

# Strategic Flexibility and Business Model

## Innovation: A Literature Review<sup>1</sup>

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## Abstract

*Fast changing and highly uncertain business environment requires firms to constantly be alerted to change. Being able to change and respond to such business environment requires organizational capabilities such as strategic flexibility and ability to innovate business models. Over the past decades considerable research has been done on both strategic flexibility and business model innovation. Often, they have been used studied together. Some studies address their joint impact on firm's competitiveness, while others address the relationship between them. However, there is still no well-defined view on this relationship between business model innovation and strategic flexibility. This paper provides a review of the studies on strategic flexibility and business model innovation relationship and categorize impact of strategic flexibility on business model innovation. This research is based on a systematic scoping review. This research concludes that strategic flexibility can be categorized as pre-requisite, moderator, and as an outcome of business model innovation.*

Keywords: business models, innovation, strategic flexibility, organizational capabilities, literature review

## 1. Introduction

Pace of technological developments and digitalization, increased globalization, and quest for businesses to address social and environmental challenges are key influencing factors of the business environment. Fast changing and highly uncertain business environment requires firms to constantly be alerted to change (Schneider & Spieth, 2014). To be able to constantly adjust and react to the changes in business environment and sustain their competitive advantage, businesses need to be strategically flexible (Bahrami, 1992; Hitt, Keats, & DeMarie, 1998). Innovation of the business models also offer a unique way to adjust to changes in the business environment (McGrath, 2013; Nidumolu, Prahalad, & Rangaswami, 2015; Teece, 2010). Strategic flexibility refers to the firm's capability to identify changes in the dynamic business environment and react to them in timely manner (Shimizu & Hitt, 2004). Business model innovation, on the other hand, refers to the process of development of specific business model elements within the existing business or development of an entirely new business model (Chesbrough, 2010; Johnson, Christensen, & Kagermann, 2008). This paper aims to provide a literature review on strategic flexibility and business model innovation, by focusing on the role of strategic flexibility on the process of business model innovation and vice versa.

Firms continuously rethink their strategies and their organizational structures (Clauss, Abebe, Tangpong, & Hock, 2019; Hitt et al., 1998) and focus in developing new strategies and structure distinctive business models to be able achieve and maintain sustainable competitive advantage. Breakthrough technologies and innovations have for long time been considered as key drivers of competitive advantage; however, recent developments show that they are no longer sufficient (Venkatraman & Henderson, 2008). Actually, studies show that in order to remain competitive in an ever changing business environments, firms need to achieve and maintain strategic flexibility

(Hitt et al., 1998; Rajala, Westerlund, & Moller, 2012) and engage in business model innovation (Schneider & Spieth, 2014; Zott, Amit, & Massa, 2011). Innovative business models, as mechanisms to capture value from technological innovations, are increasingly becoming central factor for firms in terms of both, creating a competitive advantage and having distinctive financial performance (Schneider & Spieth, 2013). Further, innovative business models are considered crucial in addressing challenges related to environment and society sustainability (Kiron, Kruschwitz, Haanaes, & Velken, 2012; Nidumolu et al., 2015; Zollo, Cennamo, & Neumann, 2013).

Increased importance of innovating business models has led researchers to focus on business model innovation across the fields of strategic management, entrepreneurship, and innovation management (Schneider & Spieth, 2013; Zott et al., 2011). Researchers of the field show that business model innovation is a new source of innovation and suggest that it is a new business phenomenon that needs to be addressed on its own (Foss & Saebi, 2017). However, although researchers have increased their focus on business model innovation, there are still huge gaps in literature in terms of the antecedents, facilitators, and the outcomes of business model innovation (Foss & Saebi, 2017; Rayna & Striukova, 2016; Schneider & Spieth, 2013).

Both strategic flexibility (Brozovic, 2018) and business model innovation (Spieth, Schneckenberg, & Ricart, 2014) have been individually studied on their impact on firm's competitiveness. Besides, aiming to identify business model innovation drivers, process, and the outcomes, many studies have associated innovation of business models with strategic flexibility (Miroshnychenko, Strobl, Matzler, & De Massis, 2020; Schneider & Spieth, 2013, 2014). This is highlighted more in studies using dynamic capabilities approach (Miroshnychenko et al., 2020). Schneider and Spieth (2014) claim that strategic flexibility of the firm is crucial during and post business model innovation

process. They argue that although innovating business model is a powerful mean to respond to the external business environment, it does not mean that the firm is immune to further changes (Schneider & Spieth, 2014). Hence, remaining strategically flexible is vital.

Relationship between business model innovation and strategic flexibility, however, is not well defined and fully explored (Bock, Opsahl, & George, 2010; Schneider & Spieth, 2013). Numerous studies that have adopted dynamic capabilities theory in identifying antecedents of business model innovation show strategic flexibility as critical in enabling the business model innovation (Teece, 2018; Yang, Wei, Shi, & Zhao, 2020). Other studies, however, show strategic flexibility as an outcome of business model innovation (Bashir & Verma, 2019; Bock, Opsahl, George, & Gann, 2012; Miroshnychenko et al., 2020; Schneider & Spieth, 2014), others refer to it as facilitator (Liao, Liu, Fu, & Ye, 2019; Yang et al., 2020; Zhou & Wu, 2009), while some others see strategic flexibility as driver of business model innovation (Rajala et al., 2012; Xin, 2020). Hence, the role of the strategic flexibility on business model innovation is not defined and requires further examination (Brozovic, 2018; Yang et al., 2020).

Considering the importance of the strategic flexibility and business model innovation in achieving and maintaining competitive advantage of the firms and the interconnection of the two, this paper aims to provide a literature review on strategic flexibility and business model innovation. This paper does so by focusing on the role of strategic flexibility on the process of business model innovation and vice versa. More specifically this paper addresses the following research questions:

1. What is the historical development of publications on key issues related to strategic flexibility and business model innovation?
2. To what extent can strategic flexibility be seen as an input or an outcome of business model innovation?

### 3. To what extent is strategic flexibility a precondition to business model innovation efforts?

To explore this, the paper has been structured into five sections. In the following section, the employed literature review methodology and process is explained. After this the underlying concepts of this paper and an overview of results from first step in Figure 1 are discussed in section 3, while historical developments and key issues are elaborated in section 4. Discussion of the findings and conclusions are found in section 5.

## 2. Method

This research is based on a systematic scoping review. Under the guidance for conducting systematic scoping reviews presented by Peters et al. (2015) and (Weeks & Strudsholm, 2008) the following steps are taken:

First step, selected databases were searched using relevant keywords in the titles, abstracts of the articles. In this research two databases were used: Web-of-Science and Elsevier Scopus. These two databases were searched using the following keywords: business model\*, business model innovation, flexibility, and strategic flexibility. Using operators and Booleans ‘AND’ and ‘OR’, and following the search methodology applied by Pittaway, Robertson, Munir, Denyer, and Neely (2004) were created the search strings “business model\*”, “business model innovation”, flexibility, “strategic flexibility, and (“business model\*” AND “strategic flexibility”). Results from the searches are presented in Table 1 and summarized by document type in Table 2. These results from this first step are also utilized to show the historical developments of publications on key concepts used in this paper.

Search String	Search Field	Number of non-exclusive results		
		Web of Science	Scopus	Last updated
"business model*"	Title & Abstract	19 431	32 824	12.11.2020
"business model innovation"	Title & Abstract	1 084	1 602	12.11.2020
"flexibility"	Title & Abstract	236 114	356 472	12.11.2020
"strategic flexibility"	Title & Abstract	378	577	12.11.2020
"business model*" AND "strategic flexibility"	Title & Abstract	17	24	12.11.2020

Table 1. Literature search strings

Web-of-Science					
Search String	"business model*"	"business model innovation"	"flexibility"	"strategic flexibility"	"business model*" AND "strategic flexibility"
Search Field	Title & Abstract				
<b>By Document Type</b>	<b>19431</b>	<b>1084</b>	<b>236114</b>	<b>378</b>	<b>17</b>
Article	10332	638	162413	270	9
Proceeding Paper	8475	402	68994	95	7
Book Chapter	0	5	387	0	0
Book	0	0	0	0	0
Other	624	39	4320	13	1

Elsevier Scopus					
Search String	"business model*"	"business model innovation"	"flexibility"	"strategic flexibility"	"business model*" AND "strategic flexibility"
Search Field	Title & Abstract				
<b>By Document Type</b>	<b>32729</b>	<b>1591</b>	<b>356472</b>	<b>577</b>	<b>24</b>
Article	15416	912	221974	405	16
Conference Paper	11478	436	104936	86	5
Book Chapter	2330	94	8271	33	1
Book	567	23	1092	5	0
Other	2938	126	20199	48	2

Table 2. Database results from step 1 summarized by document type

Second step, generated results were screened using more narrowed keywords and field of research as a criterion. Considering that terms flexibility and business model are quite general, first step generated a very high number of results. Consequently, only publication addressing strategic flexibility and business model innovation were saved. Also results from first step yielded publications from a wide range of fields. Hence to narrow the list of relevant literature, only publications from field of business, management and accounting were selected. Accordingly, a considerable number of the results were excluded, and relevant ones were saved. Saved results were scanned through their titles and abstracts.

To select only the relevant publications from these saved results an inclusion criterion was used. Regarding term business model innovation, only publications addressing enablers, pre-requisites, barriers, and consequences of innovation of business models were saved for full-text eligibility assessment. Concerning term strategic flexibility, only publications referring to strategic flexibility as organizational capability during structural changes were saved for full-text eligibility assessment. As results, 73 publications were read thoroughly for eligibility purposes.

Third step, reference section of the saved results from step two was scanned. Key words in the titles were used to identify relevant literature. Abstracts of the identified literature were read, and only relevant ones were saved and read thoroughly. Saved literature from this step was then added to the saved literature from step two.

Finally, selected articles from steps two and three were thoroughly analyzed, and only those that specifically addressed the relationship between strategic flexibility and business model innovation were studied and used to obtain the findings presented in this paper.

Following the Peters et al. (2015) guidelines on describing the search decision process and the process illustration used by Geissdoerfer, Vladimirova, and Evans (2018), search decision process is presented in Figure 1.



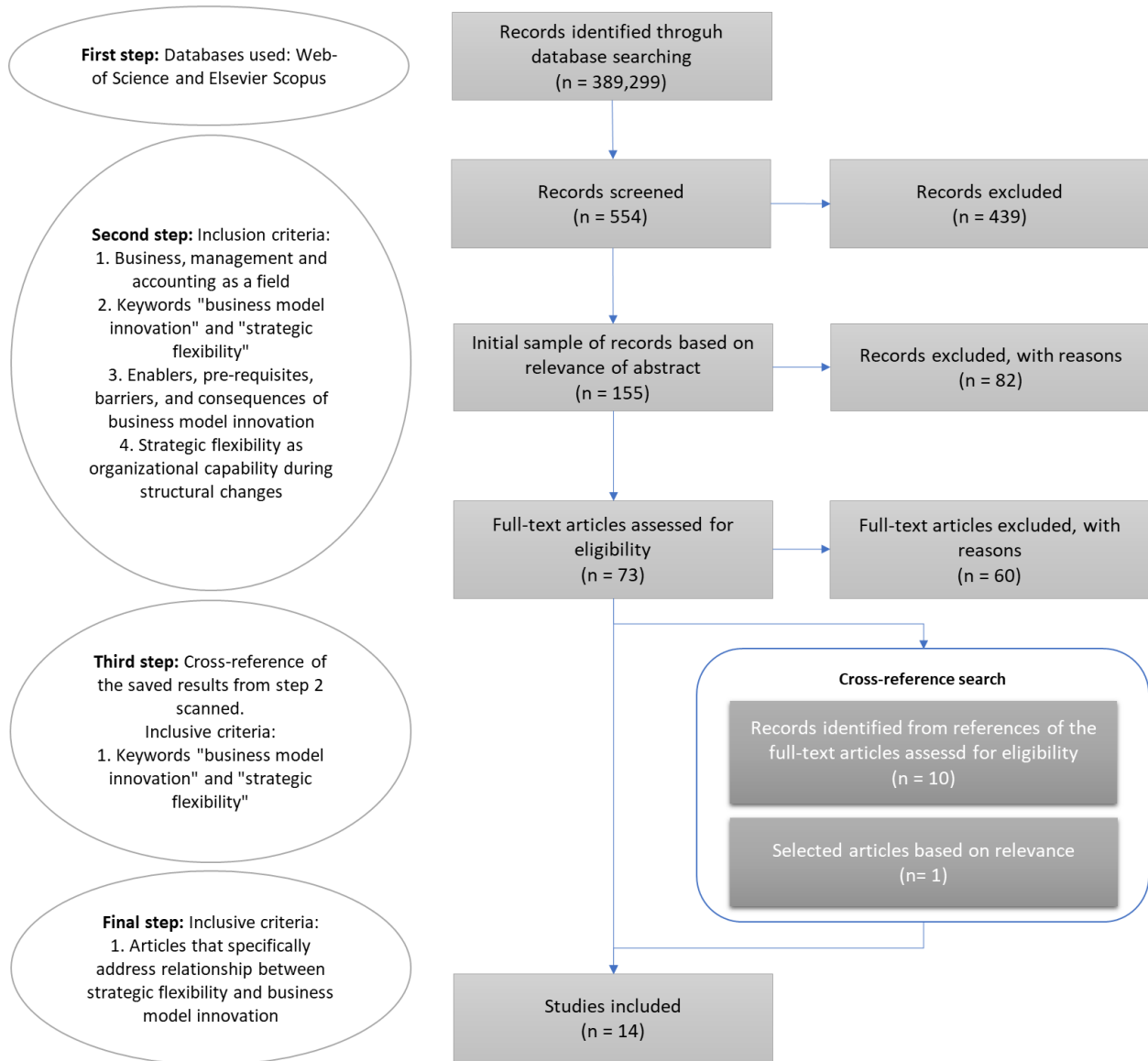


Figure 1. Literature search decision process

### 3. Underlying Concepts and Results – An Overview

This section discusses the main concepts used in this paper such as business model, business model innovation, flexibility, strategic flexibility, and strategic flexibility and business model innovation. Results from step 1 of the literature review process are utilized to show the development of publications.

### 3.1. Business Model

‘Business model’ is relatively a new concept that received a massive adoption among both, scholars and business practitioners, with the arrival of the Internet and booming of e-commerce in late 90s (Amit & Zott, 2001; Demil & Lecocq, 2010; Foss & Saebi, 2017; Teece, 2010; Zott et al., 2011). Although the term business model has been introduced in the fields of business and management in mid 70s (Zott et al., 2011), the term has been used earlier in engineering fields. In this literature review, first use of the term business model in academic journals was found in 1960s, in the fields of computer science and information systems (see figure 2).

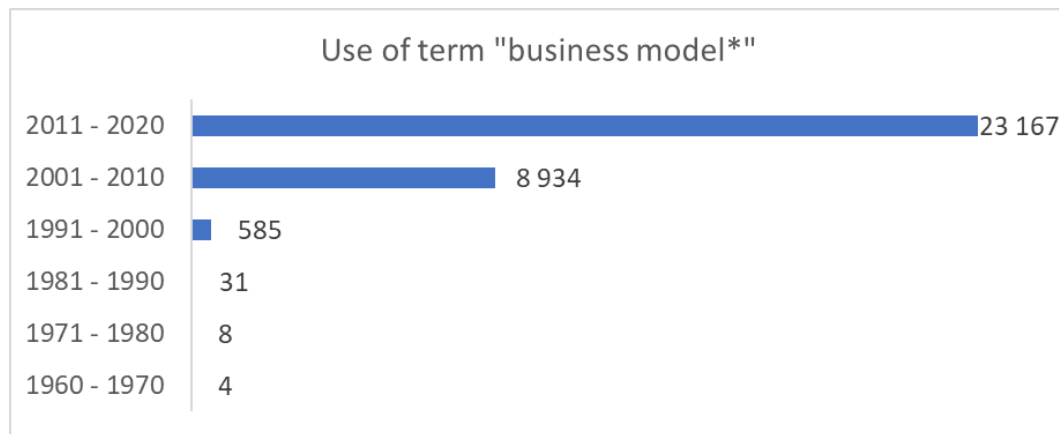


Figure 2. Use of term business model\* in publications based on searches in databases Web-of-Science and Elsevier Scopus using “business model\*” as search string. Data used in this graph are from the first step in the literature review process.

While there has been increased attention from scholars towards business models, which is reflected in the increase in the number of publications on business modes (see figure 2), there is still no unified definition of business model concept (Spieth & Schneider, 2015; Zott et al., 2011). Different scholars refer to the concept of business model differently, with some of the most common being a statement, a description, an architecture, and a conceptual tool or model (Zott et al., 2011). Timmers (1998, p.2) defines business model as “an architecture of the product, service and information flows, including a description of the various business actors and their roles; a

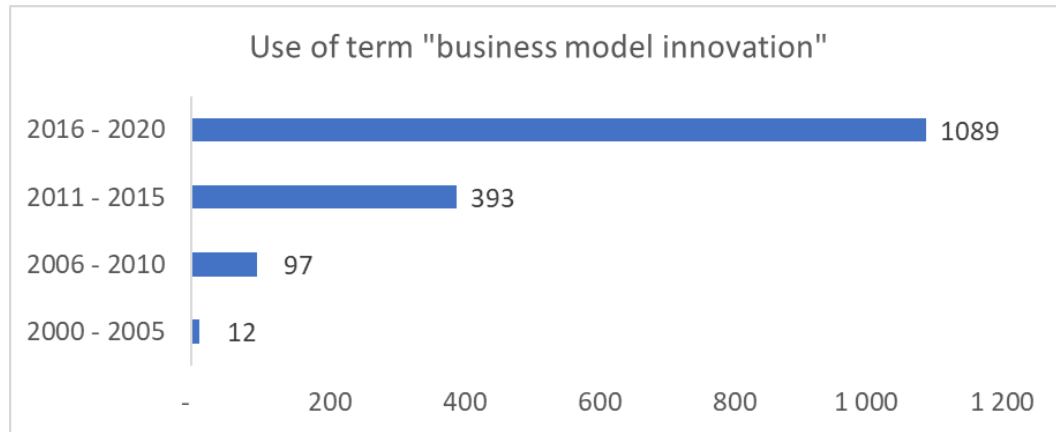
description of the potential benefits for the various business actors; a description of the sources of revenue”. Further, Masanell and Ricart (2010, p. 195) define business model as “...a reflection of the firm’s realized strategy”. Finally, literature reviews of the definition of business models find that many literature contributors in the field converge toward a common definition of business models: “design or architecture of the value creation, delivery, and capture mechanisms of a firm” (Teece, 2010, p. 191).

Business models are linked to firms’ dynamic capabilities and strategic management (Cavalcante, 2012; Teece, 2018). According to Teece (2018, p. 40), “the design and operation of business models are dependent on a firm’s [dynamic] capabilities”. In terms of strategic management, business models are perceived as complementary to business strategy in building and sustaining competitive strategy (Teece, 2010). Business models are seen as key contributors to a firm’s performance, especially after the fact that some business models could outperform others (Foss & Saebi, 2017). In addition, Chesbrough argues that applied business model dictates the returns of a particular technology, stating, “the economic value of a technology remains latent until it is commercialized in some way via a business model” (Chesbrough, 2010, p.354).

### 3.2. Business Model Innovation

Business model innovation is closely related to business models. It represents an extension to business models built upon the premise that these models can be innovative themselves (Foss & Saebi, 2017; Schneider & Spieth, 2013). Research on innovation of business models is younger than the research on business models and has gained much attention among scholars and practitioners (Schneider & Spieth, 2013; Spieth et al., 2014). In this study, the first use of term “business model innovation” in literature was found in early 2000s, while significant number of

articles on business model innovation has been produced during the second decade of 21<sup>st</sup> century (see figure 3).



*Figure 3.* Use of term business model innovation in publications based on searches in databases Web-of-Science and Elsevier Scopus using “business model innovation” as search string. Data used in this graph are from the first step in the literature review process.

Although as figure 3 shows, there has been an increasing number of publications on business model innovation, the meaning of the concept is still unclear (Bernd & Peter, 2017; Shakeel, Mardani, Chofreh, Goni, & Klemes, 2020) Business model innovation is defined as a “process of designing a new or modifying the firm’s extant activity system” (Schneider & Spieth, 2013, p. 4). Zott and Amit (2015, p. 2) define business model innovation as “the design and implementation of an activity system that is new to the focal firm or new to the product-market space in which the focal firm competes.” Classifying it as disruptive innovation, Markides (2006, p. 20) defines business model innovation as a “discovery of a fundamentally different business model in an existing business”.

Literature on business model innovation is closely related to literature on dynamic capabilities (Foss & Saebi, 2017; Ramdani, Binsaif, & Boukrami, 2019; Teece, 2018; Wahyono, 2018). From dynamic capability perspective business model innovation is framed “as an initial experiment followed by continuous revision, adaptation and fine-tuning based on trial-and-error learning”

(Wahyono, 2018, p. 353). Similar to business models, business model innovation literature has evolved. In addition to utilizing the technological innovation, business models are perceived as a source of innovation themselves (Schneider & Spieth, 2013; Zott et al., 2011). In fact, Teece (2010, p. 173) states that “business model innovation can itself be a path-way to competitive advantage if the model is sufficiently differentiated and hard to replicate for incumbents and new entrants alike”. Further, Chesbrough (2007) suggests that a well-designed business model can yield better results than a better technology or product. Additionally, Rayna and Striukova (2016), argue that sometimes business model innovation is more critical than technological innovation in determining firm’s competitive advantage.

### 3.3. Flexibility

Term ‘flexibility’ is relatively old in scientific literature and is widely used in different subject areas (de Haan, Kwakkel, Walker, Spirco, & Thissen, 2011). In this study, the first use of this term is found in year 1794 in relation to the field of earth and planetary sciences, while in the field of business, management, and accounting it appears for the first time in 1957 (see table 3). Increase in research on flexibility in the fields of business, management, and accounting is mainly due to the fact that flexibility of the organizations is seen necessary to respond to unforeseen changes in business environment and to the increase of the uncertainty (Dreyer & Gronhaug, 2004; Eppink, 1978; Golden & Powell, 2000; Volberda, 1996) .

<b>Time Period</b>	<b>All Fields</b>	<b>In the Field of Business, Management, and Accounting</b>
1781 - 1800	1	-
1801 - 1820	-	-
1821 - 1840	-	-
1841 - 1860	-	-
1861 - 1880	2	-
1881 - 1900	3	-
1901 - 1920	24	-
1921 - 1940	136	-
1941 - 1960	531	3
1961 - 1980	11 395	249
1981 - 2000	62 152	3 333
2001 - 2020	281 616	16 661
<b>Total</b>	<b>355 860</b>	<b>20 246</b>

*Table 3.* Use of term flexibility in publications based on searches in databases Web-of-Science and Elsevier Scopus using “flexibility” as search string. Data used in this table are from the first step in the literature review process described above.

Meaning of term flexibility is vague and depends on the context used (Bahrami, 1992; de Haan et al., 2011). Most of the definitions relate flexibility to adaptability, opposing stability (Volberda, 1996). Evans (1991) classifies flexibility as a ‘polymorphous’ and as such Bahrami (1992, p. 48) defines it as a “multi-dimensional concept – demanding agility and versatility; associated with change innovation, and novelty; coupled with robustness and resilience, implying stability, sustainable advantage, and capabilities that may evolve over time”. Eppink (1978, p. 10) defines flexibility as a “characteristic of an organization that makes it less vulnerable for or puts it in a better position to respond successfully to unforeseen environmental change.” De Leeuw and Volberda (1996) and Volberda (1996) suggesting that flexibility needs to be treated as both, managerial task and organization design task, and offer the following definitions:

- a) flexibility as the “degree to which an organization possesses a variety of actual and potential procedures, and the rapidity by which it can implement these procedures, in order

to increase the control capability of the management and improve the controllability of the organization and the environment” (De Leeuw and Volberda, 1996, p.131) and

b) flexibility as the “degree to which an organization has a variety of managerial capabilities and the speed at which they can be activated, to increase the control capacity of management and improve the controllability of the organizations” (Volberda, 1996, p. 361)

Further, flexibility is closely related to other concepts such as adaptivity, resilience, robustness, liquidity, agility, versatility, elasticity, hedging, and corrigibility (Bahrami, 1992; de Haan et al., 2011; Evans, 1991).

Referring to three types of environmental change (operational, competitive, and strategic), Evans (1991) distinguishes three types of flexibility: a) operational flexibility, b) competitive flexibility, and c) strategic flexibility. Further, depending on the perspectives (De Leeuw & Volberda, 1996; Eppink, 1978; Volberda, 1996) used to analyze flexibility and the types of changes that trigger flexibility, there are various types of flexibility. Using control perspective, De Leeuw and Volberda (1996) make a distinction of four types of flexibility: a) passive internal, b) active internal, c) passive external, and d) active external. Applying dynamic capabilities perspective Volberda (1996) adds yet four types of flexibility: a) steady-state flexibility, b) operational flexibility, c) structural flexibility, and d) strategic flexibility. This paper keeps its focus on strategic flexibility.

### 3.4. Strategic Flexibility

To respond to the dynamics of the environment and high level of uncertainty, firms need to thrive in strategic flexibility (Eppink, 1978; Li, Liu, Duan, & Li, 2008; Zhou & Wu, 2009). In fact strategic flexibility has been referred as “perhaps the most important attribute that firms must achieve to operate effectively in the new competitive landscape [that] requires flexibility and the

ability to balance stable and fluid states of the organizations” (Hitt et al., 1998, p. 26). This is even more relevant in high technology intensive sectors (Evans, 1991). Considering the importance of the strategic flexibility in the competitiveness of the firms, there has been an increase in the scholars’ interest in the topic of strategic flexibility (Brozovic, 2018). In this study term ‘strategic flexibility’ in publications is found as early as in 70s, while it gained more popularity after 2000s (see figure 4).

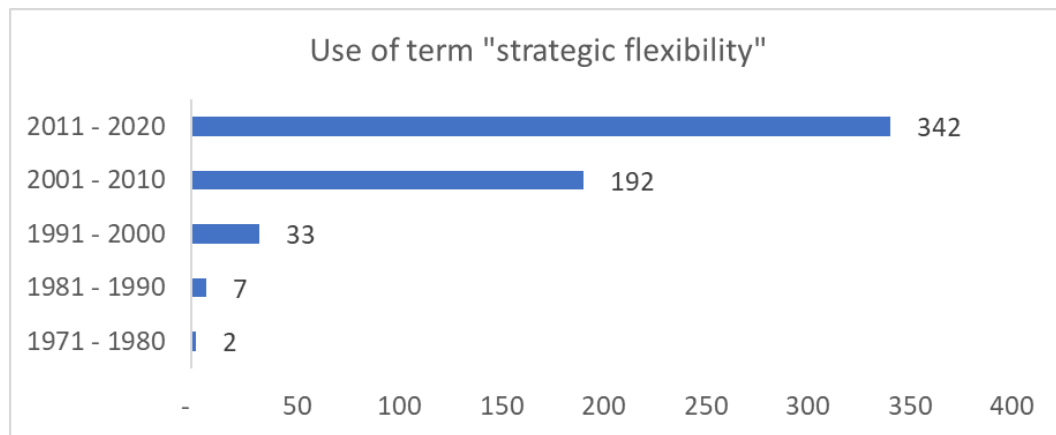


Figure 4. Use of term strategic flexibility in publications based on searches in databases Web-of-Science and Elsevier Scopus using “strategic flexibility” as search string. Data used in this graph are from the first step in the literature review process.

Although strategic flexibility has been studied by many scholars there is still no common definition of the term (Roberts & Stockport, 2009). Evans (1991, p. 74-75) defines strategic flexibility as a “capability which enables [an] organization [to] transform itself, in a manner somewhat analogous to a chameleon changing its color, to take advantage of its surroundings”. Eryesil, Esmen, and Beduk (2015, p. 3470) define strategic flexibility “an ability of a company to respond to uncertainties, with support of the knowledge and skills it has, via continuous development their aims”. Sanchez defines strategic flexibility as an ability to reconfigure its internal capabilities to respond to environmental changes (Sanchez, 1995; Wright & Snell, 1998). Volberda (1996), on the other hand, classifies strategic flexibility as the most radical type of flexibility as it consists of



more fundamental changes at organizational level in response to unfamiliar changes that cannot be addressed by routine answers.

Literature on strategic flexibility discusses various dimensions of strategic flexibility, including resource flexibility, coordination flexibility, and managerial flexibility (Sanchez, 1995, 1997; Schneider & Spieth, 2014; Volberda, 1996; Zhou & Wu, 2009). Bashir and Verma (2019), support Schneider and Spieth (2014) arguing that these three types of flexibility are essential in business model innovation context. *Resource flexibility* refers to the firm's ability to apply its resources to a wide variety of uses in timely and affordable manner (Sanchez, 1995). *Coordination flexibility* refers to firm's ability to define uses of the resources, configuration of chain of resources, and their depletion (Sanchez, 1995). *Managerial flexibility* refers to firm's managerial capability to adjust and respond to changes (Volberda, 1996).

### 3.5. Strategic flexibility and Business Model Innovation

To respond to the changes in the business environments firms engage in business model innovation and seek to achieve and maintain strategic flexibility (Schneider & Spieth, 2014; Shimizu & Hitt, 2004; Xin, 2020). Strategic flexibility as a dynamic capability enables firm to quickly react to uncertainties as well as identify and capitalize opportunities (Bock et al., 2010; Bock et al., 2012; Gärtner & Schön, 2016; Schneider & Spieth, 2014). Business model innovation as a source of innovation itself can lead to competitive advantage (Bashir & Verma, 2019; Schneider & Spieth, 2013; Zott et al., 2011). The two, strategic flexibility and business model innovation, are in fact inter-related with one another (Schneider & Spieth, 2014). Many articles argue that strategic flexibility is an antecedent to business model innovation (Gärtner & Schön, 2016; Miroshnychenko et al., 2020; Rajala et al., 2012). Some argue that strategic flexibility moderates business model innovation efforts (Liao et al., 2019; Yang et al., 2020), while others argue that strategic flexibility

is an outcome of business model innovation (Bashir & Verma, 2019; Bock et al., 2010; Bock et al., 2012; Feletto, Wilson, Roberts, & Benrimoj, 2010; Schneider & Spieth, 2013, 2014; Xin, 2020). This relationship, however, is not fully examined and defined (Bock et al., 2012; Schneider & Spieth, 2013). As illustrated in figure 5, only a handful number of publications have addressed the relationship between strategic flexibility and business model innovation, while a considerable amount of publication has used terms strategic flexibility and business model innovation. Note that in figure 5, the number of publications that address both strategic flexibility and business model innovation are presented in the secondary axis. This paper, hence, aims to contribute to this discussion by analyzing the existing literature on this relationship; this is the final 14 studies included in the final stage in Figure 1.

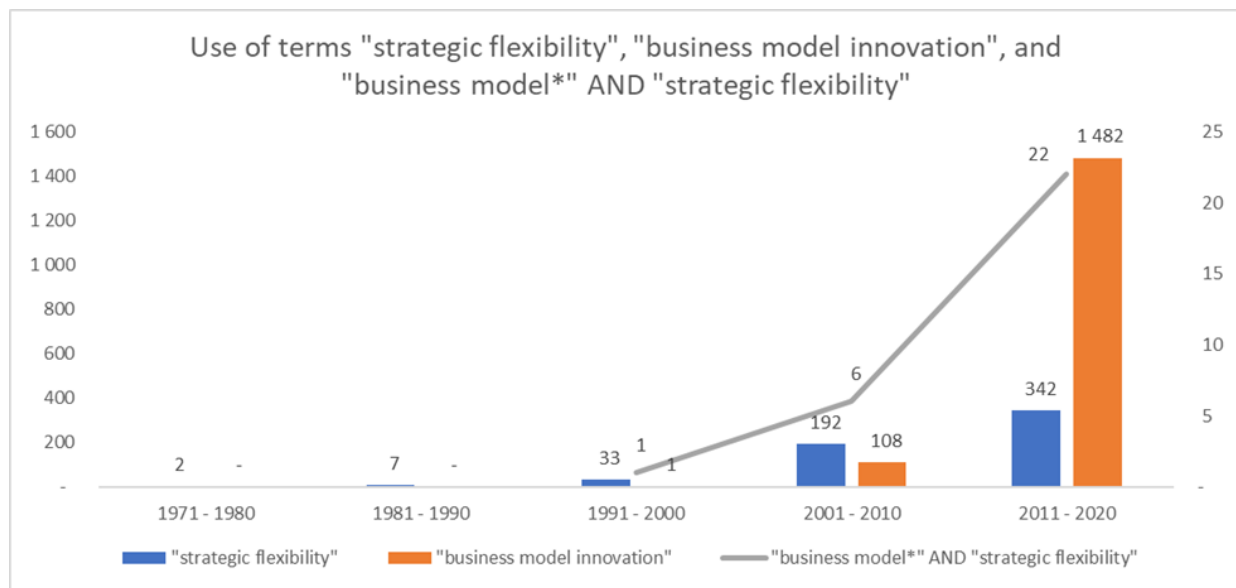


Figure 5. Use of terms "strategic flexibility", "business model innovation", and "business model\*" AND "strategic flexibility" in publications based on searches in databases Web-of-Science and Elsevier Scopus using "strategic flexibility" as search string. Data used in this graph are from the first step in the literature review process.

#### 4. Historical development and key issues

This section presents findings from the literature on strategic flexibility and business model innovation, focusing on the historical development of publications of these two fields. Further,

findings from the literature specifically addressing relationship between strategic flexibility and business model innovation have been categorized and elaborated in detail.

#### 4.1. Historical developments of publications on strategic flexibility

In this study first publication found on strategic flexibility dates back in 1978. This first publication is authored by D. Jan Eppink and explores concept of strategic flexibility as a mean for firms to respond to the uncertainties and environmental threats. This publication comes as a response to the need to plan for strategic flexibility at times when uncertainty made it difficult for firms to plan. Soon after during 1980s this study found 8 other publications on strategic flexibility. The focus of these publications was the expression of the need for strategic flexibility along with its exploitation and ability to sustain strategic flexibility. These early publications on strategic flexibility were found within the areas of business, management, and accounting, social sciences, and engineering. Results of this study show a considerable increase in the publication on strategic flexibility in the following decades. More specifically, vast majority of publication on strategic flexibility are found during the first two decades of 21<sup>st</sup> century. Strategic flexibility became even more relevant in responding to challenges caused by technological revolution and increased globalization. Specifically, in 1991 Stuart Evans in his publication highlights the critical importance of strategic flexibility in “high technology arenas” (Evans, 1991, p. 69).

Publications on strategic flexibility found in this research focused also on defining strategic flexibility, its types and forms, dimensions, enablers, barriers, and its outcomes. Further, process of achieving strategic flexibility, firm’s ability to achieve and maintain strategic flexibility, and its measurement have also been studied. Still, however, these areas of strategic flexibility remain venues for further research.

Publications on strategic flexibility are found in various fields. Majority of the publications (225 publications) in this study are found in the field of business, management and accounting. Considerable presence (267 publications) of these publications is found in fields of economics, econometrics and finance, social sciences, engineering, computer sciences, and decision sciences.

#### 4.2. Historical development of publications on business model innovation

In this study first publication on business model innovation was found in 2000 authored by Yogesh Malhotra. Malhotra (2000) recognizes business model innovation as essential for firms to maintain competitiveness in turbulent business environments. During the first five years of the 21<sup>st</sup> century this study found 12 publications on addressing innovation of business models. Publications on business model innovation during this period mainly addressed challenges, process, and development of firm's capabilities for innovation of the business models. Further, business model innovation was associated with technological innovations, focusing on integration of developed technologies in business operations and development of open source business models.

During the 2006 and 2010, the study found 97 publication on business model innovation. As innovation of business models became more relevant to business leaders (Pohle & Chapman, 2006) and scholars, more publications addressed challenges, process, and outcomes of business model innovation. Few frameworks towards innovation of business models we also found. Among these publications there a tendency to distinguish innovation of business models from technological innovation. Chesbrough (2007) suggested that to maintain their competitiveness businesses need to invest beyond technology and R&D, and innovate their business models. Further, Markides (2006) claimed a need for a more suitable theory on disruptive innovation, including business model innovation.

A rapid increase in the number of the publications was found during the second decade of the 21<sup>st</sup> century. This study found 393 publication on business model innovation during the first half of the decade, while 1,089 publications were found in the second half of it. Publications during this period expanded the knowledge on innovation of business models regarding prerequisites for innovating business model, the process of implementing it, and its outcomes. Further, the identified literature shows business model innovation as a mean to help achieve sustainability. In this context sustainability consists of three elements economic, societal, and environmental.

As with strategic flexibility, the publications on business model innovation were also found in various fields. They were also distributed very similarly as the publications focusing on strategic flexibility. Most of the publications addressing business model innovation were found in the field of business, management and accounting and a considerable presence was found in the fields of engineering, computer science, economics, econometrics and finance, social science, decision science, and environmental science.

#### 4.3. Strategic flexibility and business model innovation

Aiming to explore the relationship between strategic flexibility and business model innovation on existing literature, this study found only 14 publications that address this relationship. Table 4 summarizes the articles studied in this paper and highlights the articles' contributions, focus of study, and their applied methodology. This summarizing table is inspired by Schneider and Spieth (2013). These publications were studied thoroughly and their findings on the “strategic flexibility – business model innovation” relationship were analyzed and are presented in the following section. The results are grouped in three categories: strategic flexibility as an antecedent to business model innovation, strategic flexibility as a moderator of business model innovation efforts, and strategic flexibility as an outcome of business model innovation.

<b>Authors</b>	<b>Focus of Study</b>	<b>Applied Methodology</b>
Bao, Y., Cheng, L., Zhang, J., (2016)	Investigate the relationship between organizational learning capability, strategic flexibility and business model innovation	Regression analysis
Bashir, M., Verma, R. (2019)	Antecedents and consequences of business models innovation	Theoretical - systematic review
Bock, A., Opsahl, T., George, G. (2010)	Achieving strategic flexibility through business model innovation	Regression analysis
Bock, A. J., Opsahl, T., George, G., Gann, D. M. (2012)	Relationship between business model innovating and the achievement of strategic flexibility	Regression analysis
Felletto, E., Wilson, L. K., Roberts, A. S., Benrimoj, S. I. (2010)	Link between development of new business models ad strategic flexibility in pharmaceutical community	Interview method - semi-structured interviews
Gärtner, C., Schön, O. (2016)	Relationship between business model modularity, strategic flexibility, path dependency, and business model innovation	Conceptual

Liao, S. Q., Liu, Z. Y., Fu, L. H., Ye, P. C. (2019)	Relationship between distributed leadership, strategic flexibility, and business model innovation - dynamic capabilities perspective	Hierarchical regression and bootstrapping
Miroshnychenko, I., Strobl, A., Matzler, K., De Massis, A. (2020)	Link between absorptive capacity and strategic flexibility, and their effect on business model innovation - in Italian SMEs	Partial least squares (PLS) Structural equation modelling (SEM)
Rajala, R., Westerlund, M., Moller, K. (2012)	"Explore how market orientation facilitates the strategic flexibility of business models grounded in open innovation"	Longitudinal case study
Schneider, S., Spieth, P. (2013)	Literature on business model innovation	Systematic literature review
Schneider, S., Spieth, P. (2014)	Impact of three types of business model innovation on dimensions of strategic flexibility	Three single-case study experiments. Solomon pretest-posttest
Wilson, M., Wnuk, K. (2018)	Effects of business modeling on business flexibility	Theoretical – systematic review
Xin, W. (2020)	Relationship between strategic flexibility, business model innovation, and innovation openness	Multiple linear regression analysis

<p>Yang, D., Wei, Z. L., Shi, H. B., Zhao, J. (2020)</p>	<p>Moderating role of strategic flexibility on market orientating impact on business model innovation</p>	<p>Multivariate regression analysis</p>
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Table 4. Summary of studies from the final step in Figure 1

#### 4.3.1. Strategic flexibility as an antecedent to business model innovation

Studies arguing that strategic flexibility is a prerequisite for business model innovation are based on the claim that business model innovation is a complex process that requires high degree of resource, coordination, and managerial flexibility (Miroshnychenko et al., 2020; Schneider & Spieth, 2014). Gärtner and Schön (2016) introduce modularity and business model modularity (BMM) to gain strategic flexibility, which then create the prerequisites for business model innovation. Miroshnychenko et al. (2020) consider absorptive capacity as driver of strategic flexibility, through which it enhances business model innovation. However, they do not find significant direct relationship between strategic flexibility and business model innovation (Miroshnychenko et al., 2020).

Investigating the relationship between strategic flexibility, innovation openness, and innovation of business models, Xin (2020) finds both a direct and an indirect effect of strategic flexibility and business model innovation. In this context the indirect effect is mediated by innovation openness. Mediating role of the innovation openness was found to be partial. Strategic flexibility was divided in resource and resource flexibility. Rajala et al. (2012) find that grounded in open innovation strategic flexibility directly influences designing of business models.

Feletto et al. (2010) provide findings that show direct link between strategic flexibility and emergence of new business models within the pharmaceutical industry. They investigate four types of organizational flexibility such as steady-state, operational flexibility, structural flexibility, and



strategic flexibility. Their findings show that strategic flexibility enhances firm's abilities to adjust to the changes in the environment and develop innovative business models.

### Strategic flexibility as a moderator and a mediating variable to business model innovation

Results from the studied literature show strategic flexibility as both moderator and a mediating variable to efforts of innovating business models. Moderating role of strategic flexibility is found in effects of market orientation on innovation of business models Yang et al. (2020). They assess the relationship between market orientation on business model innovation under the moderation of strategic flexibility. Their study shows direct relationship between market orientation (responsive market orientation and proactive market orientation) and business model innovation; however, strategic flexibility (resource flexibility and coordination flexibility) are determinant in this relationship Yang et al. (2020). Borrowed from Yang et al. (2020) figure 6 shows the conceptual model of the relationship between market orientation and business model innovation under the moderation of strategic flexibility.

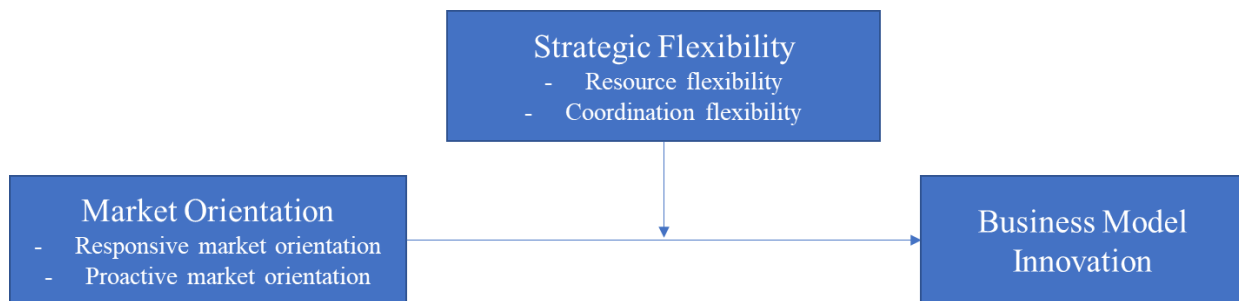


Figure 6. Conceptual model of moderating role of strategic flexibility on the relationship between market orientation and business model innovation

Several studies find a mediating role of strategic flexibility on the relationship between different variables and business model innovation. Liao et al. (2019) investigate the relationship between distributed leadership and business model innovation. Their study confirms the mediating role of strategic flexibility in the positive relationship between distributed leadership and business model

innovation. In this mediation process they also find that environmental dynamism plays a moderating role on the relationship between distributed leadership and strategic flexibility. Additionally, Bao, Cheng, and Zhang (2016) find a mediating role of strategic flexibility in the “relationship between organizational learning capability and business model innovation”. Figure 7 shows the conceptual model of mediation role of strategic flexibility on the relationship between other variables and business model innovation.

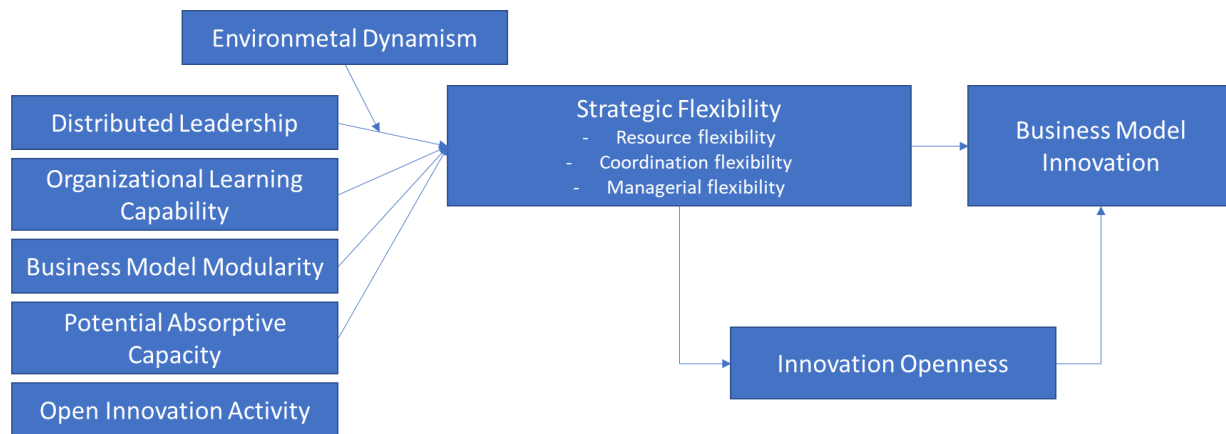


Figure 7. Conceptual model of mediating role of strategic flexibility on the relationship between other variables and business model innovation

### Strategic flexibility as an outcome of business model innovation

Bashir and Verma (2019) argue that business model innovation is a complex process that involves substantial changes in the firm’s structure potentially driving strategic flexibility. In their conceptual model of antecedents and consequences of business model innovation, they find strategic flexibility along with firm competitiveness and competitive advantage as a direct output of innovation of business models. Investigating the indirect effects on strategic flexibility during business model innovation efforts, Bock et al. (2012) find that creative culture of the organization during business model innovation efforts helps achieve strategic flexibility. Similarly, they find that during innovation efforts for business models structural complexity of the organization is

reduced, resulting in enhanced strategic flexibility. However, reconfiguration of activities during business model innovation efforts hamper strategic flexibility (Bock et al., 2010; Bock et al. 2012). Further, Bock et al. (2012) do not find moderating effects of efforts to innovating business models on relationships between creative culture, structural simplification, partner reliance and strategic flexibility.

Schneider and Spieth (2014) distinguish three types of business model innovation (value offering innovation, architectural innovation, and innovation of revenue model) and assess their individual impact on firm's strategic flexibility. They also distinguish three types of flexibility, resource flexibility, coordination flexibility, and managerial flexibility. Their results show that not all types of business model innovation have positive impact on firm's strategic flexibility. Figure 8 shows the conceptual model of effect of business model innovation on strategic flexibility.

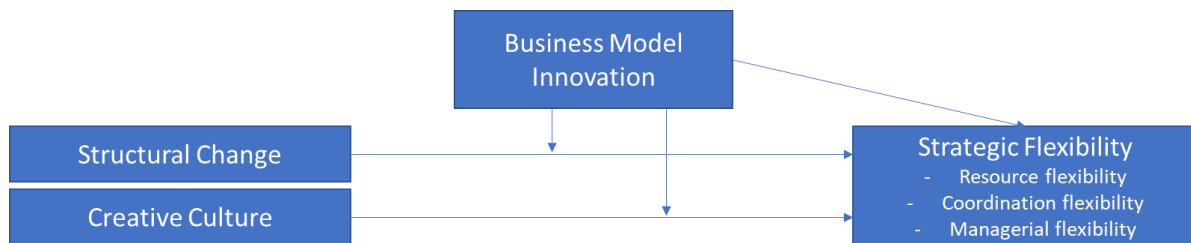


Figure 8. Conceptual model of the effect of business model innovation on strategic flexibility

## 5. Discussion and conclusion

The purpose of this study was to systematically review literature on strategic flexibility and business model innovation and investigate the relationship between the two concepts. This paper does so by addressing three research questions focusing on the historical development (RQ1), an input-outcome evaluation (RQ2) and a pre-requisite consideration (RQ3).

This study shows the historical development of publications on key issues related to strategic flexibility and innovation of business models. This has been achieved by systematic database searches on Web-of-Science and Elsevier Scopus. Findings show that term strategic flexibility appeared in publications as early as in 1780s. However, actual developments in the strategic flexibility literature were found in the last quarter of 1900s, while during the past two a major increase in the publications was identified. Increase attention on strategic flexibility over the past decade is mainly explained by the rapid changes in the business environment, hence, the need for businesses to be more flexible strategically. Publications on strategic flexibility were found in different fields although majority of them were found in the field business, management and accounting.

This study confirms that business model innovation has received an increased attention of scholars. Term business model innovation was initially found in 2000. Publications on innovation of business models have increase exponentially, especially during the past five years where were found around 69 percent of the publications. Emerging from the literature on business models, business model innovation has turned on a research stream on its own (Ramdani et al., 2019; Schneider & Spieth, 2013). Business model innovation is seen as a mean for firms to cope with disruptive innovation, increased globalization, and as a source of innovation itself. Recently innovation of business models has been associated with literature on sustainability. Majority of the publications on business model innovation are found in the field of business, management and accounting, while there is a considerable presence of them in other fields such as engineering, computer sciences, environmental sciences, and others.

Although strategic flexibility and business model innovation are inter-related with one another, this study found only a limited number of publications that address this relationship. Scholars have started to explore this relationship only recently.

Addressing input-outcome evaluation (RQ2) in the “strategic flexibility – business model innovation” relationship, this study finds a symbiotic relationship between the two. Evidence is found that strategic flexibility, both directly and indirectly, is an input to business model innovation efforts. Indirect impact is mediated by variables such as business model modularity, absorptive capacity, and innovation openness. However, few studies find weak direct relationship between strategic flexibility and innovation of business models, while some other call for further research.

Some studies find strategic flexibility as an output of business model innovation efforts. Innovation of business models is considered as ‘radical’ innovation, which causes major turbulences in the structure of the firm. Also, it requires a creative culture within the firm as well as higher degree of partner reliance. Consequently, reduced complexity, creative culture, and increased partner reliance associated with business model innovation efforts result in higher degree of strategic flexibility.

Further, this study finds evidence arguing that strategic flexibility is a precondition to business model innovation efforts (RQ3). Complexity of the process of innovating business models requires that the firms remains strategically flexible. This includes resource, coordination, and managerial flexibility. Strategic flexibility is found as moderator in the relationship between market orientation and business model innovation. Few other studies show a mediating role of strategic flexibility during efforts toward innovation of business models.

Finally, this study offers three conceptual models on the relationship between strategic flexibility and innovation of business models developed based on the findings from the existing literature. Summarizing the findings from the existing literature, first concept shows the moderating role of strategic flexibility on business model innovation. Second conceptual model shows the mediating role of the strategic flexibility in the relationship between distributed leadership, organizational learning capability, business model modularity, potential absorptive capacity and open innovation capacity, and business model innovation. Relationship between these variables and innovation of business models were summarize from the studied articles in this research. Third conceptual model shows strategic flexibility as an output of business model innovation. In this context the effect of innovation of business model in firm's strategic flexibility is indirect as it serves only as a moderator between structural change and creative culture, and strategic flexibility.

## References

- Amit, R., and Zott, C., 2001. "Value creation in e-business". *Strategic management journal*, 22: 6-7
- Bahrami, H., 1992. "The Emerging Flexible Organization: Perspectives from Silicon Valley". *California Management Review*, 34(4): 33-52
- Bao, Y., Cheng, L., and Zhang, J., 2016. "Organizational Learning, Strategic Flexibility and Business Model Innovation: An Empirical Research Based on Logistics Enterprises". In *Applied Mechanics, Mechatronics and Intelligent Systems* pp. 883-893
- Bashir, M., and Verma, R., 2019. "Internal factors & consequences of business model innovation". *Management Decision*, 57(1): 262-290
- Bernd, W. W., and Peter, D., 2017. "Business Model Innovation: An Integrative Conceptual Framework". *Journal of business models*, 5(1): 14-34
- Bock, A., Opsahl, T., and George, G., 2010. "Business model innovations and strategic flexibility: A study of the effects of informal and formal organization". Paper presented at the Proceedings of the Sumantra Ghoshal Conference for Managerially Relevant Research, London, UK.
- Bock, A. J., Opsahl, T., George, G., and Gann, D. M., 2012. "The Effects of Culture and Structure on Strategic Flexibility during Business Model Innovation". *Journal of Management studies*, 49(2): 279-305
- Brozovic, D., 2018. "Strategic Flexibility: A Review of the Literature". *International Journal of Management Reviews*, 20(1): 3-31
- Casadesus-Masanell, R., and Ricart, J. E., 2010. "From Strategy to Business Models and onto Tactics". *Long Range Planning*, 43(2-3): 195-215
- Cavalcante, S. A., 2012. "Preparing for business model change: the "pre-stage" finding". *Journal of Management & Governance*, 18(2): 449-469
- 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
- De Haan, J., Kwakkel, J. H., Walker, W. E., Spirco, J., and Thissen, W. A. H., 2011. "Framing flexibility: Theorising and data mining to develop a useful definition of flexibility and related concepts". *Futures*, 43(9): 923-933
- De Leeuw, A. C. J., and Volberda, H. W., 1996. "On the concept of flexibility: A dual control perspective". *Omega*, 24(2): 121-139
- Demil, B., and Lecocq, X., 2010. "Business Model Evolution: In Search of Dynamic Consistency". *Long Range Planning*, 43(2-3): 227-246
- Dreyer, B., & Gronhaug, K., 2004. "Uncertainty, flexibility, and sustained competitive advantage". *Journal of Business Research*, 57(5): 484-494
- Eppink, D. J., 1978. "Planning for strategic flexibility". *Long Range Planning*, 11(4): 9-15
- Eryeşil, K., Esmen, O., and Bedük, A., 2015. "The Role of Strategic Flexibility for Achieving Sustainable Competition Advantage and Its Effect on Business Performance". *International Journal of Industrial and Systems Engineering*, 9: 3469-3475
- Evans, J. S., 1991. "Strategic Flexibility for High Technology Maneuvers - a Conceptual-Framework". *Journal of Management studies*, 28(1): 69-89

- Feletto, E., Wilson, L. K., Roberts, A. S., and Benrimoj, S. I., 2010. "Flexibility in community pharmacy: a qualitative study of business models and cognitive services". *Pharmacy world & science*, 32(2): 130-138
- Foss, N. J., and Saebi, T., 2017. "Fifteen Years of Research on Business Model Innovation: How Far Have We Come, and Where Should We Go?" *Journal of management*, 43(1): 200-227
- Geissdoerfer, M., Vladimirova, D., and Evans, S., 2018. "Sustainable business model innovation: A review". *Journal of Cleaner Production*, 198: 401-416
- Golden, W., and Powell, P., 2000. "Towards a definition of flexibility: in search of the Holy Grail?" *Omega*, 28(4): 373-384
- Gärtner, C., and Schön, O., 2016. "Modularizing business models: between strategic flexibility and path dependence". *Journal of strategy and management*, 9(1): 39-57
- Hitt, M. A., Keats, B. W., and DeMarie, S. M., 1998. "Navigating in the new competitive landscape: Building strategic flexibility and competitive advantage in the 21st century". *Academy of Management perspectives*, 12(4): 22-42
- Johnson, M. W., Christensen, C. M., and Kagermann, H., 2008. "Reinventing Your Business Model". *Harvard Business Review*, 86(12), 57-68
- Kiron, D., Kruschwitz, N., Haanaes, K., and Velken, I. V., 2012. "Sustainability Nears a Tipping Point". *MIT Sloan management review*, 53(2), 69.
- Li, Y., Liu, Y., Duan, Y., and Li, M., 2008. "Entrepreneurial orientation, strategic flexibilities and indigenous firm innovation in transitional China". *International Journal of Technological Management*, 41: 223-246.
- Liao, S. Q., Liu, Z. Y., Fu, L. H., and Ye, P. C., 2019. "Investigate the role of distributed leadership and strategic flexibility in fostering business model innovation". *Chinese management studies*, 13(1): 93-112
- Malhotra, Y., 2000. "Knowledge Management and New Organization Forms: A Framework for Business Model Innovation". *Information Resources Management Journal*, 13(1): 5-14
- Markides, C., 2006. "Disruptive innovation: In need of better theory". *Journal of Product Innovation Management*, 23(1): 19-25
- McGrath, R. (2013). "The pace of technology adoption is speeding up". *Harvard Business Review*, 25
- Miroshnychenko, I., Strobl, A., Matzler, K., and De Massis, A., 2020. "Absorptive capacity, strategic flexibility, and business model innovation: Empirical evidence from Italian SMEs". *Journal of Business Research*
- Nidumolu, R., Prahalad, C. K., and Rangaswami, M. R., 2015. "Why sustainability is now the key driver of innovation". *IEEE Engineering Management Review*, 43(2): 85-91
- Peters, M. D., Godfrey, C. M., Khalil, H., McInerney, P., Parker, D., and Soares, C. B., 2015. "Guidance for conducting systematic scoping reviews". *International journal of evidence-based healthcare*, 13(3): 141-146
- Pittaway, L., Robertson, M., Munir, K., Denyer, D., and Neely, A., 2004. Networking and innovation: a systematic review of the evidence. *International journal of management reviews*, 5(3-4): 137-168
- Pohle, G., and Chapman, M., 2006. "IBM's global CEO report 2006: business model innovation matters". *Strategy & leadership*, 34(5): 34-40
- Rajala, R., Westerlund, M., and Moller, K., 2012. "Strategic flexibility in open innovation - designing business models for open source software". *European Journal of Marketing*, 46(10): 1368-1388



- Ramdani, B., Binsaif, A., & Boukrami, E., 2019. "Business model innovation: a review and research agenda". *New England Journal of Entrepreneurship*, 22(2): 89-108
- Rayna, T., and Striukova, L., 2016. "360° Business Model Innovation: Toward an Integrated View of Business Model Innovation: An integrated, value-based view of a business model can provide insight into potential areas for business model innovation". *Research technology management*, 59(3), 21-28
- Roberts, N., and Stockport, G. J., 2009. "Defining Strategic Flexibility". *Global journal of flexible systems management*, 10(1): 27-32
- Sanchez, R., 1995. "Strategic flexibility in product competition". *Strategic management journal*, 16(S1): 135-159
- Sanchez, R., 1997. "Preparing for an uncertain future: Managing organizations for strategic flexibility". *International studies of management & organization*, 27(2): 71-94
- Schneider, S., and Spieth, P., 2013. "Business Model Innovation: Towards an Integrated Future Research Agenda". *International Journal of Innovation Management*, 17(01): 1340001.
- Schneider, S., and Spieth, P., 2014. "Business Model Innovation and Strategic Flexibility: Insights from an Experimental Research Design". *International Journal of Innovation Management*, 18: 1-21
- Shakeel, J., Mardani, A., Chofreh, A. G., Goni, F. A., and Klemes, J. J., 2020. "Anatomy of sustainable business model innovation". *Journal of Cleaner Production*, 261: 121201
- Shimizu, K., and Hitt, M. A., 2004. "Strategic flexibility: Organizational preparedness to reverse ineffective strategic decisions". *Academy of Management Executive*, 18(4): 44-59
- Spieth, P., Schneckenberg, D., and Ricart, J. E., 2014. "Business model innovation - state of the art and future challenges for the field". *R & D management*, 44(3): 237-247
- Spieth, P., and Schneider, S., 2015. "Business model innovativeness: designing a formative measure for business model innovation". *Journal of Business Economics*, 86(6): 671-696
- Teece, D. J., 2010. "Business Models, Business Strategy and Innovation. *Long Range Planning*, 43(2-3): 172-194
- Teece, D. J., 2018. "Business models and dynamic capabilities". *Long Range Planning*, 51(1): 40-49
- Timmers, P., 1998. "Business Models for Electronic Markets". *Electronic Markets*, 8: 3-8
- Venkatraman, N., and Henderson, J. C., 2008. "Four Vectors of Business Model Innovation: Value Capture in a Network ERA". In *From strategy to execution*, pp. 259-280. Springer Berlin Heidelberg.
- Volberda, H. W., 1996. "Toward the Flexible Form: How to Remain Vital in Hypercompetitive Environments". *Organization Science*, 7(4): 359-374
- Wahyono, W., 2018. "Business model innovation: a review and research agenda". *Journal of Indian Business Research*, 11(4): 348-369
- Weeks, L. C., and Strudsholm, T., 2008. "A scoping review of research on complementary and alternative medicine (CAM) and the mass media: looking back, moving forward". *BMC Complement Altern Med*, 8(1): 1-9
- Wright, P. M., and Snell, S. A., 1998. "Toward a Unifying Framework for Exploring Fit and Flexibility in Strategic Human Resource Management". *The Academy of Management Review*, 23(4): 756-772

- Xin, W., 2020. "Exploring the Impact of Strategic Flexibility on Business Model Innovation under the Open Innovation Activity: The Moderating Roles of Multiple Factors with Competitive Ties and Cooperative Ties". *International Business Research*, 13(7): 1-80
- Yang, D., Wei, Z. L., Shi, H. B., and Zhao, J., 2020. "Market orientation, strategic flexibility and business model innovation". *Journal of Business & Industrial Marketing*, 35(4): 771-784
- Zhou, K. Z., and Wu, F., 2009. "Technological capability, strategic flexibility, and product innovation". *Strategic management journal*, 31(5): 541-561
- Zollo, M., Cennamo, C., and Neumann, K., 2013. "Beyond What and Why: Understanding Organizational Evolution Towards Sustainable Enterprise Models". *Organization & environment*, 26(3): 241-259
- Zott, C., and Amit, R., 2015. "Business model innovation: Toward a process perspective". *The Oxford handbook of creativity, innovation, and entrepreneurship*, 395
- Zott, C., Amit, R., and Massa, L., 2011. "The Business Model: Recent Developments and Future Research". *Journal of management*, 37(4): 1019-1042