the same research field (Caputo et al., 2020, p. 491). By using the search criteria "digital*", the author ensures to include all relevant terms like digital, digitalized, Digitalization and Digital Transformation.

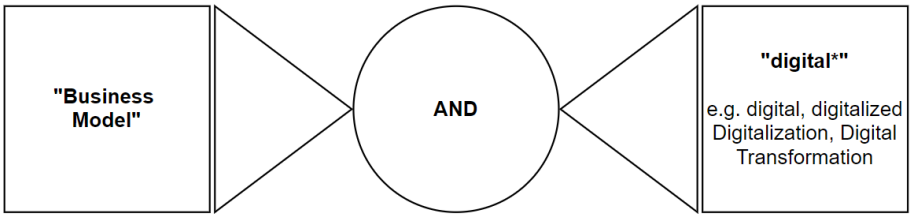

Figure 2: Combination of the keyword search "Business Model" and "digital*"

The keyword search resulted in 3.613 documents in total. Afterwards, the subject area was set to "Business Management and Accounting" and "Economics, Econometrics and Finance" and the language "English" was selected. 1209 documents remained after performing the mentioned filters. Subsequently, the author limited the document types to Article, Conference Paper, Review, Conference Review, Editorial and Short Survey. By filtering out the other document types, 996 documents remained. As Industry 4.0 appeared the first time in 2011 in Germany (Kiel et al., 2016) and the most increase of study paper came in the last 5-10 years, the author limited the years from 2011 until 2021. Now, after having 868 studies left, the author focused on the keywords and selected all the ones, which are related to the term "Business Model":

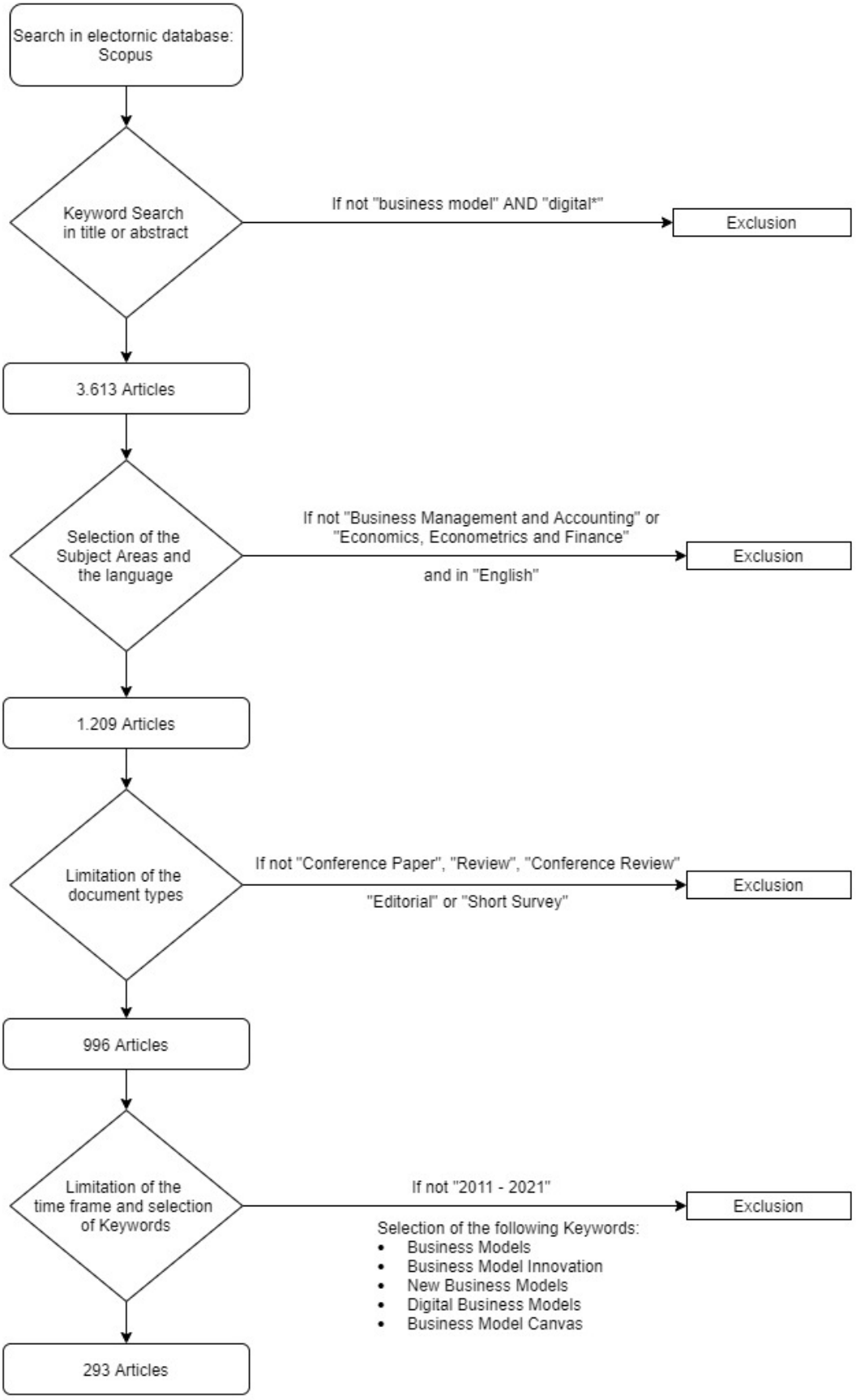

Figure 3: *Overview of the article selection process "Digitalization" and "Business Model"*

- Business Models
- Business Model Innovation
- New Business Models
- Digital Business Models
- Business Model Canvas

After limiting the search according to the above-mentioned keywords, only 293 documents remained. At the end the final meta-search query was formulated as follows:

(TITLE ("business model" AND "digital*")) OR (ABS ("business model" AND "digital*")) AND (LIMIT-TO (SUBJAREA , "BUSI") OR LIMIT-TO (SUBJAREA , "ECON")) AND (LIMIT-TO (LANGUAGE , "English")) AND (LIMIT-TO (DOCTYPE , "ar") OR LIMIT-TO (DOCTYPE , "cp") OR LIMIT-TO (DOCTYPE , "re") OR LIMIT-TO (DOCTYPE , "cr") OR LIMIT-TO (DOCTYPE , "ed") OR LIMIT-TO (DOCTYPE , "sh")) AND (LIMIT-TO (PUBYEAR , 2021) OR LIMIT-TO (PUBYEAR , 2020) OR LIMIT-TO (PUBYEAR , 2019) OR LIMIT-TO (PUBYEAR , 2018) OR LIMIT-TO (PUBYEAR , 2017) OR LIMIT-TO (PUBYEAR , 2016) OR LIMIT-TO (PUBYEAR , 2015) OR LIMIT-TO (PUBYEAR , 2014) OR LIMIT-TO (PUBYEAR , 2013) OR LIMIT-TO (PUBYEAR , 2012) OR LIMIT-TO (PUBYEAR , 2011)) AND (LIMIT-TO (EXACTKEYWORD , "Business Model") OR LIMIT-TO (EXACTKEYWORD , "Business Models") OR LIMIT-TO (EXACTKEYWORD , "Business Model Innovation") OR LIMIT-TO (EXACTKEYWORD , "New Business Models") OR LIMIT-TO (EXACTKEYWORD , "Digital Business Models") OR LIMIT-TO (EXACTKEYWORD , "Business Model Canvas"))

By reviewing the title and abstracts 113 of the 293 have been identified as relevant papers for the research area "business model and digitalization". In the next step, the identified relevant papers will be read and classified into their relevance in regards of the research topic. The word cloud in Figure 5 shows the keywords which are covered in the 110 paper that remained after the execution of the SLR.

To cover the second part of this paper a second twofold SLR have been conducted to analyse the research field of the digital leader(ship): one literature review to gain an overall understanding of the current knowledge about digital leader and digital leadership, and a second one in combination with BM, to see how these two fields are influencing each other. Again, Scopus was selected as the main database. The goal of the first search was to identify all relevant paper in regards of *"digital leader"* or *"digital leadership"*. The aforementioned search words can appear either in the title, abstract or in the keywords and resulted in 124 articles. By filtering out all subject areas except of "Business Management and Accounting" and "Economics, Econometrics and Finance" and selecting "English" as the only language for the wanted literature, 39 articles remained. As the last step the document types have been limited to article and conference paper. In total 34 papers have been identified.

In a second step almost the same search has been conducted in combination with "Business Model": TITLE-ABS-KEY (("digital leader" OR "digital leadership") AND "business model").

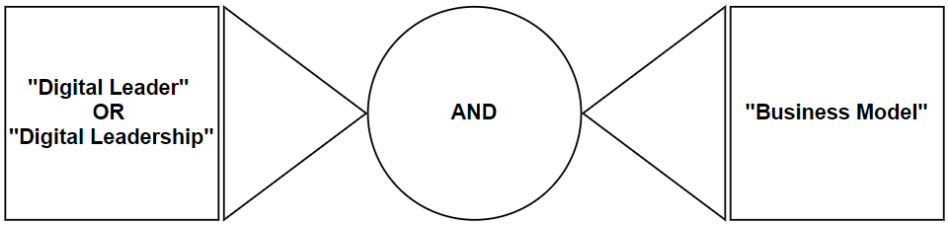

Figure 4: Combination of the keyword search ("Digital Leader" OR "Digital Leadership") AND "Business Model"

Figure 5: Word cloud generated with www.jasondavies.com

Only 12 papers have been found, published in the years 2016 – 2021, most of them in year 2016 and 2019 (see Table 2). Limiting the articles to the same criteria as in the previous SLR, only 5 paper remained, which were already included in the general search about digital leader(ship). In the next step, the author screened all the abstracts and 19 articles have been classified as "relevant".

Table 2.
Scopus data showing the number of articles in the research field "Digital Leader(ship)" AND "BM"

Year	# of documents
2021	1
2020	2
2019	3
2018	2
2017	1
2016	3

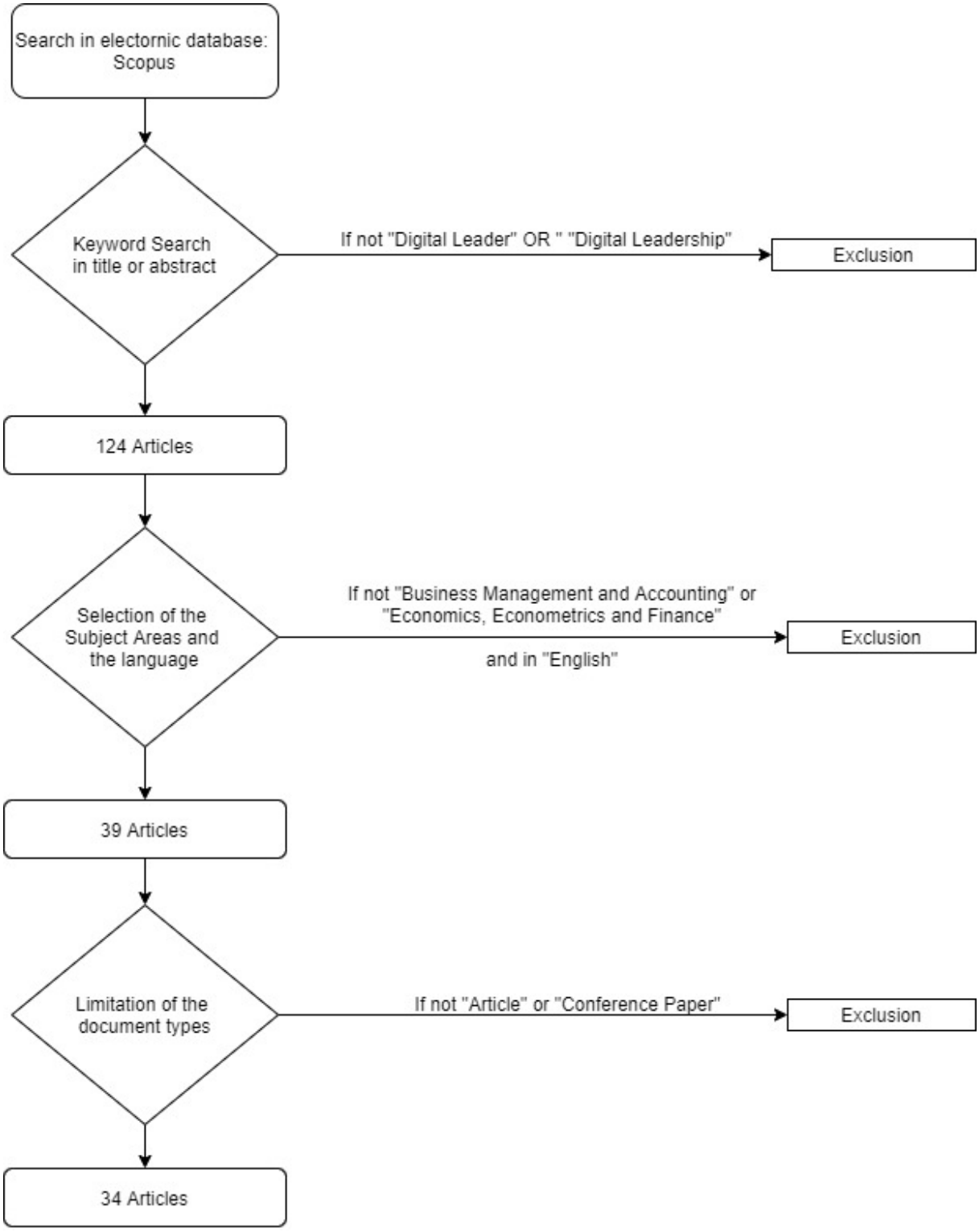

Figure 6: Overview of the article selection process "Digital Leader(ship)" AND "BM"

4. Theoretical Background

This section summaries the findings of the above conducted SLR and gives more insights in the topic how digitalization impacts firms BM and what role the digital leader plays.

4.1. Digital Transformation and Business Model Innovation

With the urge of digital adoption, firms need to improve their digital knowledge and business skills as well as drive actively the DT, which is not only about technology. It is about decreasing costs in many aspects and increasing the competitiveness of companies (Winarsih, Indriastuti, M., Fuad, K., 2021, pp. 473–474). Therefore, firms need to understand how to use the technology to handle the impact and exploit its positive effects (Fernández-Rovira et al., 2021, p. 2). DT can be seen as a process which in the first-place impacts people and company culture and which then results in needed structural and organizational changes that is necessary as a preparation for new technologies (Fernández-Rovira et al., 2021, p. 9). Additionally, DT has a deep impact to all business aspects like BM, products and services, as well as all firms activities and participants (Bican & Brem, 2020, p. 3). That makes the decision-making of the firm's BM very important, as it influences the complementary between BMs and technology and the way how a company generates revenue. Good choices can lead to a high revenue, poor choices to low revenues (Baden-Fuller & Haefliger, 2013, p. 422).

All businesses, either explicitly or implicitly, employ a particular BM (David J. Teece, 2010, p. 191). In this context, a BM is understood as a helpful concept that represent elements and relationships in all business activities with the goal of a better planning and communication by linking company's strategy with business processes (Rachinger et al., 2019, p. 1146). Contrary to investment choices which has not so much impact on the enterprise, choices on the key BM components have deep implications for the company (D. J. Teece, 2018, p. 46).

In this paper, the author is agreeing with the definitions from Osterwalder (2010), who defines a BM as a value proposition, where a product or service is offered by a company, which was generated in the value chain with different partners, available resources and several activities (value creation), sold via a specific channel to a selected customer segments (value delivery) and captures value via the revenue stream and a certain cost structure (Osterwalder & Pigneur, 2010). The BM Canvas was originally created by Osterwalder and Pigneur (2010) and adapted slightly by Eva Guldmann (2019). The model in Figure 7 shows the BM Canvas with all its nine BM building blocks and detailed explanations from Osterwalder and Pigneur (2010) and clustered in the four BM elements by Guldmann (2019): value creation, value proposition, value delivery and value capture.

It can be described as a development process of a BM, which can be either new to a company or an industry or a modification of an existing BM (Rachinger et al., 2019, p. 1146). According to (Mezger, 2014) there are three core dimensions of BMI-related capabilities: (1) identifying opportunities for new BMs, (2) designing a new BM to address the identified opportunities, and (3) implementing the new BM. This is in line with the dynamic capability framework from Teece (2018). Dynamic Capabilities are functioning as an enabler for BMs since only a dynamic company can adapt existing BMs or create new ones which fits the new environmental requirements (D. J. Teece, 2018, p. 45). A comprehensive and modified version of Teece's dynamic capability framework in combination with the adapted version of Osterwalder's BM from Guldmann (2019) can be seen in Figure 8.

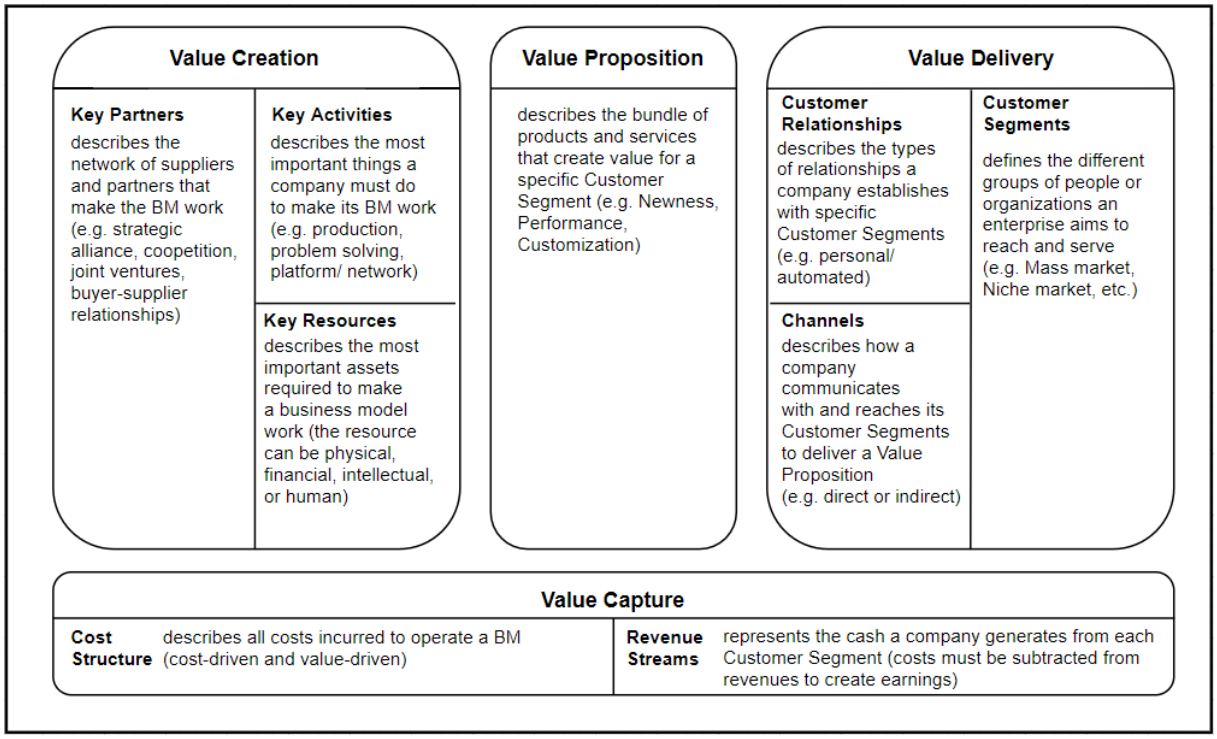

Figure 7: Adapted Business Model Canvas from Osterwalder and Pigneur (2010) by Eva Guldmann (2019)

The picture below shows that customer needs are changing constantly due to the new possibilities offered by digitalization (e.g., Big Data or Internet of Things). A company is identifying customers' new requirements (*sensing*), defining which changes need to be done on the existing BM (*seizing*) and, finally it *transforms* based on the identified information. The transformation results in a BMI and influences the way how value is created, delivered, and captured. Based on how good the customer needs have been identified in beginning of the process, the innovative product or service can lead to a high customer satisfaction and competitive advantage.

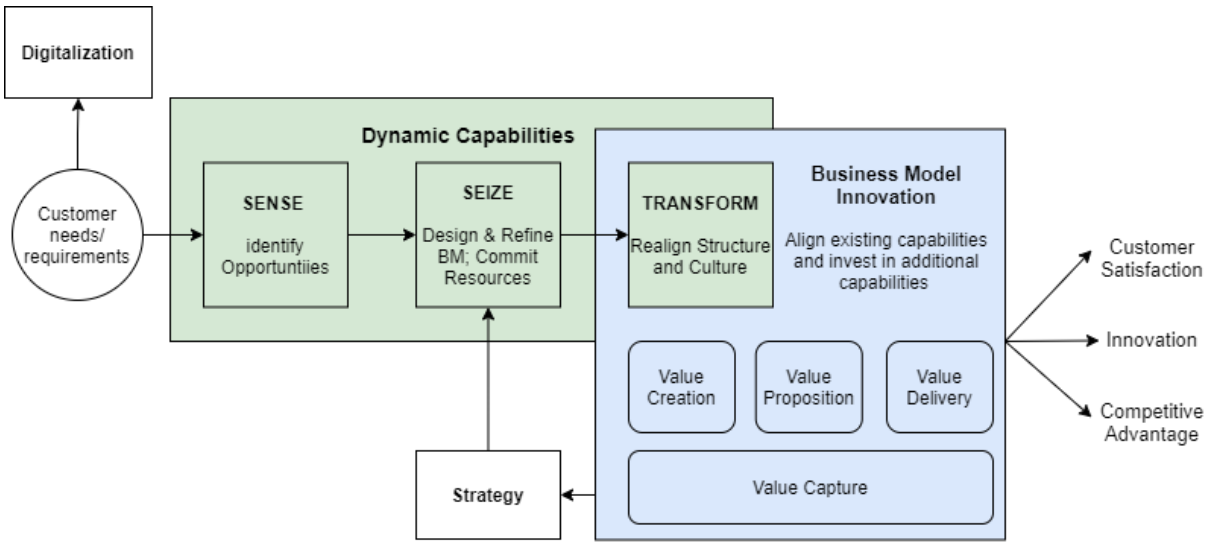

Figure 8: Merge of two Models based on Dynamic Capabilities by Teece (2018) and BM by Osterwalder (2004)

How successful a BM will become depends on the BM designing phase where the company needs to evaluate several alternatives and understands customer requirements in order to be able to deliver the value a customer requested as cost-efficient as possible and on time (Rachinger et al., 2019, p. 1147). However, the development of a successful BM does not automatically ensure competitive advantages. As soon as a new BM has been implemented, it is transparent for everyone and easy to copy by competitors (David J. Teece, 2010, p. 179). Only by having a BM which is differentiated and hard to copy as well as time effective and efficient, a competitive advantage can be ensured (David J. Teece, 2010, p. 180). BM pioneers often own or develop overtime an understanding of the 'deep truth' about the fundamental customer requirements and how competitors are - or are not - fulfilling them paired with the knowledge of the technological and organizational possibilities to improve the situation (David J. Teece, 2010, p. 188). Therefore the use of a new technology is not absolutely necessary, but they must understand customer needs, the possibilities technology is offering, and the organizational logic (David J. Teece, 2010, p. 188).

But which impact have Digitalization has on firms' BM? That is a question that many companies are confronted with – especially the not-digital-born companies. It can be said, that digitalization impacts de facto every industry as it effects corporate strategies and challenges existing BMs (Rachinger et al., 2019, p. 1144). Especially with the new possibilities offered by Big Data, Internet of Things (IoT) and Industry 4.0, a lot of new technological possibilities have emerged. One of the biggest marketing advantages of IoT for instance, is that it supports decisions and campaigns using real-time data (Sestino et al., 2020, p. 6), as physical items are now monitorable or manageable even from the distance via remote-connectivity (Bleicher & Stanley, 2016, p. 64). After a one-time investment in a network infrastructure, IoT enables digitally transmission of signals without any errors and zero marginal costs and has therefore an enduring effect on BMs (Bleicher & Stanley, 2016). A clear trend is visible, that shows that the number of companies adopting IoT technologies is rising similar to the number of connected devices world-wide (Sestino et al., 2020, p. 1). With the collection of Big Data from their customers, companies have the opportunity to foster user-centred and user-driven innovation (Ciampi et al., 2021, p. 1). As the whole IoT domain is demanding for new service concepts, companies need to change their existing BMs and the way they create and capture value. Therefore, they need to shift from product to service mindset (Iivari et al., 2016, p. 46). Recently, three super-patterns of Industry 4.0 and BMs have been identified: *integration* of the BM around the new processes, *servitization* around new products and *expertization* around a hybrid of product and process (Weking et al., 2020, p. 8). In this context servitization is a company's intention to create mutual value by shifting from product selling to product-service-systems (PSS) (Suppatvech et al., 2019, p. 70).

It is not always advisable to digitalize the BM too early if the current one is performing well and there is no big risk expected from competitors to steal market shares. A digitalization in such a scenario could lead to a cannibalization of the existing business and a decrease of margins with the new digital BM (Bican & Brem, 2020, p. 9). Furthermore, as innovations do cost a lot of time and money, more and more companies are now using BMI as an alternative to inventing a new product or process (Raphael Amit & Zott, 2012, p. 37). Having the courage to experiment on new ideas to develop new BMs is a big chance to learn and be ahead of the rest of the market (Chesbrough, 2010, p. 359). A systematic BMI is an iterative cycle between generating ideas (sensing) and developing, trying, and testing of new BM configurations (seizing) (Mezger, 2014). There is a difference between companies with strong or weak dynamic capabilities. Firms with weak dynamic capability might even miss the opportunity to change the existing BM and if they do, the new adapted model is still leaned on the old process of the previous BM. Firms with strong dynamic capabilities, the management has less fear to

create a completely new BM and to shift all resources and activities (D. J. Teece, 2018, p. 45). The most important task of a firm's management is to seek non-stop for new opportunities and to realize them. Company's management see new BMs often as a thread for the old one as the profitability is much lower in the beginning (Chesbrough, 2010, p. 358). Therefore, an open mind and the willingness to change the existing and familiar routines are needed. This process is more like a continuous process than just a one time job (D. J. Teece, 2018, p. 46).

In the next section the author clarifies which role the Digital Leader plays in the BMI process.

4.2. Business Model and the Role of a Digital Leader

As mentioned in the previous section, the willingness and openness of a company's management are crucial to change existing or create completely new BMs. Due to the technological disruption the digital era is also called VUCA (Volatility, Uncertainty, Complexity and Ambiguity), what requires the transformation of firms as well as the dynamic capabilities to sense, seize and transform according to new changes in the market (Sasmoko et al., 2019, p. 2) – also seen as an enhancement of the resource-based view concept (Sasmoko et al., 2019, p. 3). In this context, the role of a leadership becomes more and more important for companies with dynamic capabilities.

To manage the complexity and the impact of VUCA, nowadays a leader needs a long term view, the ability to navigate the changes and mitigate potential risks combined with having a detailed plan on how to cope with all the mentioned challenges (Sasmoko et al., 2019, p. 3). According to a recent research, VUCA and the disruptive era influences the Market orientation, which represents the marketing concept implementation with the goal to improve the value for the customer in regards to their changing requirements and adapt appropriately (Sasmoko et al., 2019, p. 2). This ability is called *intelligent capability* including intelligence dissemination, intelligence generation and intelligence responsiveness (Anim et al., 2018). Significantly influenced by market orientation, the dynamic capability of a company is considered as an important resource-based view, which can be clustered in strategic, management, adaptive and innovative capability. Generally, it is all about the adaptation and transformation of an organization according to the continuously changing environment (market and customer requirements). Based on previous studies, Sasmoko (2019) identified five characteristics of a digital leader like creativity, deep knowledge, global vision and collaboration, thinking, inquisition (Sasmoko et al., 2019, p. 5). The combination of the dynamic capabilities and digital leadership characteristics influences the innovation management covering product innovation, innovation process, positioning innovation in the market and paradigm innovation as a part of the BMI (Sasmoko et al., 2019, p. 5).

Seeing this complexity, a digital leader requires several new capabilities which needs some detailed explanation. A digital leader needs to develop specific ability and competences for a better management of uncertainties and an improved way of leading organizations through the DT. In this context, an overall vision needs to be defined by the leader. Furthermore, a deep knowledge and understanding helps a better decision-making and can be supported via technology. The abilities thinking and inquisition are related to the challenges to react quickly on changes, identify opportunities on time and minimize potential risk in advance. Lastly, another important capability is the creativity of the digital leader, which enables taking digital opportunities identified by the BMI process (Sasmoko et al., 2019, p. 10). In a recent paper, Sasmoko (2019) has proofed that a digital leadership has a significant influence in driving market orientation and innovation management.

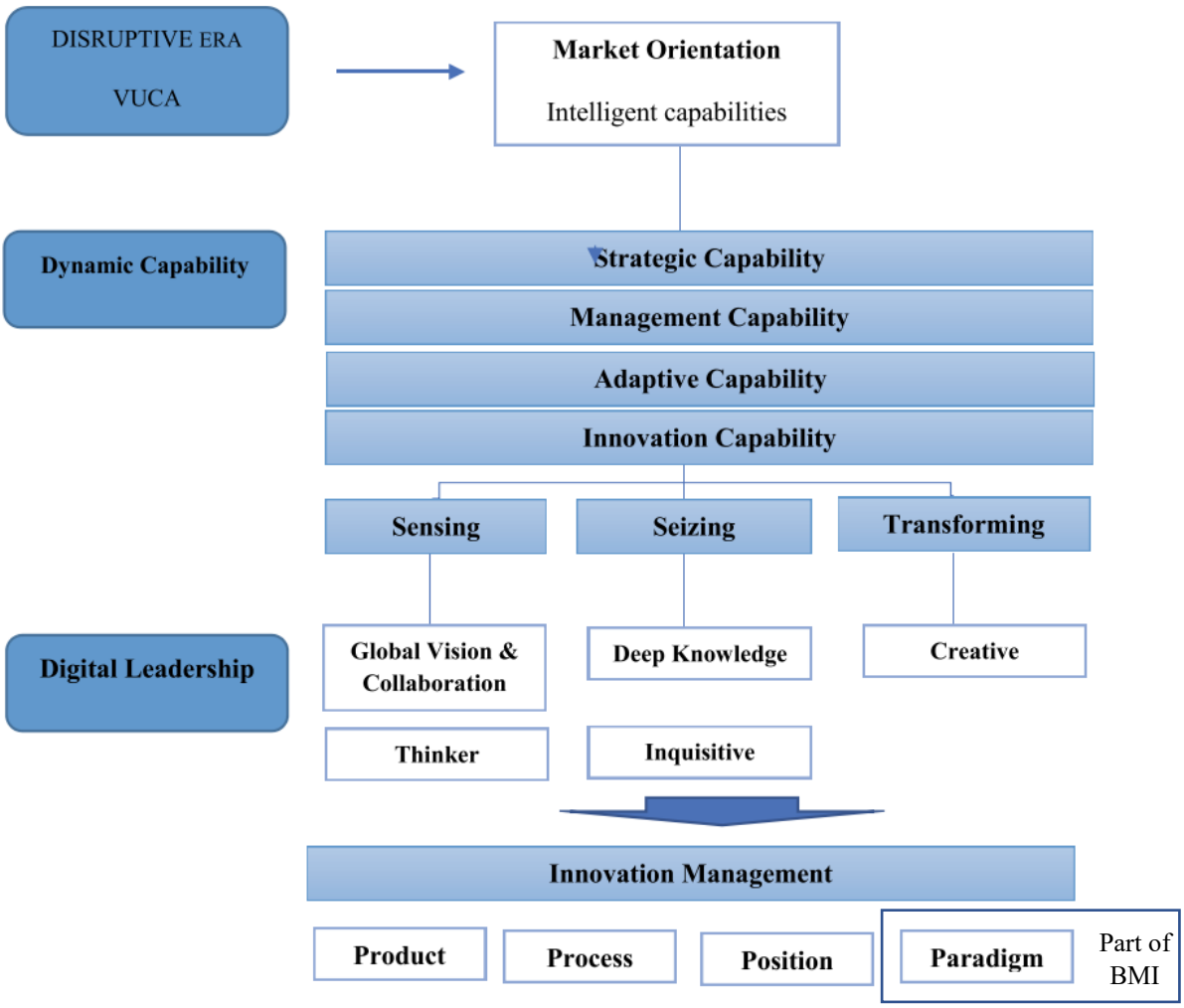

Figure 9: Dynamic Capability based on Innovation Management (adapted model from Sasmoko, 2019)

The list of characteristics shown before, is similar to the one presented already in 2002 by Fisk. The author presented four characteristics, which a so called *transformational leader* needs to have (Fisk, 2002, pp. 49–50):

- *Visionary*: not afraid of the complexity and taking new opportunities with a clear strategy
- *Engaging*: acts as a guide, coaches actively and supports others in the organization by connecting the vision with all the required actions
- *Fusing:* uses the network in the organization to connect all the relevant topics together and fuse talents and opportunities to create enduring value
- *Collaborating:* seeks for collaboration outside the company and looking for partnerships, joint ventures and outsourcing possibilities which is needed for the overall firm's strategy

The success of a company is lying in the transformation of the organization and of the market. Companies which try to transform themselves but are led by leaders who are either not open for a transformation or stuck in their old habits, limits the success. Companies which transform the business but not the market, makes it possible to catch-up with the competition, but will not result in becoming a market leader. This leads to the assumption that transformation must come from within each individual (Fisk, 2002, p. 50). As part of the DT, the digital leadership also plays a significant role and has a direct and indirect influence on the BMI process of a

company (Mihardjo, Sasmoko, Alamsjah, & Elidjen, 2019b, p. 9). The five identified characteristics global mind set, creativity, deep knowledge, thinker and inquisition support the BMI process (Mihardjo, Sasmoko, Alamsjah, & Elidjen, 2019b, p. 9).

A good example shows LEGO, in defining six foundational building blocks of strategy and organization which needs to change when a company implements a digitalization strategy: business strategy, business model, enterprise platform integration, people mindset and skill set, corporate IT function and workplace. The starting point of the digitalization journey of LEGO was in 2004, when the new CEO was announced. By functioning as a digital leader, he conducted changes in all the six building blocks, successfully transformed the whole organization and inspired all employees to share his vision and follow through the transformation phase (Sawy et al., 2016, p. 144).

5. Discussion

The first part of this paper was focused on DT and its impact on firms' BMs. Digital innovations are often disruptive and result in a radical organizational change (Bican & Brem, 2020, p. 3). To overcome this barrier and remain competitive, companies need to transform their business and adapt towards the new customer and market requirements. A strong relationship between BM and technological innovation paired with dynamic capabilities has been reported in the literature. Companies need to understand, that is not only about technology, but more about having the right business strategy and BM in place (Chesbrough, 2010, p. 355). If companies want to gain a sustainable competitive advantage and profit from their technological innovations, they need to get the BM and the technology strategy right. A company has at least as many benefits from developing a BM as from inventing a new technology (Chesbrough, 2010, p. 356). Organizations do not need necessarily to innovate new products or services to improve business performance. BMI can be used as an opportunity to replace or add new innovation to an existing BM (Raphael Amit & Zott, 2012, p. 38).

However, finding the right time to move from an old BM to a new one is crucial. In fact, it would be even recommended, that the old and new BMs co-exist for a period of time, as the profitability of the new BM can be much lower in the beginning (Chesbrough, 2010, p. 361). There is a difference between companies with strong or weak dynamic capabilities. Firms with weak dynamic capability might even miss the opportunity to change the existing BM and if they do, the new adapted model is still leaned on the process of the previous BM. Firms with strong dynamic capabilities the management has less fear to create a completely new BM and shifting all resources and activities (D. J. Teece, 2018, p. 45).

As mentioned in the literature screening, the openness and willingness of the whole organization is essential to be successful in the whole digital transformation. There might be often a conflict when managers avoid doing some experiments, as they are afraid to threat the ongoing process of a firms existing BM (Chesbrough, 2010, p. 358). Often, managers do not like rethinking BMs, especially when they are already successful and the resistance to change or modify the existing one is predicted as very high (Raphael Amit & Zott, 2012, p. 43). On the other hand, having the courage to experiment on new ideas to develop new BMs is a big opportunity to learn and be ahead of the rest of the market (Chesbrough, 2010, p. 359).

In a recent paper, Hackling (2018) has made three main observations: (i) If there is a great degree of value migration, pivoting the existing BM can improve the creation and capture of a value much more than creating a new BM and run it simultaneously to the previous one. (ii) A proactive pivoting of the existing BM could generate sufficient value creation and value capture than reactively changing the existing BM. (iii) If there is a smaller degree of value migration,

the creation of a new BM could improve the value creation and value capture compared to the value generated by the existing BM (Hacklin et al., 2018, p. 95). This shows that not always a development of a completely new BM is needed, as adapting the existing one could also bring the added value that companies are seeking for. In this regards, Big Data and the use of Artificial Intelligence brings a lot of opportunities by enabling data collection, data interpretation and the use of the insights for an improved decision-making, streamlining internal and external processes and personalization of customer offers (Fernández-Rovira et al., 2021, p. 9). But also, here, the data collection alone is not enough, as the company needs the competence of turning data into valuable insights that increase the business efficiency and generate new business ideas (Z_punkt The Foresight Company The Centre for Research in Futures and Innovation, 2014, p. 55).

In summary, the literature review has shown that the current BM should always be reviewed critically from a dynamic perspective, always having in mind that due to internal and external changes of an organization there might be the need for BMI over time (Wirtz et al., 2016, p. 41).

The second part of this paper gave an insight on the role of a digital leader and which impact it has on the BMI process. With reference to the SLR, it seems that the term "digital leader" is not yet widespread in the academic community. Synonyms like *e-leader* or *transformational leader* has been also found, as well as the fact, that digital leadership was often equated with successful companies in the technological field rather than a person leading digitally. As yet, there is no common agreement on the digital leadership aspects from an operational point of view (Sawy et al., 2016, p. 142). Additionally, the SLR has shown, that this research field has not yet been explored so much as only a small number of articles are available.

However, the importance of the digital leader role itself has been pointed out and skills like the ability to define an overall vision, having a deep knowledge and understanding for a better decision making, thinking and inquisition and being creative are needed in the digital era. The question that arises out of this is whether these abilities can be trained and if everyone can become a digital leader. The traditional and old way to lead (managing, controlling, financial measures and hierarchical structures) is not enough anymore. To embrace all the new digital possibilities, the leader must first transform themselves (Fisk, 2002, p. 49).

Based on the literature, a digital leader has a direct and indirect impact on the BMI process of a company. Additionally, a digital leader plays a key role in firms' DT. Unfortunately, further findings cannot be highlighted based on the current research state. This would be a great possibility for future research.

6. Conclusion and Future Research Avenues

The first goal of this study was to give a comprehensive insight on the literature regarding digitalization and its impact on firms BM. The results of this investigation show that even though the research field BM is not new, due to disruptive innovations and the digitalization this topic is relevant and up to date than ever. However, there are still some gaps in the literature, which are possible research avenues. As this is a complex topic, further analyses are needed to determine the importance and influence of digitalization on company strategies and BMs (Rachinger et al., 2019, p. 1157). Furthermore, a better understanding and aligning of the BM building blocks (value creation, value delivery and value capture) is needed (Parida et al., 2019, p. 15). Specially, further investigation is needed on the order in which BM components are changed (Bouwman et al., 2018, p. 119).

In contrast to BM, the number of papers on digital leader is very limited, especially in combination with BMs. Investigations which has been done by previous research was limited to the ICT industry and Indonesia as a country (Sasmoko et al., 2019, p. 10), based on a single LEGO case study or just limited in their methodology, size and time-frame (Mihardjo & Rukmana, 2019; Mihardjo, Sasmoko, Alamsjah, & Elidjen, 2019a; Mihardjo, Sasmoko, Alamsyah, & Elidjen, 2019, p. 10). Future research could focus on a longitudinal research, with different countries and different industries.

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