Platform Business Model Innovation in the Digitalization Era: A "Driver-Process-Result" Perspective

Abstract: In the digitalization era, business model innovation (BMI) has become the critical keystone for platforms to gain a sustainable competitive advantage in turbulent environments. However, platform BMI is currently not clearly understood. Through a longitudinal case study of a Chinese financial service platform, this paper integratively addresses issues related to platform BMI in terms of drivers, change process, and value co-creation dynamics based on the "driver-process-result" perspective. The findings indicate that platform BMI type experiences a change process from Focus BMI to Complex BMI at different development stages. At different stages, platform BMI is highly interconnected because of the continuous accumulation and utilization of digital resources. The two drivers, external pressure and management cognition, act as trigger and filter, respectively, in the process of platform BMI. These results also suggest that platforms have successively formed three different value co-creation models in the BMI process.
Keywords: Platform; Business model innovation; Digitalization era; Value co-creation

1. Introduction

The rise of the digital economy, defined as an economic and social phenomenon facilitated by platforms (Chen et al., 2020), has brought tremendous changes to daily life. During this process, the Internet and mobile technologies, accompanied by rapid advances in analytics such as artificial intelligence (AI) and big data, are empowering the exponential growth of the platform business model (BM) (Wirtz et al., 2019; Nambisan et al., 2017). As a result, the platform BM continues to challenge traditional industries to meet changing consumer preferences and create new such preferences (Vaerenbergh, 2018; Täuscher & Laudien, 2018) in the fields of transportation (e.g., Uber), accommodation (e.g., Airbnb), shopping (e.g., Alibaba), communication (e.g., Facebook), and finance (e.g., Lending Club), among others. However, in recent years, the increasingly changing business environment has exposed the platform BM to more threats and higher pressures such as intensified competition and complexity, shorter innovation cycles, and increased market volatility (Zhang et al., 2021; Şimşek et al., 2022). It is not uncommon to see that some platforms flourish for only a few years preceding their decline and complete failure. Therefore, for all types of platforms, continuous business model innovation (BMI) has become the critical cornerstone for companies to secure a sustainable competitive advantage and maintain their market position (Osiyevskyy & Dewald, 2018; Su et al., 2021; Clauss et al.,

2019). For instance, through continuous BMI, TikTok has gradually expanded its business to also include music publishing, game publishing, and live streaming, and launched an e-commerce series product (TikTok Shopping) in 2021. To date, TikTok has been downloaded more than 3 billion times worldwide, ranking as the top mobile app (non-game) download worldwide.

Yet, the literature has not developed an effective solution to this vital issue. To date, while researchers have acknowledged the central role BMI plays in the success of platforms, there has been a clear lack of empirical efforts to systematically study the critical success factors of platforms in uncertain environments (Täuscher & Laudien, 2018; Schneider et al., 2013). Specifically, the literature on the drivers of BMI has categorized these into internal and external factors (Zhang et al., 2021), emphasizing that exogenous stress and managerial cognition are the two core prerequisites of successful BMI (Foss and Saebi, 2017; Bitetti & Gibbert, 2022; Osiyevskyy & Dewald, 2018). As a dynamic system requiring constant adjustments because of internal and external changes, existing studies on platform BMI have disclosed the entire process with required changes (Bucherer et al., 2012; Schneider et al., 2013; Hossain, 2017; Randhawa et al., 2021; Trischler & Li-Ying, 2022). While these studies have advanced the understanding of platform BMI, they do not offer detailed information on the specific stages of the process, changes that happen at each stage, and how exogenous pressures and managerial cognition exert their impact at different stages of the platform BMI (Su et al., 2021).

Further, a consensus among scholars has been reached on the importance of value co-creation in platform BMI (Thomas et al., 2014; Andreassen et al., 2018; Blasco-Arcas et al., 2020). Continuously creating new value with customers is not only a key mechanism for platforms to update or rebuild their BM, but also an important target for platform BMI (De Oliveira & Cortimiglia, 2017; Brodie et al., 2019; Täuscher & Laudien, 2018). More importantly, during the process of platform BMI, the value co-creation model exhibits dynamic characteristics as a result of continuous changes in roles, ways of interaction, and types of value created by various participants at different innovation stages (Vargo & Lusch, 2004; Flint et al., 2002; De Oliveira & Cortimiglia, 2017). Despite the rapidly growing body of literature on value co-creation dynamics (Corsaro, 2019), research on how value co-creation models evolve during the platform BMI process is missing (De Oliveira & Cortimiglia, 2017). Motivated by these important research gaps, the present paper

integratively addresses platform BMI-related issues of drivers, change process, and value co-creation dynamics based on the "Driver-Process-Result" perspective. Specifically, the following research questions are addressed:

(1) How do exogenous pressures and managerial cognition drive the change for platform BMI?

(2) What are the roles of exogenous pressure and managerial cognition throughout the process of platform BMI?

(3) How does the platform value co-creation model change throughout the process of BMI?

To answer these questions, this study adopts an in-depth, longitudinal case study method to examine a financial service platform in China, with the aim to contribute to the literature in three ways. First, this study responds to the urgent call to investigate the change process of platform BMI (Şimşek et al., 2022; Presenza et al., 2021). Based on the research of Foss and Saebi (2017) on BMI typology, the change trajectory of platform BMI is clarified by identifying the BMI type at different development stages. Moreover, this paper shows that at different stages, platform BMI is highly interconnected because of the continuous accumulation and utilization of digital resources. Second, novel insights into the link between exogenous pressures, managerial cognition, and platform BMI, as well as a contribution to the literature on drivers of platform BMI are provided (Zhang et al., 2021; Foss & Saebi, 2017; Randhawa et al., 2021). Specifically, exogenous pressures and managerial cognition serve as the trigger and the filter, respectively, in the process of platform BMI. Third, research on value co-creation dynamics is advanced. This paper considers the process of platform BMI as a unit for analyzing value co-creation dynamics. Based on the design of the constitutive dimensions of value co-creation, a new analytical idea is provided for research on value co-creation dynamics, particularly in the platform context (De Oliveira & Cortimiglia, 2017). Importantly, the value co-creation model has undergone three changes in the process of platform BMI, thus addressing the call of De Oliveira and Cortimiglia (2017). Furthermore, the core functions of the platform in facilitating value co-creation are clarified and the body of research on platform BMI and value co-creation is expanded (Blasco-Arcas et al., 2020).

This paper is structured as follows: Section 2 presents a thorough literature review of platform BMI, drivers of BMI, and value co-creation in the platform context. The method adopted is demonstrated in Section 3. Section 4 then presents the

main findings of the case study. Finally, Section 5 discusses the key findings and contributions, and points out possible avenues for future work.

2. Literature review

2.1 Platform business model innovation

BM, and more recently, how to implement BMI, has gained increasing attention both in management literature and among practitioners (Foss & Saebi, 2017; Ritter & Lettl, 2018; Zhang et al., 2021; Wirtz et al., 2016). While a BM represents the "design or architecture of the value creation, delivery, and capture mechanisms" of a firm (Teece, 2010), BMI refers to the "designed, novel, non-trivial changes to the key elements of a firm's business model and/or the architecture linking these elements" (Foss and Saebi, 2017). In recent years, the development of innovative platform BM that addresses diverse consumer markets, has benefited from technological advances, such as novel search and matching algorithms and the wide diffusion of mobile devices (Täuscher & Laudien, 2018). Platform BM, therefore, is intrinsically open, and needs inputs from various platform users to gradually refine the service (Muzellec et al., 2015).

However, with the increasing intensification of competition and complexity, shortened innovation cycles, and reduced market predictability caused by the ever-changing environment and prominent technological advancements such as digitalization, securing competitive advantage and profitability through BMI has become one of the key strategies for different types of platforms (Su et al., 2021). Successful platform BMI enables novel value propositions and revenue models, and realizes value co-creation through unleashing the potential of network effects (Wirtz et al., 2019; Jocevski et al., 2020). Furthermore, BMI is a dynamic system that constantly responds to internal and external changes (Bucherer et al., 2012; Randhawa et al., 2021; Şimşek et al., 2022). This means that platforms with high valuations are able to adjust their BMs through architectural or componential changes at different stages of development (Su et al., 2021; Chesbrough, 2010; Täuscher & Laudien, 2018). For example, since 1999, Alibaba has made a series of BMI attempts from pure B2B to a combination of B2B, C2C, and B2C. These attempts have contributed substantially to its success in China as the new BM enabled the platform to capture the market and secure the highest market value. However, how such empirical platform BMI success can be theorized and generalized still remains unclear (Täuscher & Laudien, 2018). Existing studies are mostly descriptive and lack depth

regarding the change process of platform BMI (Schneider et al., 2013; Zott & Amit, 2008).

At different stages, BMI is carried out by redesigning certain BM components or by making cyclical adjustments to all BM dimensions (Foss & Saebi, 2017; Landau et al., 2016). Therefore, to fully conceptualize BMI as a theoretical construct requires effective quantification of changes in all primary dimensions of the BM (Clauss, 2017). Drawing on prior literature (Osterwalder & Pigneur, 2010: p.34; Teece, 2010; Şimşek et al., 2022; Foss & Saebi, 2017), this paper focuses on three core BM elements, namely, value proposition, value creation, and value capture. Value proposition refers to an offer that is of value for target customers (Cui et al., 2022). Value creation defines how firm creates value (i.e., key value activities) along the value chain using core resources and capabilities of intra- and interorganizational processes (Howell et al., 2018; Täuscher & Laudien, 2018). Value capture then defines how value propositions are converted into revenues including key revenue streams, as well as both tangible and intangible gains (Abdelkafi & Täuscher, 2016).

Based on the extent of "novelty" (being new to the firm and the industry) and "scope" (the amount of architecture and modular change involved), Foss and Saebi (2017) classified BMI types into Evolutionary (modular, new to the firm), Focused (modular, new to the industry), Adaptive (architectural, new to the firm), and Complex (architectural, new to the industry). Based on this framework, the present study explores the main BMI type at each development stage of the platform, thus providing a dynamic illustration of how platform BMI evolves.

2.2 Drivers of platform business model innovation

Research on the antecedents of platform BMI is an emerging stream of the BMI literature (Clauss et al., 2021). Overall, drivers of platform BMI are classified into two categories—external and internal (Zhang et al., 2021)—as shown in Table 1.

External drivers. Previous studies have highlighted the role external environmental factors play in platform BMI actions, including changes in regulations (Berti & Casprini, 2018), customer preferences (Randhawa et al., 2021), technological advancements (Zott & Amit, 2008), and competitive environment (Clauss et al., 2021). However, existing studies lack sufficient valid evidence to demonstrate that these factors drive platform BMI directly (Foss and Saebi, 2017). Therefore, efforts have been made to identify the inductive drivers underlying these external environmental changes, which can be assumed to be the real motivations of platform

BMI (Su et al., 2021). More importantly, few studies have examined the relative importance of external threats and pressures on the propensity of a platform to innovate its BMs (Saebi et al., 2017). Previous research on organizational behavior suggests that turbulent environments create unexpected crises and challenges, forcing platforms to continuously innovate their BMs to stay competitive (Clauss et al., 2021). In fact, compared to traditional businesses, platforms (as an open organization) are more sensitive to the tremendous pressures imposed by the uncertain environment (Şimşek et al., 2022). Osiyevskyy and Dewald (2018) further contributed to this discussion by suggesting that perceived pressure caused by regulatory turmoil and disruptive innovations are the main driving forces of BMI in organizations. Hence, exogenous pressure is considered to be the core factor that drives platform BMI more directly (Su et al., 2021). Based on this premise, this study aims to capture the effects of environmental changes on platform BMI through the lens of exogenous pressures.

Table 1 Articles reviewing the drivers of platform BMI

Category	Drivers	Sample authors	Research gaps
External drivers	Regulatory changes	Berti and Casprini (2018)	● Little research on identifying the inductive drivers underlying changes of the external environment ● Few studies have examined the important role of pressures imposed by external threats on platform BMI
	Customer preferences	Randhawa et al. (2021)	
	Technological innovation	Baden-Fuller and Haefliger (2013)	
	Competitive environment	Clauss et al. (2021)	
	Market opportunity	Zhang et al. (2021)	
	Exogenous pressures	Su et al. (2021)	
Internal drivers	Managerial cognition	Bitetti and Gibbert (2022)	● Certain scholars place managerial cognition at the center stage in their attempts to understand platform BMI. There is a lack of further research on how management cognition drives platform BMI
	Strategic changes	Foss and Saebi (2017)	
	Organizational characteristics	Zhang et al. (2021)	
	Dynamic capability	Sousa-Zomer and Cauchick-Miguel (2019)	
	Internal resources	Zhang et al. (2021)	
Research findings	● The present study examined the roles of exogenous pressures and managerial cognition in the process of platform BMI. Specifically, external pressures do not directly drive platform BMI, but rather, they act as a trigger, i.e., a factor that causes managers to rethink the future of the existing BM. Managerial cognition plays the role of a filter and directly drives the redesign of value proposition		

Internal drivers. Managerial cognition has been emphasized in the understanding of BMI, and has also been identified as a core internal driver of platform BMI (Zhang et al., 2021; Bitetti & Gibbert, 2022; Aspara et al., 2013). The emerging cognitive perspective on platform BM interprets managerial cognition as

implicit schemas in the mind of entrepreneurs or managers (Foss & Saebi, 2017; Massa et al., 2017). For example, Li et al. (2017) used a case study of seven electric business platforms to demonstrate the important role the cognitive processes of executives can play in corporate BM transformation decisions. Further, previous research applying the rational positioning view has shown that when confronted with environmental volatility, top managers seek to identify ideal opportunities for platform BMI by rapidly processing new market information, including emerging market segments, changing customer demands, and recent technological trends (Bitetti & Gibbert, 2022; Schneider, 2019; Martins et al., 2015). Prior experience and knowledge of customer preferences, as well as market and industry structures and developments provide further support for top managers in their efforts to discover new opportunities (Schneider, 2019). This managerial cognition, also known as strategic sensitivity, is an important foundation for continuous platform BMI efforts (Clauss et al., 2021). In line with this, managerial cognition is regarded as a critical internal driver of platform BMI in this study.

By examining how exogenous pressure and managerial cognition motivate platforms to carry out platform BMI, this study fills the research gap that exists between their recognition as core drivers of platform BMI and a full understanding of how they do so throughout the whole process (Zhang et al., 2021).

2.3 Value co-creation in the platform context

The fields of service marketing and business management have witnessed a broadened scope of value creation, from individual actors to co-creation by multiple stakeholders (Alves et al., 2016; Corsaro, 2019). Traditional value creation theory is based on the good-dominant logic, which regards consumers as pure receivers of goods and services who are not part of the value creation process (Vargo & Lusch, 2004). Value co-creation theory posits that the value created is the result of interactions between the company and consumers (Terblanche, 2014), where consumers provide input in the form of experience, demand, and in certain cases, solutions to existing and potential issues with the offer (Kohtamäki & Rajala, 2016).

Regarding value co-creation, there are two distinct streams of literature. The consumer experience-based value co-creation perspective (Prahalad and Ramaswamy, 2004) regards consumer experience as central to the co-creation of personalized value through continuous interactions and dialogues between the company and consumers. The service-dominant logic (Vargo and Lusch, 2004; 2011) argues that the service,

rather than the product, is the fundamental unit of exchange, and value is created during the consumption process when customers and service providers interact and integrate resources (Vargo & Lusch, 2016). All social and economic participants are potentially engaged in the value co-creation process and jointly contribute to the provision of the service (Vargo & Lusch, 2011).

The rise of platforms in recent years has further challenged and enriched the value co-creation literature. Existing research has stressed the importance of value co-creation with other stakeholders, such as customers, for platform BMI (Thomas et al., 2014). For example, Andreassen et al. (2018) argued that value co-creation between the platform and consumers is an important foundation of the value creation process. Similarly, De Oliveira and Cortimiglia (2017) highlighted value co-creation as a key mechanism for building new BMs. They argued that technologies support multi-stakeholder interactions that fully mobilize heterogeneous resources and capabilities, therefore contributing to the success of platform BMI. As the key function of a platform BM is to connect actors within the entire ecosystem, proper BMI can foster joint actions, promote engagement, and stimulate value co-creation (Brodie et al., 2019). From this perspective, the platform serves as a key mediator of organizational value co-creation activities (Blasco-Arcas et al., 2020).

Despite valuable contributions, the existing value co-creation literature does not offer any insights in the platform context. As a dynamic process, value co-creation is constantly adapting to contextual changes (Aitken & Paton, 2016) which can be caused by the changing roles of participants and the ways they interact (Vargo & Lusch, 2004; Flint et al., 2002). The resources required and ways in which the platform and its customers interact during the process of platform BMI are constantly changing, which also changes the way value is co-created, resulting in a dynamic platform value co-creation model (De Oliveira & Cortimiglia, 2017). Unfortunately, existing research mostly applies a static perspective (Vargo & Lusch, 2018) and fails to account for the dynamics of value co-creation during platform BMI (De Oliveira & Cortimiglia, 2017). To this end, this paper takes the process of platform BMI as the unit of analysis for the dynamics of value co-creation by including three dimensions, namely, participant roles, participant relationships, and value types (Agrawala & Rahman, 2015; Busser & Shulga, 2018; Grönroos & Voima, 2013). This approach allows the construction of a value co-creation model through clearly identifying how value is created at different stages of BMI with a specific focus on the role of the

platform (Bharti et al., 2015).

3. Methodology

A longitudinal single case study method is appropriate for this study for several reasons. First, the case study method is suitable for investigating "how" questions as well as exploring the "why" underlying observed phenomena (Eisenhardt & Graebner, 2007). This study examines the following "how" questions: How do platform BMI change over time driven by exogenous pressures and managerial cognition? How does platform value co-creation model change during the process of BMI? Second, there is limited existing research to which the current study can refer (Schneider et al., 2013; De Oliveira & Cortimiglia, 2017). In this situation, the case study method is particularly effective for developing new theoretical insights from the chosen case and enriching the nascent literature on platform BMI and value co-creation (Schneider & Spieth, 2013; Andreini et al., 2021). Third, compared with other qualitative methods, the longitudinal single case study method makes it easier to obtain more in-depth and uniquely valuable information by using smaller and more focused samples, thus enhancing the understanding of practices and underlying contexts (Klein & Myers, 1999). Furthermore, longitudinal studies on key events and their causal relationships in time series allow further verification of findings (Yin, 2009: p. 66).

3.1 Case selection

Given the research objective, the theoretical sampling method was employed when selecting platform cases. This approach helps to maximize opportunities to discover variations among concepts and to densify categories in terms of their properties and dimensions (Eisenhardt & Graebner, 2007). Accordingly, a Chinese financial service platform, CredEx Fintech (hereafter referred to as CredEx), was chosen for this study.

Firstly, CredEx is an extreme case, characterized as being "paradigmatic of some phenomenon of interest" (Gerring 2007, p. 101). As a financial intermediary platform, CredEx connects lenders (i.e., financial institutions such as banks) and borrowers (e.g., entrepreneurs of SMEs and individual customers). It also acts as a technology service provider that can support various lenders in their transformation of operations. This platform has rapidly evolved into a global fintech leader within a decade through continuous BMI, and was jointly rewarded the Global SME Finance Prize by the World Bank Group and the G20 in 2018 and 2019. As professor Raphael Amit from Wharton School of Business commented, "*The innovation of CredEx is reshaping the*

frontiers of best practices in the global fintech industry. Its unique value proposition to micro-finance borrowers, its technological innovations and its state-of-the-art risk management practices are reshaping the online lending industry globally."

Secondly, as an emerging industry in China, Internet-based finance is experiencing constant market and regulatory changes, which impose substantial pressures on the BM development of fintech ventures (Su et al., 2021). Under this setting, since its establishment in 2010, CredEx's top managers maintain high strategic sensitivity, which has helped the platform engage in three dramatically different BMI activities to address environmental changes. Finally, the authors of this paper have established a good long-term relationship with CredEx, which enabled the collection of in-depth data for each BMI process. Therefore, with a revenue of around AUD 10 million and 80 employees in 2019, with a credit amount over 50 billion and 3 million customers, the BMI processes of CredEx offer a valuable lens through which important theoretical insights can be derived.

3.2 Data collection

Triangulation, including data source and researcher, was guaranteed during data collection to ensure the richness and reliability of data (Cui et al., 2019). Data triangulation involves cross-comparison of data from multiple sources (e.g., secondary data and interview data from different respondents) to enhance the credibility of the information gathered (Yin, 2009: p. 144). The interview was divided into three stages. Specifically, in the initial interview stage, secondary data were collected from books, magazines, and the Internet. The authors also watched many relevant videos, including news reports and documentaries. Because the development of CredEx has attracted significant attention in the Chinese Internet finance field, secondary data were abundant and easily accessed. Secondary data collection and reviews of existing studies enabled a preliminary understanding of the phenomenon of CredEx' BMI.

At the field interview stage, face-to-face semi-structured interviews were conducted with seven top managers of CredEx from January to March 2019 to acquire detailed information regarding the company's BMI efforts over time. The interviewees were identified through secondary sources and preliminary interviews. Further, interviewees were also asked to suggest other appropriate interviewees, which is in line with the snowball sampling method, often used by case-based researchers as external interviewers can have difficulty to identify the right informants

(Cui et al., 2017). For instance, the president of the consulting firm that has been providing management consulting services to CredEx since 2014 was interviewed, and information acquired from this presented an objective view on the issue and thereby subjective bias could be mitigated (Eisenhardt & Graebner, 2007). All interviews were then transcribed, resulting in a document of more than 169 pages including more than 47 photos and 98 pages of notes. Furthermore, as much internal and external data were collected as possible to further verify or complement interview data. Details of data collection are shown in Table 1. In addition to the triangulation of data sources, the authors deliberately involved multiple investigators in the data collection process to minimize potential subjective bias from the researcher side. Data collected from different investigators were carefully compared and a consensus was reached when views on the same issue were conflicting. For example, investigators disputed the role of top managers in the BMI process after the first round of interviews. Subsequent interviews were therefore adapted, and special attention was paid to managerial cognition issues to clarify the role of top managers.

At the later interview stage, investigators followed up on the previous interviews with specific questions to key informants such as president and chief executive officer. These inverviews were conducted by telephone and WeChat, a widely used instant messaging application, to supplement the data and track the latest developments. Table 2 presents a selection of interview questions in three interview stages.

Table 1 Data collection

Data source	Interviewees/Archives	Length (min)	Transcription
Semi-structured interviews	President	260	35,000 words transcribed
	Chief executive officer	170	28,000 words transcribed
	Chief marketing officer	115	18,000 words transcribed
	Chief product officer	130	22,000 words transcribed
	Chief data office	130	21,000 words transcribed
	Chief technology officer	120	19,000 words transcribed
	Chief risk officer	105	16,000 words transcribed
	President of the consulting company	110	18,000 words transcribed
Internal data	Managers' speeches, conference videos, corporate website materials, and company publications		17 h of video materials and 24 pieces of written materials (290,000 words transcribed)
External data	News reports, social media publicity materials, and case studies		4 industry reports, 5 case studies, and 73 web reports (57,000 words transcribed)

Table 2 Interview questions (selection)

Interview stage	Interview question
Initial interview stage	1. How has the environment of network finance lending industry changed?
	2. What are the key development points and important events of CredEx?
	3. What changes have taken place in the organizational structure of CredEx?
	4. What changes have taken place in the operating activities of CredEx?
	5. What are the core competencies and resources of CredEx?
Field interview stage	1. Why has CredEx changed from O2O model to mobile credit model?
	2. Why has CredEx changed from mobile credit model to technology output?
	3. How do you see the changes in the external competitive environment?
	4. How do you see the changes in national regulatory policy?
	5. What has changed in the relationship between CredEx and its customers?
	6. What digital technologies have been used in the development of CredEx?
	7. What strategic actions have been taken by CredEx in establishing the O2O model?
	8. What strategic actions have been taken by CredEx in establishing the mobile credit model?
	9. What strategic actions have been taken by CredEx in establishing the technology output?
	10. Why does CredEx continue to provide services to B2C customers at present?
	11. What are the barriers to rapid product iteration and how did you overcome them?
Later interview stage	1. How is the performance of CredEx after continuous BMI?
	2. How does CredEx gain B2B customers' trust in establishing the technology export model?
	3. What is the competitive advantage of CredEx's products?

3.3 Data analysis

Following Jiang and Tornikoski (2019), both quantification and temporal-bracket strategies were applied to analyze the process data, including interpretations and events that describe BMI changes in CredEx over time.

Inspired by the approach presented by Su et al. (2021) and Jiang and Tornikoski (2019), the development of CredEx was divided into three stages, using BMI as the key event. Specifically, during the O2O stage (2013–2015), CredEx developed online internal customer acquisition channels based on Internet technology, and eventually established an O2O model of online customer acquisition and offline service. At the mobile credit stage (2015–2017), CredEx developed a mobile credit model to realize the full online credit business process. Later, at the technology output stage (2017 until now), CredEx changed its target market and introduced a technology output model to help banks and other financial institutions transform their operations. For each stage, data were classified and coded with respect to: (1) exogenous pressures faced by CredEx, (2) management cognition of CredEx, and (3) changes to core BM elements involving value proposition, value creation, and value capture. Classification and coding of data were then followed by the continuous comparison strategy (Eisenhardt & Graebner, 2007). In this strategy, the coded data were matched and

iterated with existing theories, and the relationships between exogenous pressures, management cognition, and BMI were explored to obtain a robust chain of evidence. Finally, a robust and comprehensive theoretical framework was established, and graphical representations were used for data analysis in an attempt to generate theoretical contributions.

To analyze the obtained data, the data encoding method suggested by Gioia et al. (2013) was adopted. Following this approach, the 1st-order analysis involved identifying and using empirical codes and terms that were central to the interviewees. During this coding, the language used by interviewees was always retained. Individually, all emerging 1st-order codes were triangulated by comparing them with different sources of data in the utilized dataset to avoid over-reliance on interview data (Huang et al., 2021). Then, the principles and techniques of axial coding were used to conduct 2nd-order analysis. The 2nd-order analysis was geared towards identifying theoretical concepts related to empirical observations. A further distillation of the emergent 1st and 2nd-order analyses finally generated a number of "aggregate dimensions". The data structure is presented in Figure 1. Iterating between collected data, emerging findings, and relevant literature, enabled to differentiate, classify, and relate the emergent concepts based on their properties and empirical substance (Huang et al., 2017).

To ensure credibility and validity, the above coding process was performed simultaneously by three researchers. When a point was made by a coder, the authors would act as devil's advocates and constantly question it, which prompted in-depth discussions that helped to ensure alignment between theory, data, and analysis (Pan & Tan, 2011). After data analysis was completed, the results were sent to interviewees and peers for comments until an agreement was achieved.

4. Research results

Variance was found in exogenous pressures, managerial cognition, and BMI across all three stages of the evolution of CredEx (O2O stage, mobile credit stage, and technology output stage). This paper focuses on changes regarding the key elements (value proposition, value creation, and value capture) of the BMI of CredEx, and the value co-creation model at each stage (as shown in Table 2).

Table 2 The value co-creation model in three stages of the evolution of CredEx

Stage	O2O stage	Mobile credit stage	Technology output stage

Participant Roles	CredEx: dominant player B2C customers: users	CredEx: dominant player B2C customers: key information providers	CredEx: service provider B2B customers: collaborators B2C customers: key information providers
Participant relations	One-way value delivery	Information interaction	Establish a collaborative and shared partnership
Value types	Exchange value	Functional value	Contextual value
Value Co-creation model	Connected value Creation model	Interactive value co-creation model	Collaborative value co-creation model

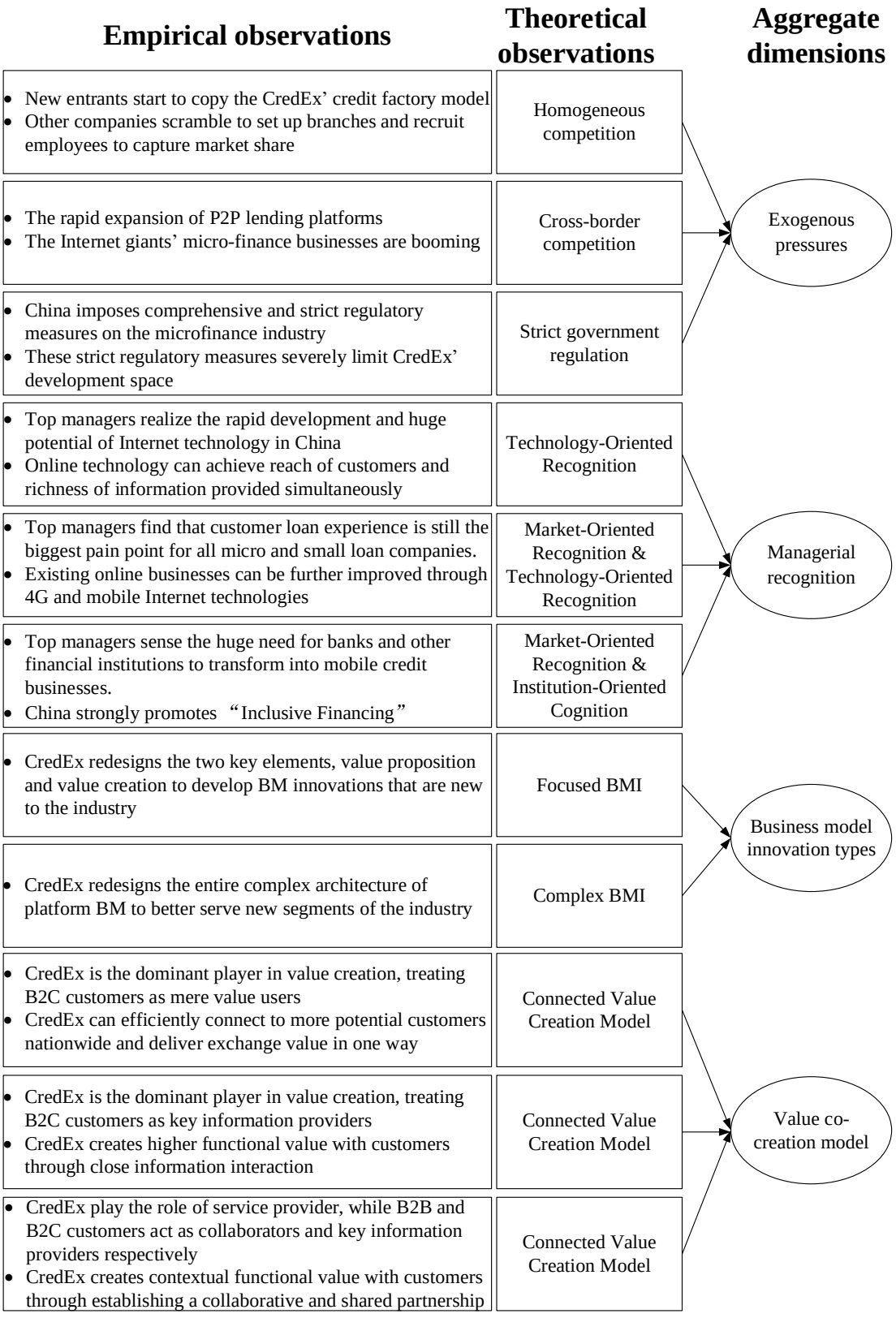

Fig. 1. Data structure

4.1 The O2O stage

4.1.1 Exogenous pressures

In the early period of its establishment in 2010, CredEx established the Credit

Workshop model to address the small and high-frequency loan needs of entrepreneurs of SMEs and individual consumers. This was achieved by centralizing the complex credit approval business in an "assembly line" operation. As a result, the approval efficiency of loans increased by more than 300%, enabling the company to expand its business nationwide. By 2013, CredEx managed to set up 40 branches, with over 2,400 employees.

Despite the overwhelming dominance of the Credit Workshop model in the industry, competition in the sector was rapidly heating up as China's support for micro and small loans increased. According to the "*2013 Microfinance Company Statistics Report*" by the People's Bank of China, more entrants started to copy the credit factory model of CredEx, and scrambled to set up branches and hire more staff to acquire a larger market share. During these efforts, CredEx staff became a valuable resource to compete for. Therefore, the main form of exogenous pressure facing CredEx was homogeneous competition. The president explained this as follows:

"*The business we were in was for the general public and had a lot of choices, both in terms of CredEx and being pulled over by other companies at any time, so it was common at the time to buy and sell customer information in the market, and there were even incidents where employees of two companies fought over customers.*"

4.1.2 Managerial cognition

In 2013, the top managers of CredEx were keenly aware of the rapid development and huge potential of Internet technology in China. At the same time, the State Council's *Implementing Opinions on Financial Support for the Development of Small and Micro Enterprises* (No. 87) proposed a series of guidelines such as "making full use of new technologies and tools such as the Internet to continuously innovate online financial service models". These policies encouraged CredEx to actively explore ways of customer acquisition online. Online operations would benefit the company in significant ways that would otherwise not have been possible, including simultaneously achieving customer reach and richness of information provided, reducing the number of physical branches and staff, and ultimately changing the original asset-heavy model and regaining a competitive advantage. Therefore, at the O2O stage, the managerial cognition of CredEx' top managers was mainly technology-oriented, which can reduce internal human and management costs through the emerging Internet technology. The CMO explained this as follows:

"*2013 was the first year of China's Internet economy. The application of the*

Internet in the small and micro finance field was still in the initial stage of exploration. We could use Internet technology to improve customer acquisition efficiency and reduce enterprise operating costs."

4.1.3 Business model innovation

Driven by technology-oriented cognition, CredEx achieved BMI by redesigning two key elements, namely, value proposition and value creation, as illustrated in Fig. 1.

Redesigning value proposition. While still serving B2C customers, such as small entrepreneurs and individual consumers, CredEx put forward a new value proposition of "providing efficient and convenient small and micro loan services". This value proposition reflects the attempt of CredEx to obtain the competitive advantage by using the Internet to quickly identify customers with potential borrowing needs at a lower cost and provide them with a higher exchange value. This refers to the monetary value realized when goods are actually sold (Howell et al., 2018).

Redesigning value creation. At the O2O stage, the core digital resources of CredEx mainly included the Internet technology R&D team led by the CTO, as well as the original offline process-based approval model and risk control system. With the digital resources at this stage, CredEx has mainly completed the following three value activities. (1) Building an online agent model. Learning from insurance agencies, CredEx adopted the model of part-time agents (called "Feixia"), i.e., anyone who had customer resources could provide information to CredEx through a network platform. (2) Transformation of branches and recruitment of Feixia. CredEx transformed more than 3,000 employees in its branches nationwide into "Feixia" and managed them online. In addition, CredEx has further expanded its customer acquisition channels by actively recruiting employees from competitors or even the market public with customer resources. (3) CredEx established the first O2O model in the industry. In 2013, CredEx launched two mobile applications, namely the "Feixia" app and its internal operation app, seamlessly integrating online customer acquisition with offline services (e.g., physical documents collected by branches) and risk control. Subsequently, the IT department launched a new website, and the industry's first O2O model was officially established, integrating online and offline services.

Maintaining value capture. While the profit model of CredEx back then was still based on service fees, CredEx achieved rapid development through BMI.

Specifically, the number of registered "Feixia" had expanded to 100,000 from March to May 2014, which is a 70-fold increase compared to the traditional model, with a 50% repeat rate and more than 50% increase in after-tax profits.

In sum, at this stage, the BM of CredEx was largely characterized by a financial intermediary platform based on the O2O model, connecting banks and other financial institutions to small customers. In the process of building the platform architecture of the O2O model, CredEx was the dominant player in value creation, treating B2C customers as mere value users, and ultimately forming the connected value creation model. As illustrated in Fig. 2, CredEx redesigned its internal customer acquisition channels based on Internet technology, thus enabling the enterprise to efficiently connect to more potential B2C customers nationwide and deliver exchange value in one way. However, CredEx lacked communications and interactions with customers, and failed to realize value co-creation. The CEO recalled,

"*At the time, CredEx was primarily a 'leverage technology, reduce staff, and increase efficiency' oriented business. In the meetings of top managers, what they discussed most was how to acquire customers quickly and reduce operating costs, but they did not really understand what kind of credit products customers wanted.*"

BMI in the O2O Stage	
Redesign Value Proposition	Put forward a new value proposition, namely, "provide efficient and convenient small and micro loan services"
Redesign Value Creation	• Built an online agent model • Branches transformation and recruitment of "Feixia" • Establishing the first O2O model in the industry
Maintenance Value Capture	The profit model was still based on charging customers a service fee based on credit services

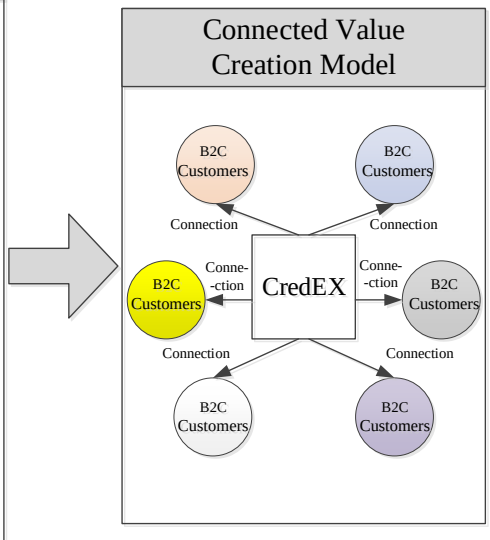

Fig. 2. The BMI of CredEx and the connected value creation model at the O2O stage.

4.2 The mobile credit stage

4.2.1 Exogenous pressures

Although the O2O-based business model still has good prospects, CredEx found

itself facing a serious development crisis. The microfinance industry has witnessed a serious disorderly development in 2014 with the rapid expansion of peer-to-peer (P2P) lending platforms. According to publicly available data, the number of P2P lending platforms in China reached 2,238 by the end of 2014, which is an increase of 335.4% year-on-year. Moreover, the financial service business of Internet giants such as Alibaba and JD.com also grew swiftly, and micro-finance businesses such as Micro Credit, Ant Cash Now, JD Credit Note, and Xiaomi Loan flourished. Therefore, the predominant exogenous pressure facing CredEx then was cross-sectoral competition. As the CEO explained,

"*The competition faced by CredEx was not eased by the O2O model, but rather more rivals were pouring into the micro and small credit market from all areas…P2P was on the rise, with Internet giants such as BATJ and its financial services rising rapidly. What can be said is that CredEx was going through a huge competitive crisis, although the company's business was still on the rise.*"

4.2.2 Managerial cognition

Despite fierce competition in the industry, after two months of market research, the top managers of CredEx found that the customer loan experience was still the main pain point for all micro and small loan companies. The CMO recalled,

"*The key to financial innovation was to create products that maximized the benefits and needs of customers. Especially in today's mobile Internet era, where consumers had greater choice, products would only be actively chosen by consumers if they truly met their interests and needs*".

For this reason, after obtaining feedback from thousands of customers, CredEx identified five difficulties associated with consumers getting loans, including applying, getting approval, using loans, repaying, and repeated borrowing. Moreover, with the rapid development of 4G and mobile Internet technologies in China, top managers of CredEx sensed new potential and opportunities the digital era can bring to the industry. Existing online businesses can be further improved through 4G and mobile Internet technologies by making the whole process of lending easier and faster (Gupta et al., 2022). Therefore, at the mobile credit stage, the managerial cognitions of CredEx were mainly market- and technology-oriented. As recalled by the CTO,

"*Mobile Internet enabled customers to complete the registration, application, and risk identification process without time and space constraints, thus greatly shortening the time for customers to apply for loans and truly addressing customers'*

needs for 'convenient access' to loans."

4.2.3 Business model innovation

Driven by the market-oriented cognition and technology-oriented cognition, CredEx achieved BMI by redesigning two key elements, namely, value proposition and value creation, as shown in Fig.3.

Redesigning value proposition. Although CredEx still targeted B2C customers, such as entrepreneurs of SMEs and individual consumers who needed loans, the company put forward a new value proposition with the aim to solve potential customer pain points, namely, "providing a mobile credit service that can facilitate loans and repayments at any time from any location." Functional value refers to the utility perceived from the product's expected quality and performance (Hsu & Lin, 2015, Handarkho, 2020), and the new proposition reflected the attempts of CredEx to provide higher functional values to customers using 4G and mobile Internet technologies.

Redesigning value creation. At the mobile credit stage, the core digital resources of CredEx mainly included emerging technologies such as mobile Internet and big data analytics mastered during the O2O stage, as well as a deeper understanding of customer needs and rich customer data accumulated over the past 10 years. With ample digital resources, CredEx has mainly completed three value activities. (1) Introducing the first mobile credit app in the industry. In October 2015, based on customer demands, CredEx launched a mobile app called "CredEx", the first in the world that enabled customers to borrow and pay back money whenever and wherever possible. The launch of the mobile credit app and the closure of all physical branches represented the official transfer of business processes from offline to fully online by CredEx. (2) Rapid product iteration. The mobile credit app completed three product iterations in one year by creating interfaces of interaction with customers, including regular user research, telephone customer callbacks, and adding online customer functionality. These interfaces provided CredEx with access to huge customer data, including product consultation data from pre-sales interactions, and post service review data. As a result, collecting and analyzing rich data helped CredEx to optimize the user interface and features and improve the quality of the product. (3) Establishing a big data risk control system. To fit the fully online credit environment, CredEx established a big data risk control system using big data analytics and artificial intelligence technologies, making it possible for the company to intercept

individual and group frauds within milliseconds. More importantly, the system further enhanced the customer experience by creating more accurate customer segmentation models and automatically setting personalized interest rates and borrowing limits.

Maintaining value capture. The profit model of CredEx did not change at that stage, and was still based on customers service fees. CredEx gained a competitive advantage in the industry through BMI. Specifically, CredEx outperformed more than 3000 competitors, the user base increased by 76 times, and performance increased by 30 times within only one year. In particular, the mobile credit model has helped cooperative banks and other financial institutions issue loans worth 50 billion yuan by 2017, reflecting excellent consumer recognition and trust.

In sum, during this period the BM of CredEx was largely characterized by a B2C platform based on the mobile credit model, connecting lenders of licensed financial institutions and small borrowers. In the process of building the B2C platform architecture, CredEx remained the dominant player in value creation and began to treat B2C customers as key information providers in the product prototyping and updating process. Simply put, CredEx and B2C customers jointly created higher functional value through close information interaction, and finally formed the interactive value co-creation model. The president explained as follows:

"*Whereas in the past, we often did internal innovation activities that did not really build a competitive advantage, we now realized that customers were the fundamental source of the competitiveness. Therefore, we had to devote all our time and energy to the ultimate customer experience, and to continuously improve our services by listening more to our customers.*"

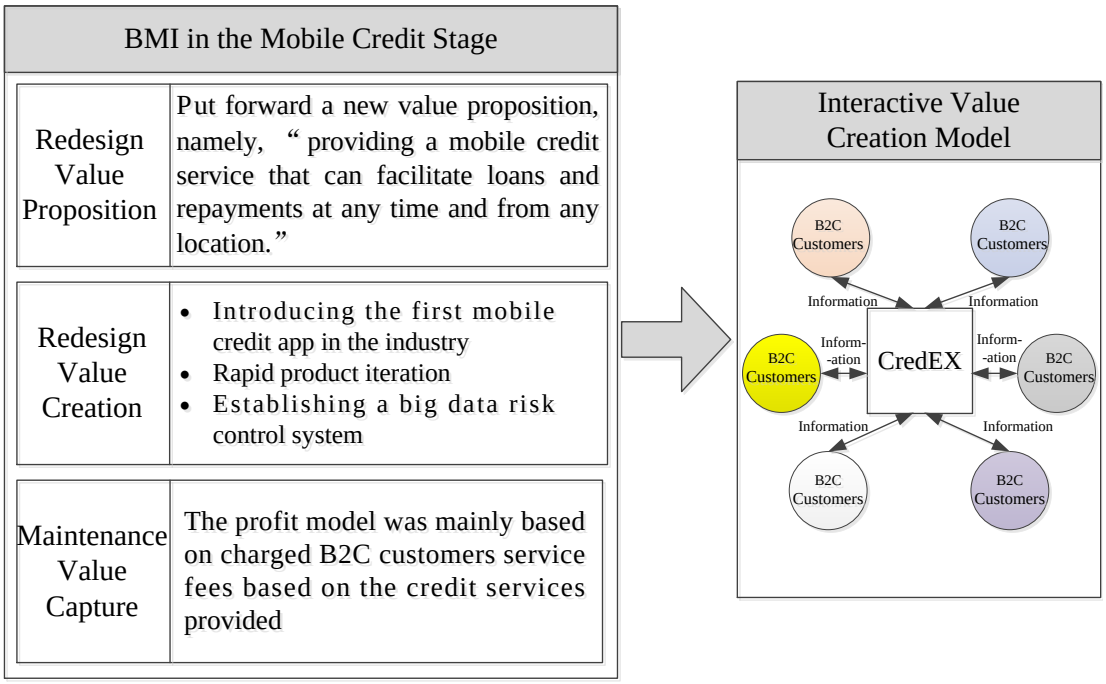

Fig. 3. BMI and interactive value co-creation model of CredEx at the mobile credit stage.

4.3 The technology output stage

4.3.1 Exogenous pressures

Because of the leakage of user information, abnormally high interest rates, and vicious collections by P2P and other microfinance companies, China began to implement comprehensive and strict regulatory measures on the microfinance industry. Since 2016, China had successively introduced a series of notable changes in the regulatory regime, including restrictions on the source of credit funds, custodian requirements, lending limits, and interest. As the funding for CredEx came from banks and other financial institutions, these tough regulatory initiatives made it impossible for companies to meet the increasing demand for loans from their customers. This, in turn, severely curtailed the development space of CredEx. Therefore, increasingly strict government regulations became the main exogenous pressure that challenged the BM of CredEx. The CEO explained:

"*At the time, we expected to be able to disburse 50 to 100 billion a year in loans to customers, but under the new regulatory regime, we could only do 5 billion of business. That was the fundamental reason why CredEx had to retool its existing BM.*"

4.3.2 Managerial cognition

In 2017, China proposed to "*promote 'Inclusive Financing' by means of modern information technology such as the Internet*". Under this policy direction, CredEx

sensed new opportunities fueled by the encouragement of "Inclusive Financing", which encourages banks and other financial institutions to transform into mobile credit businesses. Moreover, after extensive market research, CredEx identified a potential market demand. Specifically, financial institutions were generally reluctant to invest in developing their own technological resources and capabilities and tended to rely on third-party suppliers. Further, it also became clear to CredEx that a total technology solution was preferred by financial institutions with cost- and efficiency-related considerations. Therefore, at this stage, the managerial cognition of CredEx shifted to an institutional- and market-oriented cognition. As a result, driven by new national policies and customer needs, CredEx focused on providing mobile credit technology solutions to financial institutions. The CEO summarized:

"*Many financial institutions had a very strong desire to serve the general public, but the lack of a technology base resulted in online business not being conducted smoothly over the years*. *Therefore, CredEx was willing to work with these financial institutions to provide our mobile credit technology.*"

4.3.3 Business model innovation

Driven by institutional- and market-oriented cognition, CredEx achieved BMI by redesigning the entire architecture, including value proposition, value creation, and value capture, as illustrated in Fig. 4.

Redesigning value proposition. At this stage, the main target customers of CredEx shifted from B2C customers to B2B customers, such as banks and other financial institutions. Based on their needs, CredEx put forward a new value proposition, namely, "output company's integral mobile-credit technology solution to facilitate the transformation of different types of financial institutions." This value proposition reflected the attempts of CredEx to deliver a customized product and contextualized services to different types of B2B customers, providing them with a higher contextual value. This is defined as the provision of customized products or services and contextualized services based on customers' unique preferences (Hubert et al., 2017).

Redesigning value creation. In the technology empowerment stage, the core digital resources of CredEx mainly included the mobile credit technology system (i.e., big data technology, risk control technology, and mobile technology). The security, robustness, and reliability of the technology system has been proven with tens of billions of assets, and could be tailored to meet the needs of different types of B2B

customers (i.e., banks, insurances, and trusts). Moreover, another core resource of CredEx was its long experience in serving B2C customers, which was valuable for financial institutions planning to transform their mobile credit business. With digital resources, CredEx has mainly completed four value activities. (1) Modular development of the technical system. Supported by cloud computing technology, CredEx deconstructed the complex mobile credit technology into functional modules with strong portability, making customer access easier. (2) Establishing a "joint operation" cooperation mode with customers. In this cooperation mode, CredEx employed expert teams to deeply participate in the entire service process, including customized technical solution design, system construction, and follow-up services, to reduce the risk and cost of trial and error for customers. During the cooperation, to quickly personalize the output of the mobile credit technology system, CredEx not only provided on-site technical support and training for B2B customers, but also frequently interacted with them to adapt the new technology system. Additionally, CredEx and B2B customers shared their experience in technology development and credit services on site, further enhancing cooperation intimacy. (3) Restructuring the organization. CredEx flattened their original organizational structure, enabling a favorable environment for efficient communications and collaborations among internal departments around technical problems. (4) Retaining the original B2C business. The B2C business of CredEx was used as a laboratory for the proof of concept and trial run of new technologies and products. B2C customers could then provide feedback online, which was used to stimulate rapid iteration of new technologies for more mature services to B2B customers.

Redesigning value capture. Because of the change of target customers, CredEx redesigned the profit model. At this stage, the profit model was mainly based on charged service fees according to the implementation effects in three kinds of digital technologies-risk control, mobile, and big data. Until then, CredEx had signed contracts with many Chinese financial institutions through BMI, including the People's Insurance Company of China, China Life Insurance, the Bank of Beijing, and China Resources Trust, among others. Moreover, CredEx had also gained a strong reputation and recognition internationally. In 2019, CredEx won the "Best Fintech Innovation Platform" and the "TOP 30 Best Risk Control Service Providers of Fintech in China" awards, and had been listed by the Time magazine in the USA for "Global Financial Technology Best Practice".

Taken together, this stage in CredEx' BM was largely characterized by a service ecosystem based on the technology output model, including both B2B and B2C customers. Within this system, CredEx not only continued to act as a financial intermediary platform connecting lenders and borrowers, but also served as a mobile credit technology provider for banks and other financial institutions. In the process of building the service ecosystem, CredEx played the role of a service provider, while B2B and B2C customers acted as collaborators and key information providers, respectively. Furthermore, CredEx established a collaborative and shared partnership with B2B customers to jointly create higher contextual value, and finally formed the collaborative value co-creation model (Fig. 4). The CMO recalled,

"*In order to provide customized technology solutions to our customers, we increased our face-to-face communication and technology collaboration with them throughout our whole business processes. In this cooperation model, we could not only understand the specific needs of our customers in a timely manner, but also organically integrate customers' technical resources, thus helping them to complete the transformation more efficiently.*"

BMI in the Technology Output Stage	
Redesign Value Proposition	Put forward a new value proposition, namely, "output company's integral mobile-credit technology solution to facilitate the transformation different types of financial institutions."
Redesign Value Creation	• Modular development of the technical system • Establishing a "joint operation" cooperation mode with customers • Restructuring the organization • Retaining the original B2C business
Redesign Value Capture	The profit model at this stage was mainly based on charged service fees according to the implementation effects in three kinds of digital technologies

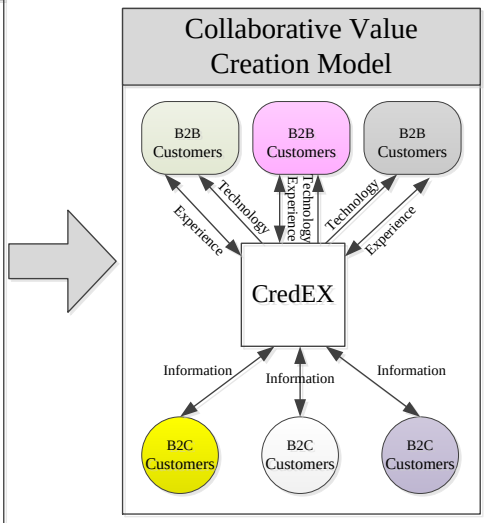

Fig. 4. BMI and the collaborative value co-creation model of CredEx at the technology output stage.

4.4 Research analysis

Through a longitudinal case study of a Chinese financial service platform (CredEx), this study explores platform BMI, mainly from the drivers, change process,

and value co-creation dynamics. This exploration is based on the "driver-process-result" perspective, and the following conclusions can be drawn.

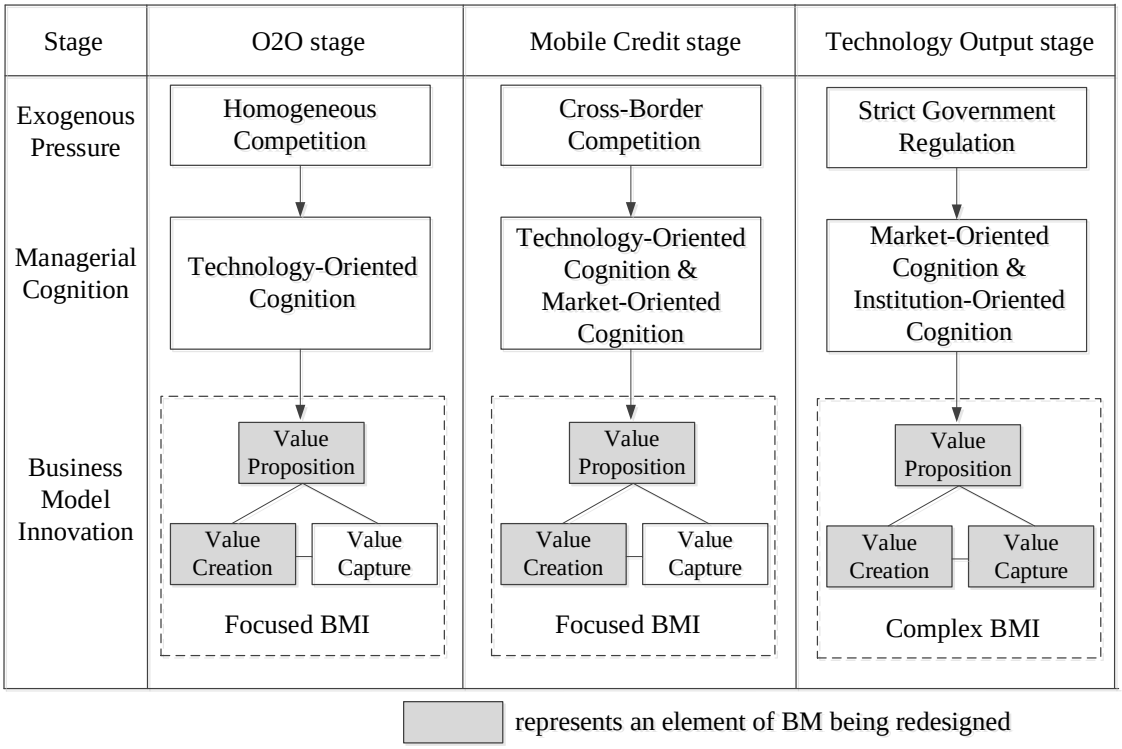

Fig. 5. The change process of platform BMI and the effect of exogenous pressure and managerial cognition on platform BMI

4.4.1 Drivers of platform business model innovation

The findings show that changes in exogenous pressures lead to constant renewal of managerial cognition, which in turn drives BMI activities by platforms, as shown in Fig. 5. While scholars have confirmed the role of exogenous pressures and managerial cognition in influencing BMI (Foss and Saebi, 2017; Zhang et al., 2021), there is still a lack of research on how they work jointly to drive platform BMI. The present study therefore closes this research gap by exploring the roles exogenous pressure and managerial cognition play in the process of platform BMI. Specifically, external pressures do not directly drive platform BMI, but rather act as a trigger, i.e., a factor that causes managers to rethink the future of the existing BM. Specifically, one of the fundamental aims of designing BMs for platforms is to seek differentiation within the industry and to establish a sustainable competitive advantage (Zhao et al., 2020; Amit & Zott, 2015). However, the CredEx case shows that BMI can start from experiencing strong external pressures, such as homogenous competition, cross-border competition, and strict government regulation, and these pressures can lead to

a strong sense of frustration and crisis among the top managers of the platform (Andreini et al., 2021). When the existing BM makes it difficult for the organization to obtain sustainable competitive advantages or even threatens their own survival and development, top managers are forced to consider innovating. As outlined by the CEO,

"*The rapid changes in the external competitive and regulatory environment have led us to maintain a constant sense of crisis. That's why we are constantly adjusting our BM to build a competitive advantage in the industry that is difficult to imitate and replace.*"

Secondly, managerial cognition plays the role of a filter in the process of platform BMI, and directly drives value proposition redesign. Specifically, to be able to respond to the discontinuous changes in exogenous pressures, managerial cognition of platform needs to change accordingly. In this case, this change leads from a pure technological-oriented cognition, to a combination of technological- and market-oriented cognition, and then to a blending of institutional- and market-oriented cognition. In the process of managerial cognition renewal, top managers of the platform have shown high strategic sensitivity (Clauss et al., 2021). This helped the platform to filter contextual information in a complex and changing environment, including emerging Internet technology opportunities, unmet customer needs in the marketplace, or potential opportunities emerging from policy changes (Teece et al., 2016). This contextual information enables platforms to become more aware of new technologies, processes that are needed to create new values for customers, or to offer existing values to customers differently (Clauss et al., 2021). Collectively, managerial cognition enables the firm to continually reinvent its value propositions to pursue untapped market opportunities and meet customers' changing needs and preferences over time, ultimately providing a critical basis for initiating BMI. These findings confirm the conclusion of Bitetti and Gibbert (2022), who argued that business managers' timely responses to external opportunities or threats can facilitate BMI. However, the present study places more emphasis on managerial cognition acting directly on the value proposition of the platform.

4.4.2 Change process of platform business model innovation

The dynamic nature of BMI has been widely confirmed in the literature (Randhawa et al., 2021; Bucherer et al., 2012; Trischler & Li-Ying, 2022). However, to this date, little is known in terms of the change process of platform BMI over time.

Through this in-depth longitudinal case study, two dynamic features of platform BMI could be identified. Firstly, the results indicate that platform BMI types differ in the "scope" and "novelty" dimensions at different stages of their development, influenced by exogenous pressures and managerial cognition, showing a change from Focused BMI to Complex BMI (as shown in Fig. 5). To be more specific, the first two stages of BMI for CredEx were "Focused BMI", where two key elements, value proposition and value creation, were redesigned to better serve new segments of the industry (Foss and Saebi, 2017). Later, at the technology output stage, the target audience of CredEx shifted from B2C customers to B2B customers, and CredEx because engaged in "Complex BMI". This process mainly involved redesigning the entire complex architecture of platform BM, and developing innovations that were new to the industry (Foss and Saebi, 2017).

In terms of the "Novelty" dimension, the platform can develop BMI types that are new to the industry at all stages. The authors believe that the novelty of BMI is enhanced by a deep understanding of and proactive response to technological trends and changes on the demand side of the industry by top managers (Randhawa et al., 2021). For example, the top managers of CredEx always think about how to use new technologies such as the Internet, 4G, and cloud computing to address potential customer pain points and enhance the customer lending experience. As a result, the BMs of CredEx across the three stages are all leading the sector, continuously improving the profitability and securing the competitive advantage. These findings further deepen the results of Foss and Saebi (2017), who showed that active and purposeful engagement by top managers helps the enterprise innovate BMs that are more novel to the industry.

In terms of the "Scope" dimension, platform BMI extends from a change in one or more key elements to the redesigning of the entire architecture. As BM elements are highly interrelated and interdependent, BMIs are characterized by progressive complexity (Randhawa et al., 2021). The reason for the change in the "Scope" dimension is that uncertain changes in the external environment, particularly those in the institutional environment, can easily cause a complete failure of the original BM at a certain stage, which in turn requires the platform to undertake disruptive BMI activities (Osiyevskyy & Dewald, 2015). For example, at the technology output stage, exogenous pressure from strict government regulations made it impossible for CredEx to grow rapidly based on the mobile credit model as it was threatening its survival. As

a result, the entire BM had to be redesigned in response to the government's call for "Inclusive Financing".

Secondly, this research also shows that over time, platform BMI can be understood as an iterative, continuous dynamic process of accumulating and leveraging the firm's digital resources to create value. As can be seen from the CredEx case, at each of their development stages, platform BMIs are highly interconnected. Emerging digital technologies (e.g., Internet, big data analytics, and cloud computing) and the accumulated rich customer resources (i.e., loan needs, product usage habits, among others) developed by CredEx provide more possibilities for developing a solution space that can improve customer value, especially reducing the cost of time and trial-and-error (Khan et al., 2021; Gupta et al., 2021; Khan et al., 2021). For example, during the mobile credit stage, CredEx established a big data risk control system by integrating the big data analysis technology and rich customer data accumulated in the previous stage, thus laying a foundation for the implementation of the mobile credit model. This study responds to the call of Andreini et al. (2021) for "expanding research on the interconnection of BMI processes."

4.4.3 Value co-creation model dynamics of the platform

Value co-creation dynamics, particularly those in the platform context, have received little attention in the existing literature (Aitken & Paton, 2016; De Oliveira & Cortimiglia, 2017). The present study shows that with changes in participant role, participant relationship, and value type, the platform has successively formed three value co-creation models in the BMI process. These are connected value creation model, interactive value co-creation model, and collaborative value co-creation model. Moreover, the three models follow different business logics.

Specifically, (1) the connected value creation model follows the good-dominant logic centered on reducing internal operating costs (Ardley et al., 2020). This model emphasizes that platforms can efficiently connect to potential customers who are discrete in the marketplace, and deliver the exchange value created to customers in a rapid, one-way manner (Peltier et al., 2020). Without effective interactions and communications between platform and customers, the model would not function as designed and value co-creation could not be achieved. (2) The interactive value co-creation model mainly follows a value-logic centered on enhancing customer experience (Vargo & Lusch, 2008). This value co-creation model requires the platform to attract customers and engage in multiple information interactions,

including user experience information and transactional communication data. This helps the platform to continuously test and improve the functionality and quality of the product to better meet customers' specific needs and experience preferences (Ramaswamy & Ozcan, 2018; Piepponen et al., 2020). In short, the interactive value co-creation model enables the platform and customers to jointly create a higher functional value. (3) The collaborative value co-creation model mainly follows the service-dominant logic with a strong focus on customized products or services (Vargo & Lusch, 2016). In this model, a collaborative and shared partnership with customers in the service ecosystem needs to be established. This partnership reflects the openness of the platform, meaning that platform and customers are interdependent and maintain frequent dialogues during the value creation process (Busser & Shulga, 2018). In particular, to ensure efficient delivery of tailored products and personalized services, the platform often shares experience and information about markets, technologies, and other areas with customers around specific application scenarios (Chang et al., 2021; Nadeem et al., 2019). Moreover, the two stakeholders also maintain business collaboration to solve specific problems, thereby jointly creating higher contextual value.

Further, this paper shows that the platform facilitates value co-creation by performing different functions at different stages of the platform architecture. In the case of CredEx, the platform performs the function of creating interfaces on B2C platform architecture. This means that it attracts customers to participate in product testing and updating by designing business arrangements such as manual telephone return visits and online customer service. In doing so, CredEx realizes a two-way flow of information. Then, within the service ecosystem, a collaborative environment is created, where both the platform and customers acquire useful information from each other, contributing to the collaborative value co-creation model. This study extends existing research that has suggested that "platforms are mainly seen as a key report for organizational value co-creation activities" (Blasco-Arcas et al., 2020).

5. Discussion and conclusions

This study makes three key theoretical contributions. First, it contributes to the existing literature on platform BMI dynamics. While platform BMI has been hailed as a highly dynamic system that adapts to changes in the business environment (Su et al., 2021; Trischler & Li-Ying, 2022; Randhawa et al., 2021; Schneider et al., 2013), the change process of platform BMI has not been sufficiently clarified. This paper

identifies the types of platform BMI at different development stages in terms of "scope" and "novelty", thereby summarizing the evolutionary trajectory of platform BMI in response to changes in the external environment, i.e., from Focused BMI to Complex BMI. These insights extend the work of Foss and Saebi (2017), who investigated the BMI typology, and that of Randhawa et al. (2021), who showed that BMI is characterized by progressive complexity. These insights show that the active involvement of top managers facilitates the novelty of platform BMI, which is consistent with Randhawa et al. (2021). An uncertain external environment, particularly changes of the regulatory environment, often makes it easy for the platform to engage in BMI activities that disrupt the entire architecture. Moreover, evidence was also found that, over time, platform BMI is an iterative, continuous change process of accumulating and leveraging the firm's core resources to create value. Simply put, at different development stages, platform BMI is highly interconnected, and this echoes the call of Andreini et al. (2021) for "expanding research on the interconnection of BMI processes."

Second, this paper provides novel insights into the link between exogenous pressures, managerial cognition, and platform BMI, and responds to the call for more research on drivers of platform BMI (Zhang et al., 2021; Foss & Saebi, 2017; Randhawa et al., 2021). Specifically, the roles of exogenous pressures and managerial cognition in the process of platform BMI are illustrated, and the positive effect of these two drivers on BMI is fully validated. This research shows that exogenous pressures do not directly drive platform BMI, but rather play the role of a trigger, which contributes to the understanding of exogenous pressures in the existing BMI literature (Saebi et al., 2017; Osiyevskyy & Dewald, 2018). This finding adds to previous research about positive relationships between exogenous pressures and platform BMI (Su et al., 2021; Osiyevskyy & Dewald, 2018). Importantly, the present paper also shows that managerial cognition acts as a filter in the process of platform BMI, and directly contributes to the redesigning of the firm's value proposition. This finding paves the way for further studies and deepens the understanding of how business owners or top managers sense opportunities over time to develop continuous BMI.

This study also enriches the existing literature on value co-creation dynamics. Although previous research has emphasized value co-creation dynamics in the platform context, a clear understanding of the change process of platform value co-

creation is missing (Aitken & Paton, 2016; De Oliveira & Cortimiglia, 2017). This paper proposes an analytical idea, where the process of platform BMI can be regarded as the unit for analyzing value co-creation dynamics, based on existing constitutive dimensions of value co-creation (Agrawala & Rahman, 2015; Busser & Shulga, 2018; Grönroos & Voima, 2013). Following this logic, this paper identifies three patterns of value co-creation with different characteristics that have developed over time on the platform. Intriguingly, platform value co-creation is a dynamic process in which an organization's business logic is constantly adapted to meet the needs to create different value types. With this study, the authors hope to answer the call for more value co-creation research, and specifically, the call for "in-depth study of value co-creation from a dynamic perspective" (De Oliveira & Cortimiglia, 2017). In addition, the findings of this study show that at different stages of platform architecture, the platform performs two functions to facilitate value co-creation, namely, creating interfaces and creating a collaborative environment. These findings provide support for Blasco-Arcas et al. (2020) reasoning that the platform is mainly perceived as a key intermediary for organizational value co-creation activities.

This study also offers important implications for platforms implementing BMI to enhance competitive advantage in the digitalization era.

Firstly, the top managers of the platform should optimize or redesign the BM in time at different development stages, to actively respond to pressures brought about by changes in the external environment. More importantly, top managers should have the necessary strategic sensitivity to quickly identify potential opportunities related to market, technology, and policy, which will facilitate the platform to innovate BMs that are novel to the industry.

Secondly, the successful realization of platform BMI cannot be achieved without continuous accumulation and utilization of emerging technologies and customer resources by enterprises. Hence, platforms should strengthen R&D investment in big data or Internet technologies, as well as real-time collection and storage of massive customer data, as this lays the foundation for BMI in the next stage.

Finally, following the business logic of meeting customer demands for customized products or services, the platform should design high-quality channels and a favorable environment to achieve continuous interactions and resource sharing with customers by providing corresponding functions. These initiatives facilitate the efficient creation of higher value by the platform with more customers.

As with any research, this study is subject to limitations, which provide avenues for future research. Quantification of the research results and generalizability of research findings are key limitations of this study. The insights presented draw on an in-depth, longitudinal analysis of a single platform. To enhance the robustness and generalizability of findings, further research could study more types of platforms by drawing either on a qualitative study of multiple case firms or a wider quantitative study of platforms. A second limitation of this research is its focus on leader-related drivers, i.e., technological capability. Previous research has identified the importance of firm-level drivers, such as IT infrastructure, integrative capability, and governance structure (Zhang et al., 2021). Future research should focus on investigating the role of these drivers on platform BMI.

References

Abdelkafi, N., & Täuscher, K. (2016). Business Models for Sustainability from a System Dynamics Perspective. Organization & Environment, 29(1), 74-96.

Agrawala, A. K., & Rahman, Z. (2015). Roles and Resource Contributions of Customers in Value Co-creation. International Strategic Management Review, 3(1-2): 144-160.

Aitken, A., & Paton, R. A. (2016). Professional buyers and the value proposition. European Management Journal, 34(3), 223-231.

Alves, H., Fernandes, C. I., & Raposo, M. (2016). Value co-creation: Conceptus and contexts of application and study. Journal of Business Research, 69(5), 1626-1633.

Amit, R., & Zott, C. (2015). Crafting business architecture: The antecedents of business model design. Strategic Entrepreneurship Journal, 9(4), 331-350.

Andreassen, T. W., Lervik-Olsen, L., Snyder, H., et al. (2018). Business model innovation and value-creation: the triadic way. Journal of Service Management, 29(5), 883-906.

Andreini, D., Bettinelli, C., Foss, N. J., & Mismetti, M. (2021). Business model innovation: a review of the process-based literature. Journal of Management and Governance, 25, 1-33.

Ardley, B., Mcintosh, E. & Mcmanus, J. (2020). From Transactions to Interactions: The Value of Co-creation Processes within Online Brand Consumer Communities. Business Process Management Journal, 26(4), 825-838.

Berti, C., & Casprini, E. (2018). When regulatory changes become a driver for business model innovation. International Journal of Organizational Analysis, 26(1), 63-74.

Bharti, K., Agrawal, R., & Sharma, V. (2015). Value co-creation literature review and proposed conceptual framework. International Journal of Market Research, 57(4), 571-603.

Bigelow, L. S., Barney, J. B., Clark, T., et al. (2020). What can Strategy Learn from the Business Model Approach? [J]. Journal of Management Studies, 58(2):528-539.

Bigelow, L. S., & Barney, J. B. (2020). What can strategy learn from the business model approach? Journal of Management Studies, 58(2), 528-539.

Bitetti, L., & Gibbert, M. (2022). The road to continuous business model innovation: A longitudinal study unveiling patterns of cognitive sensing dynamic capabilities. Creativity and Innovation Management, 31(1), 123-140.

Blasco-Arcas, L., Alexander, M., Sörhammar, D., et al. (2020). Organizing actor engagement: A platform perspective. Journal of Business Research, 118, 74-85.

Brodie, R. J., Fehrer, J. A., Jaakkola, E., & Conduit, J. (2019). Actor Engagement in Networks: Defining the Conceptual Domain. Journal of Service Research, 22(2),173-188.

Busser, J. A., & Shulga, L. V. (2018). Co-created value: Multidimensional scale and nomological network. Tourism Management, 65, 69-86.

Bucherer, E., Eisert, U., & Gassmann, O. (2012), Towards Systematic Business Model Innovation: Lessons from Product Innovation Management. Creativity and Innovation Management, 21(2): 183-198.

Baden-Fuller, C., & Haefliger, S. (2013), Business models and technological innovation. Long Range Planning, 46(6), 419-426.

Chang, L.-C., Wang, X., Zhang, S.-Q., et al. (2021). User-driven business model innovation: an ethnographic inquiry into Toutiao in the Chinese context. Asia Pacific Business Review, 27(3), 359-377.

Chen, Y.J., Dai, T., Korpeoglu, C.G., et al. (2020). Innovative online platforms: Research opportunities. Manufacturing & Service Operations Management, 22(3), 429-643.

Chesbrough, H. (2010). Business model innovation: Opportunities and barriers. Long Range Planning, 43(2-3), 354-363.

Clauss, T., Abebe, M., Tangpong, C., & Hock, M. (2021). Strategic Agility, Business Model Innovation, and Firm Performance: An Empirical Investigation. IEEE Transactions on Engineering Management, 68(3), 767-784.

Clauss, T., Kesting, T., & Naskrent, J. (2018). A rolling stone gathers no moss: the effect of customers' perceived business model innovativeness on customer value co-creation behavior and customer satisfaction in the service sector. R&D Management, 49(2), 180-203.

Cui, M., Pan, S. L., & Cui, L. (2019). Developing community capability for e-commerce development in rural China: A resource orchestration perspective. Information Systems Journal, 29(4), 953-988.

Cui, M., Pan, S. L., Newell, S., & Cui, L. (2017). Strategy, resource orchestration and e-commerce enabled social innovation in rural China. The Journal of Strategic Information Systems, 26(1), 3-21.

Cui, Y., Cao, Y., Ji, Y., Chang, I.-S., & Wu, J. (2022). Determinant factors and business strategy in a sustainable business model: An explorative analysis for the promotion of solid waste recycling technologies. Business Strategy and the Environment, 31 (5), 2533-2545.

De Oliveira, D. T., & Cortimiglia, M. N. (2017). Value co-creation in web-based multisided platforms: A conceptual framework and implications for business model design. Business Horizons, 60(6), 747-758.

Flint, D. J., Woodruff, R. B., & Gardial, S. F. (2002). Exploring the phenomenon of customers' desired value changes in a business to business context. Journal of Marketing, 66(4), 102-117.

Foss, N. J., & Saebi, T. (2017). Fifteen Years of Research on Business Model Innovation. Journal of Management, 43(1), 200-227.

Grönroos, C., & Voima, P. (2013). Critical service logic: making sense of value creation and co-creation. Journal of the Academy of Marketing Science, 41(2), 133-150.

Gioia, D. A., Corley, K. G., & Hamilton A. L. (2013). Seeking qualitative rigor in inductive research: Notes on the Gioia methodology. Organizational Research Methods, 16(1) 15-31.

Gerring, J. (2007). Case study research: principles and practices. Cambridge: Cambridge University Press.

Gupta, H., Kumar, S., Kusi-Sarpong, S., et al. (2021). Enablers to supply chain performance on

the basis of digitization technologies. Industrial Management & Data Systems, 121(9), 1915-1938.

Gupta H., Yadav, A. K., Kusi-Sarpong, S., et al. (2022). Strategies to overcome barriers to innovative digitalisation technologies for supply chain logistics resilience during pandemic. Technology in Society, 69:101970.

Graebner, M. E., & Eisenhardt, K. M. (2004). The seller's side of the story: Acquisition as courtship and governance as syndicate in entrepreneurial firms. Administrative Science Quarterly, 49(3), 366-403.

Huang, J.; Henfridsson, O., & Liu M. (2021). Extending Digital Ventures through Templating. Information Systems Research, 33(1), 285-310.

Huang, J.; Henfridsson, O.; Liu, M., & Newell, S. (2017). Growing on steroids: rapidly scaling the user base of digital ventures through digital innovation. MIS Quarterly, 41(1), 301-314.

Handarkho, Y. D. (2020). The intentions to use social commerce from social, technology, and personal trait perspectives: Analysis of direct, indirect, and moderating effects. Journal of Research in Interactive Marketing, 14(3), 305-336.

He, J., & Zhang, S. (2022). How digitalized interactive platforms create new value for customers by integrating B2B and B2C models? An empirical study in China. Journal of Business Research, 142, 694-706.

Hossain, M. (2017). Business model innovation: past research, current debates, and future directions. Journal of Strategy and Management, 10(3), 342-359.

Howell, R., Van Beers, C., & Doorn, N. (2018). Value capture and value creation: The role of information technology in business models for frugal innovations in Africa. Technological Forecasting and Social Change, 131, 227-239.

Hsu, C., & Lin, J. C. (2015). What drives purchase intention for paid mobile apps? -An expectation confirmation model with perceived value. Electronic Commerce Research and applications, 14(1), 46-57.

Hubert, M., Blut, M., Brock, C., et al. (2017). Acceptance of smartphone-based mobile shopping: Mobile benefits, customer characteristics, perceived risks, and the impact of application context. Psychology & Marketing, 34 (2), 175-194.

Jiang, Y., & Tornikoski, E. T. (2019). Perceived uncertainty and behavioral logic: Temporality and unanticipated consequences in the new venture creation process. Journal of Business Venturing, 34(1), 23-40.

Jocevski, M., Ghezzi, A., & Arvidsson, N. (2019). Exploring The Growth Challenge Of mobile Payment Platforms: A business Model Perspective. Electronic Commerce Research and Applications, 40, Article 100908.

Eisenhardt, K. M., & Graebner, M. E. (2007). Theory building from cases: Opportunities and challenges. Academy of Management Journal, 50(1), 25-32.

Kohtamäki, M., & Rajala, R. (2016). Theory and practice of value co-creation in B2B systems. Industrial Marketing Management, 56, 4-13.

Khan, S.A., Naim, I., Kusi-Sarpong, S., et al. (2021). A knowledge-based experts' system for evaluation of digital supply chain readiness. Knowledge-Based Systems. 228, 107262.

Khan, S.A., Kusi-Sarpong, S., Gupta, H., et al. (2021). Critical factors of digital supply chains for organizational performance improvement. IEEE Transactions on Engineering Management, 1-15.

Klein, H. K., & Myers, M. D. (1999). A set of principles for conducting and evaluating interpretive field studies in information systems. MIS Quarterly, 23(1), 67-93.

Landau, C., Karna, A., & Sailer, M. (2016). Business model adaptation for emerging markets: a case study of a German automobile manufacturer in India. R&D Management, 46(3), 480-503.

Li, L., Su, F., Zhang, W., & Mao, J. Y. (2017). Digital transformation by SME entrepreneurs: a capability perspective. Information Systems Journal, 26(6), 1129-1157.

Martins, L. L., Rindova, V. P., & Greenbaum, B. E. (2015). Unlocking the Hidden Value of Concepts: A Cognitive Approach to Business Model Innovation. Strategic Entrepreneurship Journal, 9(1), 99-117.

Massa, L., Tucci, C. L., & Afuah, A. (2017). A critical assessment of business model research. Academy of Management Annals,11(1), 73-104.

Muzellec, L., Ronteau, S., & Lambkin, M. (2015). Two-sided internet platforms: A business model lifecycle perspective. Industrial Marketing Management, 45, 139-150.

Nadeem, W., Juntunen, M., Shirazi, F., &Hajli, N. (2019). Consumers' value co-creation in sharing economy: The role of social support, consumers' ethical perceptions, and relationship quality. Technological Forecasting & Social Change, 151, Article 119786.

Nambisan, S., Lyytinen, K., Majchrzak, A., & Song, M. (2017). Digital Innovation Management: Reinventing Innovation Management Research in a Digital World. MIS Quarterly, 41(1), 223-238.

Osiyevskyy, O., & Dewald, J. (2015). Explorative Versus Exploitative Business Model Change: The Cognitive Antecedents of Firm-Level Responses to Disruptive Innovation. Strategic Entrepreneurship Journal, 9(1), 58-78.

Osiyevskyy, O., & Dewald, J. (2018). The pressure cooker: when crisis stimulates explorative business model change intentions. Long Range Planning, 51(4), 540-560.

Osterwalder, A., & Pigneur, Y. (2010). Business Model Generation A Handbook for Visionaries, Game Changers, and Challengers. John Wiley & Sons, Hoboken, New Jersey.

Pan, S. L., & Tan, B. (2011). Demystifying case research: A structured-pragmatic-situational (SPS) approach to conducting case studies. Information and Organization, 21(3), 161-176.

Peltier, J. W., Dahl, A. J., & Swan, E. L. (2020). Digital information flows across a B2C/C2C continuum and technological innovations in service ecosystems: A service-dominant logic perspective. Journal of Business Research, 121, 724-734.

Piepponen, A., Ritala, P., Keränen, J., & Maijanen, P. (2022). Digital transformation of the value proposition: A single case study in the media industry. Journal of Business Research, 150, 311-325.

Prahalad, C. K., & Ramaswamy, V. (2004). Co-creation experiences: The next practice in value creation. Journal of Interactive Marketing, 18(3), 5-14.

Presenza, A., Panniello, U., & Petruzzelli, A.M. (2021). Tourism multi-sided platforms and the social innovation trajectory: The case of Airbnb. Creativity Innovation Management. 30(1), 47-62.

Ramaswamy, V., & Ozcan, K. (2018). What is co-creation? An interactional creation framework and its implications for value creation. Journal of Business Research, 84,196-205.

Randhawa, K., Wilden, R., & Gudergan, S. (2021). How to innovate toward an ambidextrous business model? The role of dynamic capabilities and market orientation. Journal of Business Research, 130(4), 618-634.

Ritter, T., & Lettl, C. (2018). The wider implications of business-model research. Long Range Planning, 51(1), 1-8.

Şimşek, T., Öner, M. A., Kunday, Ö., & Olcay, G. A. (2022). A journey towards a digital platform

business model: A case study in a global tech-company. Technological Forecasting and Social Change, 175, Article 121372.

Schneider, S. (2019). How to approach business model innovation: the role of opportunities in times of (no) exogenous change. R&D Management, 49(4), 399-420.

Schneider, S., & Spieth, P. (2013). Business model innovation: Towards an integrated future research agenda. International Journal of Innovation Management, 17(1), 1-34.

Schneider, S., Spieth, P., & Clauss, T. (2013). Business model innovation in the aviation industry. International Journal of Product Development, 18(3), 286-310.

Su, J., Zhang, S., & Ma, H. (2021). Understanding the influence of technological capability and exogenous pressure on business model dynamics: insights from a longitudinal case study. European Journal of Innovation Management. https://doi.org/ 10.1108/EJIM-05-2021-0250. Advance online publication.

Sousa-Zomer, T. T., & Cauchick-Miguel P. A. (2019). Exploring business model innovation for sustainability: An investigation of two product-service systems. Total Quality Management & Business Excellence, 30(5-6), 594-612.

Saebi, T., Lien, L., & Foss, N.J. (2017). What drives business model adaptation? The impact of opportunities, threats and strategic orientation. Long Range Planning, 50(5), 567-581.

Täuscher, K., & Laudien, S. M. (2018). Understanding platform business models: A mixed methods study of marketplaces. European Management Journal, 36(3), 319-329.

Teece, D. J. (2010). Business Models, Business Strategy and Innovation. Long Range Planning, 43(2-3), 172-194.

Teece, D., Peteraf, M., & Leih, S. (2016). Dynamic capabilities and organizational agility: Risk, uncertainty, and strategy in the innovation economy. California Management Review, 58(4), 13-35.

Terblanche, N. S. (2014). Some theoretical perspectives of co-creation and co-production of value by customers. Acta Commercii, 14(2), 1-8.

Thomas, L., Autio, E., & Gann, D. (2014). Architectural leverage: Putting platforms in context. IEEE Engineering Management Review, 42(4), 18-40.

Trischler, M. F. G., & Li-Ying, J. (2022). Digital business model innovation: Toward construct clarity and future research directions. Review of Managerial Science, https://doi.org/10.1007/s
11846-021-00508-2. Advance online publication.

Vaerenbergh, Y. (2018), Business model innovation and value-creation: The triadic way. Journal of Service Management, 29(5), 883-906.

Vargo, S. L., & Lusch, R. F. (2004). Evolving to a New Dominant Logic for Marketing. Journal of Marketing, 68(1), 1-17.

Vargo, S. L., & Lusch, R. F. (2011). It's all B2B…and beyond: Toward a systems perspective of the market. Industrial Marketing Management, 40(2), 181-187.

Vargo, S. L., & Lusch, R. F. (2016). Institutions and axioms: An extension and update of service-dominant logic. Journal of the Academy of Marketing Science, 44(1), 5-23.

Wirtz, B. W., Pistoia, A., Ullrich, S., & Göttel, V. (2016). Business models: Origin, development and future research perspectives. Long Range Planning, 49(1), 36-54

Wirtz, J., So, K. K. F., &Mody, M. A. (2019). Platforms in the Peer-to-Peer Sharing Economy. Journal of Service Management, 30(4), 452-483.

Yin, R. K. (2009). Case study research: Design and methods (4th Ed.). Thousand Oaks, CA: Sage.

Zhang, H., Xiao, H., Wang, Y., et al. (2020). An integration of antecedents and outcomes of

business model innovation: A meta-analytic review. Journal of Business Research, 131, 803-814.

Zhao, Y., Von Delft, S., Morgan-Thomas, A., & Buck, T. (2019). The evolution of platform business models: Exploring competitive battles in the world of platforms. Long Range Planning, 53(4), 1-24.

Zott, C., & Amit, R. (2008). The fit between product market strategy and business model: implications for firm performance. Strategic Management Journal, 29(1), 1-26.