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JOURNAL OF BUSINESS MODELS

Editorial: Introduction to the Special Issue based on papers presented at the Business Model Conference 2021

Marco Montemari[1]

The Business Model Conference 2021, held at Aalborg University's Copenhagen campus in early October, provided the members of the academic community with a great opportunity to discuss the latest research, innovative teaching methods, and best practices in business models research. Following the cancellation of the Business Model Conference 2020 due to the COVID-19 crisis, the 2021 edition represented a new beginning and restored the familiar sense of community feeling experienced before the pandemic.

Around 110 academics and practitioners from a multitude of disciplines attended the conference, where 42 papers were presented. Five influential keynote speakers inspired and challenged the participants —Professor Oliver Gassmann (University of St. Gallen, Switzerland), Professor Christopher Tucci (Imperial College Business School, UK), Professor Benoit Demil (Lille University, France), Professor Xavier Lecocq (Lille University, France), and Professor Marcel Bogers (Eindhoven University of Technology, The Netherlands). The conference was further enriched by a PhD colloquium, a PhD workshop, a book panel debate on Business Models and Firm Internationalization, and a panel debate on Legitimacy and Legitimation of Business Models.

The PhD colloquium was organized by Professor Xavier Lecocq and Professor Benoit Demil, while the PhD workshop was conducted by Assistant Professor Kristina Madsen, Professor Morten Lund, Dr Gert Spender, and Professor Jes Broeng. Both the colloquium and the workshop provided doctoral students with an overview of the challenges of conducting research on business models. It was also a great opportunity for doctoral students to present and discuss their research with distinguished international faculty.

Keywords: Business Models, Business Model Conference, Editorial

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1 Department of Management, Università Politecnica delle Marche, Ancona, Italy

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The book panel debate revolved around presentation of the book "Business Models and Firm Internationalisation", published by Routledge and edited by Professor Christian Nielsen, Professor Svetla T. Marinova and Professor Marin A. Marinov. Moreover, the panel consisted of five contributors — Professor Svetla T. Marinova, Dr Mika Yrjola, Professor Tamara Galkina, Professor Petri Ahokangas, and Professor Jean-Francois Hennart — who explored the connections between business models and firm internationalization from different perspectives, such as the effects of platform business models on the outcome and speed of internationalization or the features of the business models of new international ventures.

The panel debate, focusing on the theme "Legitimacy and Legitimation of Business Models," was chaired by Professor Petri Ahokangas, Professor Romeo Turcan, and Dr Marika Iivari. The panel consisted of early-stage researchers (ESRs) from the Marie Skłodowska-Curie project LNETN (Legitimation of Newness and its impact on EU agenda for change). Innovations, such as novel business models, might suffer from low legitimacy and, thus, innovators need to plan strategies for improving the legitimacy of their business models. In view of such a challenge, the contributors provided novel insights into the antecedents and outcomes of legitimacy and the legitimation of business models in different contexts.

The activities of the Scientific Committee, both before and after the conference, were again very intense. In the months preceding the conference, it reviewed all the papers submitted for possible presentation in order to ensure high standards. Consequently, the selected papers were organized into 12 streams — Circularity; Fifth Stage of BM Research; Innovation 1; Innovation 2; Ecosystems; Digitalization 1; Digitalization 2; Society and Sustainability; Challenges and Decision-Making; Value; Theories, Frameworks, and Tools; Disclosure and Reporting.

After the conference, the Scientific Committee selected the eight papers that are included in this Special Issue of the Journal of Business Models. Originality, significance, and rigor were the three criteria that guided the selection process, leading to a "compilation" of papers that tackle business model issues from different perspectives and through different research methods. Let me briefly introduce these papers by focusing mainly on their respective objectives and contributions.

Holm and Kringelum conceptually address the business model implications of entering into clusters, networks, and ecosystems, i.e., different inter-organizational collaborations, from an intra-organizational perspective. The paper underscores that companies must consider the degree of interconnection arising from inter-organizational collaboration, as this affects the value creation, value configuration, and value capture of their existing business model. While clusters have no significant effect on the business model of the focal firm, networks involve information and knowledge sharing as well as potential new value configuration through the creation of tighter links. Finally, ecosystems entail the opportunity to create joint value propositions, resulting in the extension of business model implications for the focal firm.

Sund and Lindskov underscore the two potential risks that might arise if managers misperceive the true state of competition in their industry. The first risk is connected to underestimating the competitive dynamics in the industry and, therefore, excessively focusing on incremental changes to the existing business model.
The second risk is related to overestimating the dynamics in the industry, thus wasting resources on unnecessary radical business model innovations. In their paper, the authors discuss these risks in light of recent research on hypercompetition and incumbent business model innovation.

Chelbi, Rayna, and Souchaud investigate the link between business models and coopetition — a stream of research that requires, and deserves, additional attention. In particular, the authors provide an integration of the two concepts by operationalizing the business model adaptation process of an incumbent company in the context of coopetitive settings involving small and young firms. Through a longitudinal, in-depth case study of an established bank that has built an ecosystem of financial technology startups, the authors show the impact of coopetitors on the value delivery dimension of the incumbent company's business model.

Uski, Kukkamalla, Kärkkäinen, and Menon aim to expand the understanding of the capabilities needed for implementing a pay-per-outcome business model and the ways in which equipment manufacturing companies can successfully implement such a model. Based on a systematic literature approach, the authors detected 36 capabilities along seven different dimensions: customer relationship, value network, digitalization, organization and governance, contracting, service development, and financing. Along these lines, the authors show that pay-per-outcome business models, compared to other service-based ones such as the pay-per-use business model, require specific capabilities related to customer relationship and contracting. Finally, the authors formulate a capability framework for pay-per-outcome business models in the equipment manufacturing industry.

Zhang, Gisca, Dehkordi, and Ahokangas highlight that digitalization lays the groundwork for the emergence of novel business models that, however, face an array of legitimacy challenges. Thus, the authors propose an integrated framework for studying these legitimacy challenges by combining three different conceptual constructs — the lens of managerial choices and consequences of the business model, the legitimacy aspects reflecting on the stakeholders at different (individual, business, and ecosystemic) levels, and the layers of digitalization, i.e., artificial intelligence, data, and platforms. The paper highlights the need to consider the ecosystemic perspective in discussions on the legitimacy of digitalization-driven business models.

Perätalo, Mohamed, and Iivari begin with the consideration that the transition from hierarchal corporate governance to platform governance mechanisms entails the need for smart cities to develop new models for managing the dynamics between city divisions. By conceptualizing smart cities as a platform of platforms, the authors use the business model approach to develop a platform governance framework to illustrate how this approach can lead to better communication between the different layers of smart cities as well as better planning and decision-making, thus improving smart city development.

Roslender and Nielsen underscore that the absence of employees in business model literature is at odds with their pivotal contribution to the value creation, value delivery, and value capture processes. As a resource that is continually challenged by the management to grow, their success has been identified as an outcome that falls within the scope of integrated reporting. The authors suggest several categories of people information that might be documented in reports, such as the employee value proposition that aims at reporting the specific package of conditions and benefits that an organization makes available to its employees.

Montemari and Gatti present a structured process aimed at combining different BM tools to support companies in building resilient and original BMs in the face of instability and uncertainty. In particular, the paper highlights that BM tools, when combined together, may play multiple roles during crisis situations— first, BM measurements provide managers and entrepreneurs with an alert system to signal when and in which areas the BM should be changed. Second, BM pivots offer a "library" of potential changes that can be generated in the BM. Third, BM configurations provide a portfolio of potentially available options when considering how the BM should be changed.

This Special Issue is composed of short papers, an innovative publication format adopted by the editors of the Journal of Business Models, designed to fast-track the publishing process and, thereby, speed up the development of business model research. This objective is achieved thanks to a very lean template and standard content that ensure the authors to focus on a single clear message. Contributors are reminded that they are strongly encouraged to develop their submissions into full-length papers, which may be submitted to the Journal of Business Models or suitable alternative outlets.

In conclusion, I hope the reader finds the short papers included here to be of value. I have been a member of the Scientific Committee of the Business Model Conference since its launch, and it has provided me with the ongoing opportunity to remain abreast of the various directions in which business model researchers are concentrating their efforts. I must admit that this is, indeed, a privilege.

I would like to thank all the members of the Scientific Committee, who have contributed their time and effort to the review process of the papers submitted for presentation at the conference as well as the selection process of the papers included in this Special Issue. My heartfelt gratitude goes out to Professor Robin Roslender and Professor Christian Nielsen for their support during the production of this Special Issue and to Mette Hjorth Rasmussen for her excellent, conscientious editorial assistance.

Marco Montemari
Department of Management
Università Politecnica delle Marche, Ancona, Italy

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Intra-Organizational Business Model Implications of Inter-Organizational Collaboration

Casper G. Holm[1], Louise B. Kringelum[2]

Abstract

This short paper explores the intra-organizational business model implications of organizations as they enter different inter-organizational collaborations, as exemplified by clusters, networks, and ecosystems. The aim is to show, conceptually, how organizations must consider the degree of inter-connection and the value co-created with other actors through inter-organizational collaboration, as these affect the value creation, value configuration and value capture of their existing business model(s).

Keywords: Business models; inter-organizational collaboration; ecosystem; network; cluster

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1 Research assistant, caspergh@business.aau.dk, Aalborg University Business School – Strategic Management Lab
2 Associate professor, kringelum@business.aau.dk Aalborg University Business School – Strategic Management Lab

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Introduction

Taking part in an inter-organizational collaboration—such as a cluster, network or ecosystem—can create a competitive advantage for the involved actors (Håkansson and Ford, 2002; Adner, 2017). However, the process of changing relationships within and across the business context is unpredictable, and requires organizational openness to increase the degree of relational dependency. The lack of control and limited possibility of predicting outcomes of collaboration is a managerial challenge (Wilkinson and Young, 2002), as strategic decisions must be made regarding an unchartered potential while sustaining and contemplating potential changes to the existing business model; this poses a challenge resembling the management of ambidexterity. Thus, inter-organizational collaboration can be challenging, and can require changes to both business practices and different parts of the existing business model(s).

The aim of this paper is to illustrate aspects of inter-organizational collaboration that affect the decision-making process of practitioners who are engaging in or orchestrating different types of collaboration. In addition, an initial theoretical conceptualization is introduced to bridge the fields of business models and organizational collaboration. Based on a conceptual discussion, this is explored by illustrating the business model implications that might occur when organizations further their development from being a part of a cluster, to becoming part of a network or an ecosystem. In doing so, we explore both potential considerations for decision-making practitioners and the theoretical development and implications of collaborative business models.

The study of changing relationships among organizations is longstanding and founded in (amongst others) the discussion of networks and strong and weak ties which Granovetter (1973) set forward. As digital technologies in both production and communication continue to create new possibilities for (inter)organizational interaction, the possibilities for creating strong ties have never been greater. Ties come in many forms, from bilateral strategic alliances, to clusters, networks, and ecosystems that all represent ways of creating value via ties to other organizations. In recent years, the concept of ecosystems has gained especial prominence in business research (Jacobides *et al.*, 2018). Ecosystems are centered on a joint value proposition created throughout a structure of interdependent activities (Ritala *et al.*, 2013). However, developing a new ecosystem is not easy and therefore not for all—especially because the creation of a new value proposition potentially challenges organizations' existing trajectories (Ritala *et al.*, 2017).

While existing research has focused on defining what business ecosystems are, when and why they emerge, and how they operate (Jacobides *et al.*, 2018), little attention has been paid to the organizational and business model implications of entering into a network or ecosystem constellation in which new collaborative business models are established (Kringelum, 2017). The following review introduces existing literature on clusters, networks, and ecosystems, to conceptually identify the business model implications of entering into these constellations. Based on the review, the co-existence of inter-organizational relationships is discussed from the perspectives of value creation, value capture, and value configuration, to cover the broad perspectives regarding business model implications. Based on the definition of Lepak *et al.* (2007, p. 183), we define value creation as being dependent on the subjective realization of value by the customer in question, which reflects a willingness to engage in transactions with the organization. Value capture concerns the appropriation of value, which, when dealing with inter-organizational relationships, also addresses the division of value appropriation among organizations (Dyer *et al.* 2018). Value configuration encompasses the efficient mix of resources, activities, and channels designed to create and capture value (Taran *et al.* 2016).

Business Model Implications of Entering Into Clusters, Networks and Ecosystems

Although much business model research takes the focal firm as the central level of analysis, value creation does not occur in isolation within organizational boundaries. When value creation transcends the

focal organization, new types of collaboration and cooperation become of relevance (Zott *et al.*, 2011). It is increasingly recognized that business model innovation should be based on stakeholder inclusion, open business models, or collaboration within networks (Storbacka *et al.*, 2012). As emphasized by Kringelum and Gjerding (2018), the processes of business model innovation are often affected by the relational links of the value network that surrounds the focal organization. However, this creates new challenges, as it requires alignment among business models via both intra- and inter-organizational configurational fit (Nenonen and Storbacka, 2010).

Taking the intra-organizational point of view, entering into new forms of collaboration has an effect on both the existing business models and those that might be in development. The effects depend on the degree of coupling among organizations, and on the degree of co-created value, which may differ depending on the extent of inter-organizational collaboration in clusters, networks, and ecosystems. This has implications for organizations' value creation, value capture, and value configuration, and for the calculated degree of value slippage (Lepak *et al.*, 2007) which organizations might have to accept based on the interdependency of their interorganizational relationships.

Clusters

The business model implications of entering into a cluster are elaborated based on the cluster definition set forward by Porter, who defines clusters as:

> ... geographic concentrations of interconnected companies, specialized suppliers, service providers, firms in related industries, and associated institutions (e.g. Universities, standards agencies, trade associations) in a particular field that compete but also cooperate. (Porter, 2000)

Geographic concentration is an important aspect of the definition; it is also emphasized in extant cluster literature, in which there is consensus regarding the geographic concentration of companies in the definitions of clusters (Porter, 2000; Maskell, 2001; Carayannis and Campbell, 2009). Geographic concentration does not represent a clearly defined area, but rather depends on the scope, meaning that a cluster can vary in geographic size from 10 companies in a municipal area to, for some industries, certain countries as a cluster. Carayannis and Campbell (2009) expand the understanding of clusters by dividing them into two dimensions: geographical clusters and sectoral clusters. A geographical cluster is defined by companies' specific location, and without any focus on certain industry-specific characteristics. Meanwhile, sectoral clusters are defined based on specific sectors or industries, thus creating a more specific cluster profile compared to geographical clusters (Carayannis and Campbell, 2009).

We define geographic clusters based on Carayannis and Campbell (2009), as consisting of organizations that operate in the same geographic location. These organizations may be either private companies or public organizations that are loosely connected units within a geographic area, but are *not defined* by the industry in which the organizations are operating. In contrast, sectoral clusters *are defined* by the specific industry in which the organizations are operating, but otherwise have the same characteristics as the geographical clusters.

Business model implications of clusters

Taking the definition of clusters as a point of departure, there is not necessarily a direct transactional link between companies in a given cluster. They might compete, they might cooperate, and they might be parts of the same value network (Allee, 2008) without any direct interconnection. While the cluster provides potential for establishing relationships (Porter, 2000), it is not inherent in the structure, so organizations must proactively seek stronger ties if they are to obtain full potential. The value created from being part of a cluster is thus indirect, and will not necessarily affect a company's perceived use value (Lepak *et al.*, 2007); belonging to a cluster thereby may not significantly change the existing business model of the focal organization. Changes to value configuration are limited due to the primarily indirect nature of advantages related to clusters, as these advantages are often driven by external economies or spillovers from the business environment. Nevertheless, a cluster provides the potential for value configuration through strengthening ties.

Networks

Håkansson and Ford (2002) define networks as "a structure where a number of nodes are related to each other by specific threads." The connections between the actors in a network comprise an important characteristic in the network literature (McEvily and Zaheer, 1999; Carayannis and Campbell, 2009; Barile *et al*., 2016). A network is a constellation in which organizations can be connected through interaction and complementarity. Being part of a network can create certain advantages for the actors, including: the exchange of information among actors, which may not have been obtained otherwise; the outsourcing of functions to other members of the network; and the creation of a base from which organizations can further develop (Håkansson and Ford, 2002; Carayannis and Campbell, 2009). Barile *et al*. (2016) distinguish between networks and ecosystems based on the value created among the actors in the two instances. Networks, in contrast to ecosystems, focus more on the connection among actors rather than on the co-creation of value. Based on this conceptualization, we regard the value interaction of networks as a connection among organizations that are based on relationships and interactions among the actors within the network. In a network, there is focus on information and knowledge sharing. The degree of interconnection among the actors is greater than that in clusters, but less than that in ecosystems.

Business model implications of networks

The network represents a higher degree of connection among actors, which includes knowledge sharing and potential new value configuration through the creation of tighter links. Building and maintaining the network becomes a central activity, and often requires a network broker (facilitator), who can maintain structure and neutrally facilitate interactions (Huggins, 2000). Often, as a network becomes more formalized, its potential for value creation and capture increases. The focal organization must therefore take into account how openly to approach the network structure: Which role do they aim to sustain, and what are the potential effects of the existing business model? Because a given network might be based on the value network of the existing business model, tighter links within the network can ensure both explorative and exploitative processes (Möller and Halinen, 2017) that create potential for both value creation and value capture.

Ecosystems

One of the biggest differences among clusters, networks, and ecosystems is the degree of connections among the actors involved. Ecosystems are characterized by a continuous flow of either knowledge, communication, or materials among the organizations, which creates closer connections among the actors (Adner, 2017; Moore, 1993). Furthermore, Adner (2017) characterizes ecosystems as a structure in which organizations interact to materialize a value proposition. Thus, ecosystems have a greater focus on the co-creation of value among actors, in comparison to clusters and networks. The co-creation of a value proposition contributes solutions to mutual issues by combining resources from the actors in the ecosystem (Adner, 2017; Barile *et al*., 2016).

According to Spigel (2017), ecosystems consist of attributes—material, social, and cultural—all of which must continuously be balanced. Therefore, it is not possible to develop ecosystems by merely focusing on one of the attributes; development requires a more holistic view of ecosystems. Ecosystems are defined as a closer connection among the actors, in which the focus is not only on information and knowledge sharing, but also on the co-creation of a mutual value proposition (Adner, 2017). Furthermore, there is continuous flow of either communication, knowledge, or materials within the ecosystem.

Business model implications of ecosystems

When regarding ecosystems as structures to create joint value propositions, the business model implications for the focal firm can be extensive. As Lingens *et al*. (2021) demonstrate, entrepreneurs can structure their entire business model on their interactions with other organizations in an ecosystem. Thus, ecosystem interaction will affect the focal organization, which might find itself in a situation of managing multiple business models (Markides and Charitou, 2004) both within and outside the ecosystem structure. This creates implications for value configuration, value creation, and value capture, when it affects the resource distribution across multiple business models. Thus, an ecosystem requires both alignment structures,

and an untangling of the multilateral relations among actors (Adner, 2017). While each organization within an ecosystem has its own business model, all of the participating organizations can be interconnected in producing a joint value proposition. All firms have their own approaches to and intentions regarding the ecosystem, and thus all have their own ecosystem strategies (Adner, 2017). This naturally entails that some might also have ecosystem strategies that do not converge with the ecosystem as a whole. Thus, organizations in an ecosystem naturally take on various roles during ecosystem establishment.

Building on a system of alignment, ecosystem management mechanisms must be implemented to maintain, realize, and deploy potential value creation and value capture (Ritala *et al.*, 2013). Thus, the needed threshold level of coordination for creating and capturing value in a specific ecosystem must be determined (Adner, 2017).

Co-existence of the concepts

Figure 1 illustrates, as elaborated above, that entering into a cluster, network, or ecosystem will have different implications for the business model of the focal firm. The concepts covering various degrees of inter-organizational collaboration exist simultaneously; they are complementary constellations that depend on the degree of interaction reflected in the connection and co-creation of value among the participating organizations. Thus, a network can be a subsystem in a geographic cluster, and furthermore, a geographic cluster can feature different sectoral clusters. The degree of interconnection and co-creation of value are the driving forces when examining the differences among different constellations. Based on the above, Figure 1 visualizes the transition from clusters and networks to ecosystems based on the degree of connection and co-creation of value.

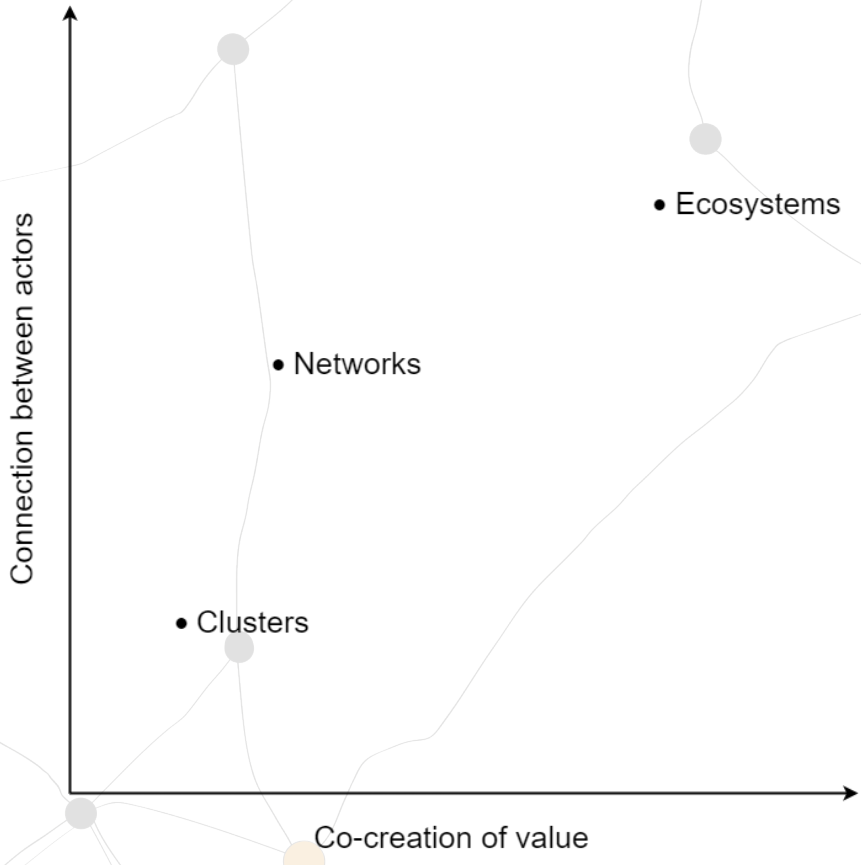

Figure 1: Degree of connection and co-creation in inter-organizational collaboration

Discussion

The conceptual exploration above illustrates why it is of great importance that organizations possess the necessary knowledge regarding how to work with their business model(s) when entering clusters, networks, or ecosystems, based on the potential implications. Having this knowledge increases the chances of obtaining improved results when entering different types of business constellations. The following section discusses how organizations and leaders can work with their business models to create the appropriate conditions based on their specific contexts.

Value creation

Value creation reflects the use value for customers, and the price they are willing to pay for value creation (Lepak *et al.*, 2007). Inter-organizational relations can change the threshold of value creation within and among organizations. As Storbacka *et al.* (2012) argue, meso-level types of organization are developed through rule structures that create new market practices. Thus, when an organization enters into an inter-organizational setup—either tightly or loosely coupled—as a cluster, network, or ecosystem, new market practices are created that can also create ripple effects for the business model of the focal firm. Closer coordination and value co-creation make firms dependent on both individual and joint value creation objectives (Storbacka *et al.*, 2012). Depending on the degree of autonomy and coupling, the focal firm might find itself in a position in which its existing business model becomes superfluous or needs radical adjustment.

As Le Pennec and Raufflet (2018) argue, the ultimate motivation for engaging in collaboration is value creation. However, the competitive advantage gained through collaboration, based on the appropriable quasi-rents, remains firm-specific, and will often overlook the resources embedded in the interfirm relationships (Duschek, 2004; Dyer and Singh, 1998). The value creation of the different collaboration types varies greatly. While clusters and networks create potential for value creation through closer coupling among organizations, the interdependence of value creation grows significantly within ecosystems. When an organization enters a cluster, the value creation is primarily indirect, because the participants' value creation arising from the cluster comes in the form of the increased pool of knowledge and workforce that firms contribute. Examining the value creation implications of networks reveals that a central shift occurs, from internal value creation towards potential co-creation of value through tighter linkages among actors within those networks. The shift toward co-creation of value is significantly increased when organizations enter ecosystems, because of the necessary focus on shared value propositions. This shift, from value being created within firm boundaries toward being created among actors of networks and ecosystems, involves challenges regarding how organizations manage this value co-creation (Nenonen and Storbacka, 2010).

Value capture

Value capture also differs greatly among the different constellations. Clusters contribute a different value compared to that of networks or ecosystems (Porter, 2000; Adner, 2017). The complementarities of a cluster are relatively easy to obtain, because complementarity in a cluster is a passive value that is based on each organization's location. In contrast, the value capture in a network is more active than that of a cluster because of the broader mutual sharing of knowledge and information. Organizations might obtain unique knowledge about competition, customers, and other important matters, which might prove useful to each company (McEvily and Zaheer, 1999).

By entering an ecosystem, organizations create value in ways that enable other participating actors to receive value from one another. The organizations in an ecosystem expose parts of their business model to other actors; therefore, to compensate for the increased risk, the potential value capture must be greater in ecosystems than in other setups. In such meta-organizational setups, value creation and value capture are both reliant upon intricate links of dependence across the value network. Moving upward in the value network can contribute to increasing value capture, but leaders need to be aware that the increased value comes with the price of relational

dependency and the demand to create value for other actors (Barile *et al*., 2016).

Value configuration

Taking an inter-organizational perspective on the construct of new relations in clusters, networks, or ecosystems, the degree of collaboration among organizations depends on the temporal expectations, the purpose of the collaborative efforts, and the degree of organizing among participants (Kringelum, 2020). As organizations move from clusters to networks and ecosystems, the key partners of the business model become more important because of the interconnections among the actors. Therefore, networking and stakeholder-related activities become increasingly important focal areas for leaders when their organizations enter networks or ecosystems.

As Kretschmer and Schilling (2020) argue: "the success of platforms hinges on cooperation, coordination, and integration across a diverse and often very large array of organizational units and agents, some of whom face conflicting incentives or are direct rivals." These success factors are thus ingrained in the existing business model of the organizations that collaborate within an ecosystem. The cooperation among organizations in platforms can be inspired by Spigel (2017), and by the attributes—material, social and cultural—of which ecosystems consist. It is insufficient for leaders to merely focus on, for example, the material aspects of cooperation with other organizations; leaders need to incorporate a holistic view that focuses on social and cultural attributes as well to create the best conditions (Spigel, 2017). As discussed above, the coordination aspect is of great importance to the succes of the platform because multiple actors are working on the shared value proposition (Kretschmer and Schilling, 2020). Based on this, organizations need to be able to coordinate effectively with the different actors in their specific constellation. This coordination is especially important when working in ecosystems, because of the co-creation of value and the degree of interconnection.

Exploring the value potential in the interdependencies created among actors requires acknowledging the interplay among existing structures and the agency of organizational actors within each inter-organizational form. The interconnection of organizations is the fundamental idea underlying the classical value chains perspective which Porter (1985) advanced. However, as inter-organizational relationships become less materially oriented and less transactional, knowledge and immaterial value flows increase in importance. To support the sharing of knowledge and immaterial value, leaders need to create trusting relationships with the other actors operating in the value network (Hakanen *et al*., 2016). When moving toward a higher degree of value co-creation, the focal firm becomes dependent on the responsiveness of the external relationships (Kringelum and Gjerding, 2018). As the need for closer connections among actors increases, the need for relational capital grows. However, creating relational capital among organizations can require changes in the key activities of the focal organization, which can further imply that organizations need an orchestrator to facilitate the ecosystem. In the light of this, leaders need to be prepared to outsource responsibility to other organizations in order to focus on joint value propositions (Lingens *et al*., 2021).

Implications and Future Research

This short paper explores how the business model of a focal firm can be affected and experience related implications in the value creation, value capture, and value configuration when a firm enters a business cluster, network, or ecosystem. For practitioners working with inter-organizational collaboration, awareness of both the possible advantages and risks when entering these types of collaborative models is important.

Clusters provide potential for knowledge sharing and interaction, without significant effects on the business model of the focal firm. While geographical co-location of sectorial clusters can create a competitive advantage via both access to a specialized workforce and co-branding efforts (Maskell, 2001), the effects on value creation will be low, and therefore, value capture is also minor.

Networks create potential for closer connections among their actors, but managers should be aware of the time spent on the network compared to the value creation provided through the network.

Furthermore, there is a risk of creating structures, which might lead to inertia (Håkansson and Ford, 2002).

Collaborating in an ecosystem provides potential value creation through joint value propositions, beyond what is possible for the individual organizations on their own, via tight coupling and sharing of knowledge and resources (Jacobides *et al.*, 2018). The increased potential in ecosystems comes with a higher degree of risk based on the interdependencies created, which presuppose that the ecosystem is prioritized by all partners operating within it (Adner, 2017). Alignment of expectations is essential, as misalignment might lead to ecosystems failing or radically changing, because of the multiple different interests or expectations among the participants (Lund and Nielsen, 2014).

As conceptualizations of value creation, value capture, and value configuration among organizations are rare, this paper provides a starting point and an initial conceptual framework for empirical exploration of the topic. Future research, based on empirical exploration of the different contexts, can help to increase knowledge regarding how different organizations' business models change based on how they approach and engage with inter-organizational relationships.

Furthermore, the notion of inter-organizational collaboration in various forms is dependent on the establishment of an inter-actor configurational fit among the participants' business models. As Storbacka *et al.* (2012) argue, this can occur at a business model meso-level through rule structures inherent to the market practices. Thus, the particular distinction of the micro and meso-level structures influencing the processes of value creation, value capture, and value configuration, as well as the distinction between intra- and inter-organizational business model innovation, are key areas for future research.

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JOURNAL OF BUSINESS MODELS

Incumbent Business Model Innovation Under Misperceived Hypercompetition

Kristian J. Sund[1] and Annesofie Lindskov[2]

Abstract

Hypercompetition theory states that incumbent firms must restructure their organizations, resources, and product portfolios, as competitive advantages cannot be sustained over time. Yet, hypercompetition is rarer than many scholars and practitioners suggest. In this paper, we suggest that if managers misperceive the true state of competition in their industry, they run two potential risks. The first is to underestimate the competitive dynamics and to therefore focus too much on incremental changes to their existing business model. The second is to overestimate the dynamics and to waste resources on unnecessary radical business model innovation. In this chapter we discuss these risks in light of recent research on both hypercompetition and on incumbent business model innovation.

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Keywords: hypercompetition, sustainable competitive advantage, dynamic competition, technology-intensive sectors, performance

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1 Professor of Strategic Management at Roskilde University, sund@ruc.dk
2 Roskilde University & Sino-Danish College, the University of Chinese Academy of Sciences, annesli@ruc.dk

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Introduction

The balancing of incremental and radical business model innovation (BMI) is a critical activity for incumbent firms facing changing environments (Amit & Zott, 2012; Egfjord & Sund, 2020; Khanagha, Volberda, and Oshri, 2014; Sund, Bogers, & Sahramaa, 2021). Radical innovations lead to a discontinuity, while incremental innovations build on the existing (Bucherer, Eisert, & Gassmann, 2012). In stable and less competitive environments, incumbent firms can build sustainable competitive advantages by making incremental improvements around existing capabilities (Jensen & Sund, 2017), or to the orchestration of existing resources (Sund, Barnes, & Mattsson, 2018). In environments characterized by intense competition, this becomes more difficult, and managers may seek to explore more radical forms of BMI in order to escape this competition. One type of environment that makes it difficult to build sustainable advantages is that characterized by hypercompetition. This is an environment that D'Aveni (1994) defines as "*an environment of intense change, in which flexible, aggressive, innovative competitors move into markets easily and rapidly, eroding the advantages of the large and established players*" (D'Aveni, 1994: 6). In hypercompetitive markets, such established players (incumbent firms), can gain only a temporary competitive advantage through incremental changes to their business model. A more radical change made to the business model may instead differentiate the firm from its competitors and create a more sustained competitive advantage. But what if managers misperceive the true nature of the environment?

Under intense competitive conditions, firms succeed or fail based on their ability to reinvent themselves, develop new advantages, undermine the advantages of their competitors, and increase their competitive intensity (i.e. the frequency of competitive actions). Yet managers may misjudge their competitive environment. Managers make decisions on behalf of their organization based on their subjective perceptions of the competitive reality, not on the reality itself. How managers perceive the environment thus guides their business modelling activities, something which has been pointed out in recent literature examining the cognitive aspects of BMI (Sund, Galavan, & Bogers, 2020). What are the implications of misjudging hypercompetition? In this short paper we explore this question.

Hypercompetition and Business Model Innovation

The resource-based view of the firm suggests that the primary goal for managers is to create sustainable competitive advantages that can lead to above-normal returns (Hall, 1993; Oliver, 1997). This can be achieved through barriers to imitation and substitution (Reed & DeFillippi, 1990), by accumulating rare and valuable resources (Barney 1991; Kraaijenbrink, Spender, & Groen, 2010), by building and defending core competences (Prahalad, 1993), or through superior resource orchestration (Sund, Barnes, & Mattsson, 2018). It has long been recognized that the ability to achieve advantage is intimately linked to the state of the competitive environment. Sustainable competitive advantage requires conditions of environmental heterogeneity that are durable, and as Peteraf (1993: 182) writes:

> *"This will be the case only if there are in place ex post limits to competition as well. By this I mean that subsequent to a firm's gaining a superior position and earning rents, there must be forces which limit competition for those rents."*

Not surprisingly, more recently scholars have pointed out that when competition becomes very intensive, competitive advantages become temporary in nature (see e.g. Dagnino, Picone, & Ferrigno, 2021; Sirmon, Hitt, Arregle, & Campbell, 2010). The concept of hypercompetition emerged in the 1990s to account for the empirical observation that competition actually appeared to have intensified over time, at least in certain industries in the United States (D'Aveni, 1995). Some scholars argue that as the competitive intensity escalates, the competitive environment becomes characterized by disruptions, only rarely punctuated by stable periods (D'Aveni, 1999, 1994; D'Aveni & Dagnino, 2010). Since then, there have been a handful of large-scale empirical studies trying to ascertain whether other industries, including in other parts of the world, are becoming hypercompetitive, as some have suggested (see e.g. Lindskov, 2021; McNamara, Vaaler, & Devers, 2003; Vaaler & McNamara, 2010). The evidence is mixed,

suggesting that hypercompetition is not a universal phenomenon, but one that is limited in industry, geographical space, and time (Lindskov, Sund, & Dreyer, 2021).

Scholars argue that when markets become hypercompetitive, the competitive intensity increases and competitive advantages disappear quickly, forcing firms to more rapidly shift resources and product portfolios (see e.g., Andrevski & Ferrier, 2019; D'Aveni, 1994). The dilemma managers face becomes whether to focus on the gradual and incremental refinement of current advantages, or, at the right time, try to more radically change the business model, or even seek a new business model altogether. Essentially the dilemma is of business model exploitation versus business model exploration (Foss & Saebi, 2016; Giesen, Riddleberger, Christner, & Bell, 2010; Jensen & Sund, 2017). In this context, we define the degree of radicality as the extent to which a BMI departs from the existing model (Taran, Boer, & Lindgren, 2015). While the radical BMI has the potential to move the incumbent firm into new markets, thereby escaping the hypercompetition of the existing market, the incremental BMI involves minor extensions or improvements (Bucherer, Eisert, & Gassmann, 2012). Thus, managers need to understand the competitive dynamics within their industry, to be able to understand when and by how much to innovate the business model. If managers misperceive the true state of competition in their industry, they might end up focusing too much on incremental changes, or alternatively waste resources on what may be unnecessary radical changes.

The Risks of Misperception

Managers have been called information workers, who capture information about the environment, interpret this information, and act on it on behalf of their organization, in what is essentially an ongoing organizational sensemaking process (Daft & Weick, 1984; Sund, 2013). Managers within the same organization may capture different information about the environment, which can affect how different departments prioritize innovation (Egfjord & Sund, 2020; Sund, Bogers, & Sahramaa, 2021). There is also plentiful evidence to suggest that humans fall victim to the general problem of knowledge overconfidence (Kahneman, 2011). This problem affects managers in their decision-making (Mezias & Starbuck, 2003; Sund, 2016). Managers are thus known to misperceive the competitive environment and have too much confidence in their own interpretations of that environment. One explanation for this bias has to do with the way we search for information in memory. When faced with a question or problem, managers will tend first to conduct a rapid memory search for a possible solution. Once this has been found, they will seek to confirm their initial judgment, filtering out information that does not fit (Kahneman, 2011). In the context of a collective management team decision, pressures to socially conform may amplify this tendency (McGill, Johnson, & Bantel, 1994). The implication is that managers tend to underestimate the degree of uncertainty surrounding their own perceptions and decisions (Sund, 2016).

In figure 1, we propose a simple matrix with four scenarios of how managers' perceptions of the competitive environment, related to hypercompetition, may affect the balancing of incremental and radical business model innovation (BMI). As a reminder, and for the sake of simplicity, we here define incremental BMI as a change to the business model involving minor extensions or improvements (Bucherer, Eisert, & Gassmann, 2012). We define radical BMI as a change of many components of the business model, or the adoption of an entirely new one, allowing the incumbent to escape the condition of hypercompetition. This is consistent with the approach of numerous scholars, although we recognize that there are many other conceptualizations in literature (for a discussion see e.g., Foss and Saebi, 2016; Taran, Boer, & Lindgren, 2015)).

In the absence of hypercompetition, managers may correctly identify that their market is normally competitive. This is illustrated in quadrant A in Figure 1. In this circumstance, their knowledge of the environment can be considered correctly calibrated (Mezias & Starbuck, 2003), and managers should be in a position to correctly balance incremental and radical forms of BMI. It may in this context be possible to build sustainable competitive advantages, and to engage in incremental exploitative BMI around these

to adapt to a slowly evolving market, thereby keeping up advantage. It should be noted that management may still have a desire to diversify their company through radical BMI, but the decision is not predicated on the intensity of competition in the current market environment.

In the situation illustrated in quadrant B in Figure 1, managers (mis)perceive their market environment to be more dynamic than it is. Managers believe the environment to be hypercompetitive, which may lead them furthermore to assume that it would be impossible to maintain a sustainable competitive advantage. The perceived solution could investments in radical BMI, aimed less at the further exploitation of existing advantages, but more at seeking new advantages, through excessive product or market development, or even unrelated diversification. As the market is in fact not hypercompetitive, environmental munificence and company resource slack may enable such exploration. This could include making strategic unrelated acquisitions. The problem of unprofitable diversification is described in literature (see e.g. Markides, 1995), and we thus propose that one explanation for such investments could be misperceptions of hypercompetition.

In the situation illustrated in quadrant C in Figure 1, managers again misperceive their market environment, but this time underestimating the true nature of competitive dynamics. This situation is evidenced in the numerous empirical studies uncovering problems of myopia (Levinthal & March, 1993), core rigidities (Hacklin, Inganas, Marxt, & Pluss, 2009; Leonard-Barton, 1992), and managing strategic change (Johnson, 1992). Managers believe the environment to be relatively stable, leading them to keep focussing on incremental business model adaptation around what they perceive to be strong unique resources and core competences. Meanwhile, the environment is changing rapidly, performance suffers, and by the time management recognizes that their competitive advantages are eroded, it may even be too late to successfully shift the focus towards more radical BMI. In particular, diminishing environmental munificence and a lack of slack resources may limit the options for investments if these are postponed for too long.

Finally, in the situation illustrated in quadrant D in Figure 1, managers correctly perceive their market to be hypercompetitive. Bogner and Barr (2000) argue that in hypercompetitive environments, characterised by extreme uncertainty, conventional

	Market perceived to be normally competitive	**Market perceived to be hypercompetitive**
Normally competitive market	A: Managers correctly balance the need for exploitation and exploration, and may seek advantages through incremental BMI	B: Managers may waste resources looking for a new basis for competition through radical BMI, when they could exploit more their existing advantages with incremental BMI
Hypercompetitive market	C: Managers underestimate the competitive dynamics and focus too much on incremental BMI at the expense of radical BMI	D: Managers correctly identify and act on the need to invest in radical BMI in addition to incremental BMI

Figure 1: Perceptions of hypercompetition and business model innovation

sensemaking frameworks do not work. Instead, managers in such environments must rely on a higher diversity of information and access to real-time information. Managers also need a faster decision-making process, and have to focus on business model experimentation as part of their sensemaking (Egfjord & Sund, 2020; Sund, Bogers, & Sahramaa, 2021). There is mounting evidence that for incumbent firms, radical BMI is challenging, as is managing multiple business models under one organization (Snihur and Tarzijan, 2018; Sund, Bogers, Villarroel, and Foss, 2016). Correctly identifying the true nature of competition in the environment may provide the firm with a better chance of correctly balancing incremental and radical BMI.

Concluding Remarks

In hypercompetitive environments, firms do not necessarily need to have a revolutionary product or service to gain a competitive advantage, but a unique business model can shield the firm from competition. While firms can gain and sustain competitive advantages through BMI, the balance of incremental and radical BMI depends on correctly perceiving the competitive conditions. If managers misperceive the intensity of the competitive environment, they may waste resources on exploring new opportunities, fail to conduct such exploration, or fail to exploit existing advantages. This insight, coupled with evidence that hypercompetition may not be common (Lindskov, Sund, & Dreyer, 2021), has important implications.

Firstly, it serves as a warning to scholars against using managers as informants on the true state of the industry environment. This warning has been discussed numerous times in literature in general (Kumar, Stern, & Anderson, 1993; Mezias, & Starbuck, 2003; Sund, 2016; Sutcliffe, 1994), but we extend this warning to perceptions of hypercompetition. The fact that a manager believes the industry environment to be hypercompetitive, or that a firm appears to invest heavily in incremental or radical BMI, is not an indication of hypercompetition in itself.

Secondly, empirically documented issues of organizational myopia (Levinthal & March, 1993), core rigidities (Hacklin, Inganas, Marxt, & Pluss, 2009; Leonard-Barton, 1992), and strategic drift (Johnson, 1992), could at least in part be explained by misperceptions of the degree of competition in the environment, and a subsequent mis-balancing of business model exploration and exploitation. The implication of misperception is that managers may be over- or underestimating the industry conditions in which they compete, affecting their investments. The issue of knowledge overconfidence thus serves as a warning to analyze carefully the true state of the environment before making investments (Markides, 1995). Verifying our four proposed scenarios empirically could be done in a number of ways. Qualitative case study work could seek to verify the existence of misperceptions and associated misbalancing of BMI. Quantitative work could seek to verify the extent to which such misperceptions actually take place, and perhaps quantify the implications in terms of firm performance and returns to investors, an area that does not appear to have received much attention in the business model literature so far (Cuc, 2019; Wirtz, Göttel, & Daiser, 2016).

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JOURNAL OF BUSINESS MODELS

The Creation Of Ecosystems as a Mean for Business Model Adaptation : How Banks Chose to Respond to The Rise of Fintech Startups

Olfa Chelbi[1], Thierry Rayna[2], Antoine Souchaud [3]

Abstract

The business model concept and the concept of coopetition have been the focus of substantial attention for the past twenty years. However, current research is still short on explaining how both concepts relate to each other. This paper provides a first integration of the two concepts by trying to operationalize the process of business model adaptation in the context of coopetitive settings involving small and young firms. The paper uncovers four roles played by FinTech startups in the ecosystem created by the incumbent bank: the role of a supplier, client, complementor, and coopetitor. In the case of Fintech startups positioned as suppliers, clients and complementors we show an impact on the two dimensions of value creation and value captures. With respect to FinTech companies positioned as coopetitors, early findings show the impact of such settings on the value delivery dimension.

Key words: Business model, adaptation, Ecosystem, Collaboration, Coopetition, Bank, FinTech

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1 PhD candidate, i3-CRG, CNRS, École polytechnique, Institut Polytechnique de Paris, Talan Labs, Talan Group, France, olfa.chelbi@polytechnique.edu
2 Professor of innovation management, i3-CRG, CNRS, École polytechnique, Institut Polytechnique de Paris, France
3 Associate Professor, Neoma Business School, i3-CRG, CNRS, École polytechnique, Institut Polytechnique de Paris, France

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Introduction

The concept of the business model and the concept of coopetition have been the focus of substantial attention from academics and practitioners for the past twenty years (Devece et al., 2019; Wirtz et al., 2016). Nevertheless, it seems that there has been very little work that has addressed both concepts at the same time (Ritala et al., 2014; Spieth et al., 2020; Velu, 2016). Looking at the literature on business models, scholars (Klang et al., 2014; Mason & Spring, 2011; Zott & Amit, 2010) have raised attention to the necessity of taking a perspective that transcends firms' boundaries when analyzing the business model to integrate resources and activities that can be controlled or are provided by other stakeholders of the focal firm (Andreini & Bettinelli, 2017; Berglund & Sandström, 2013; Spieth & Schuchert, 2017) as this is becoming a relatively widespread practice among firms (Hamani & Simon, 2020). Many scholars have talked in this case about openness in the business model, a significant phenomenon presenting salient features that are not sufficiently understood (Iivari, 2015). Yet, few references are made as to whether the list of stakeholders includes competitors (Ritala & Sainio, 2014) and in particular competitors with whom the firm transacts, also described as coopetitors (Bengtsson & Raza-Ullah, 2016), and the impact that these types of actors have on the business model of the firm and its evolution (Saebi et al., 2016).

Understanding the link between business models and coopetition, how they can be integrated, and assessing the relevance of analyzing one concept using the lens of the other remains an aspect that hasn't been covered much in the literature (Bengtsson & Kock, 2014). A first element of response was given by Ritala et al. (2014) who suggest that coopetition and business models are linked because they both integrate the mechanisms of value creation, value capture and potentially value delivery as central elements even though this last dimension of the business model is not yet assessed. The authors then introduce the concept of coopetitive business models thus suggesting that business models could be planned from a coopetitive perspective to serve a specific purpose (Velu, 2018). Similar links were noted between the concept of coopetition and business model innovation. Some scholars have investigated whether firms chose to engage in coopetition in order to innovate their business models (Velu, 2016) or adapt them in times of crisis (Crick & Crick, 2020). In this case, business model innovation or adaptation is the primary objective for companies and engaging in coopetition is the mean to achieve this goal. Other scholars have considered that business model innovation could be one of the many outcomes for firms that choose to engage in coopetition (Kraus et al., 2018). Therefore, it is consequent to engaging in a coopetitive setting but not the primary motivation.

This paper seeks to further explicit the link between business models and coopetition, a research area that was highlighted in the literature (Bengtsson & Kock, 2014). In particular, it takes the specific case of coopetitive settings involving asymmetric coopetitors (Hogenhuis et al., 2016), large firms and small and young firms, settings that were highlighted by scholars in the field of coopetition as lacking in terms of contribution (Devece et al., 2019; Hora et al., 2018) since coopetition was mainly studied in the context of large companies (Chiambaretto et al., 2020). It also investigates the influence of these settings on the business model of the incumbent actor and its adaptation (Saebi et al., 2016). Hence, this paper follows the perspective of Foss and Saebi (2016), who operate a distinction between business model adaptation, where firms undergo a process of transformation of their business models to adapt to changes stemming from their environment and business model innovation, where firms engage in a voluntary process of transformation of their business models. This study thus aims at answering the following research question: How does the development of coopetitive settings involving small and young firms influence the process of business model adaptation within large firms?

The banking industry provides an empirical context for investigating how to integrate coopetition and business models. In the past ten years, the banking industry has gone through several changes: regulatory changes on the national, European and global level. In France for instance, the creation of a breach in the monopoly of banks in the lending segment facilitated the emergence of crowdlending platforms (Souchaud, 2017). On the European level,

the adoption of a new European directive (PSD2) that ended the monopoly of banks in the payment segment facilitated the entry in the market of new actors, which are today referred to under the umbrella term of FinTech (Gomber et al., 2017). While different usages of the term could be noted in the literature, to refer to a technology (Chen et al., 2019) or to refer to new markets (Schmidt et al., 2018), this paper uses the term Fintech to refer to rising companies that deliver financial services through innovative solutions (Gimpel et al., 2018). These rising companies seemingly challenge established banks and their business models since they impose new delivery standards (Seran & Bez, 2020). They also have a more customer-centric approach than established players who long adopted product-centric approaches (Bourjij, 2016). In some cases, they offer banking services and products that are more accessible and more affordable (Rochet & Verdier, 2021).

These regulatory changes associated with a change in the competitive landscape have created among banks a need for innovation and constant development (Sund et al., 2021). Yet, what scholars have observed is that banks, instead of engaging in a frontal battle with the newcomers, have shifted from a competitive logic to a logic of collaboration (Hornuf et al., 2020; Schmidt et al., 2018) or acquisition of FinTech companies (Pietronudo et al., 2021).

This paper will focus on the case of an incumbent corporate bank which has been actively involved with FinTech companies (acquisition, partnerships, internal creation). The analysis of the different means of engagement with FinTech companies will allow a better understanding of the nature of the relationship between FinTech companies and the incumbent bank. It will also allow the analysis of the impact on the business model of the incumbent corporate bank and its evolution.

Through our research, we aim to contribute to the already rich literature addressing business models and business model innovation and adaptation (Foss & Saebi, 2016; Xavier et al., 2010), especially business model innovation within large companies facing the rise of competitors adopting new and disruptive BMs (Lüttgens & Montemari, 2016). We also aim at contributing to research on coopetition and coopetitive ecosystems (Adner, 2017) and respond to the specific call for research on coopetition between corporates and startups and SMEs (Bouncken et al., 2015; Hora et al., 2018).

The paper is structured as follows: Section Two presents the methodological approach of the research, whereas Section Three presents the key insights. These sections are followed by a discussion of the results in light of the existing literature and the conclusion.

Study Design

In this paper, a qualitative single-case study was conducted, taking the case of an incumbent corporate bank which has been actively involved with startups. The choice of single-case studies allow researchers to gain an in-depth understanding of organizational phenomena and how such phenomena unfold over time (Ozcan et al., 2017). In particular, single case studies have been recommended for the exploration of new phenomena, here, the relationship between coopetition and business models (Ritala et al., 2014) and has been described as an appropriate approach for studying the way business models evolve (Hamani & Simon, 2020).

Researchers also opted for a longitudinal case study, that allows the observation of the process of business model innovation and, on the other, shows how coopetitive settings evolve over time.

The choice of the case company was carried out following a first period of observation and listing of all the M&A deals and alliances that took place between FinTech companies and incumbent banks in France.

This led to the identification of some key players in the industry including the commercial bank that was selected for the investigation of the research question and because of facilitated field access for data collection.

The 360° Business Model Framework

The literature (Osterwalder & Pigneur, 2010; Warnier et al., 2016) proposes various frameworks for

analyzing the business models. This paper focuses on the 360° model framework as described by Rayna & Striukova (2016), as it allows scholars to have a dynamic and integrated view of the process of business model innovation. The framework is also suitable for the analysis of business models on an ecosystem level.

As shown in Figure 1, the model is characterized by five components: value creation, value proposition, value delivery, and value capture, which are often found in other frameworks to which researchers have added another component, value communication.

According to the authors, firms create value by combining core competencies, key resources, governance, complementary assets, and value networks.

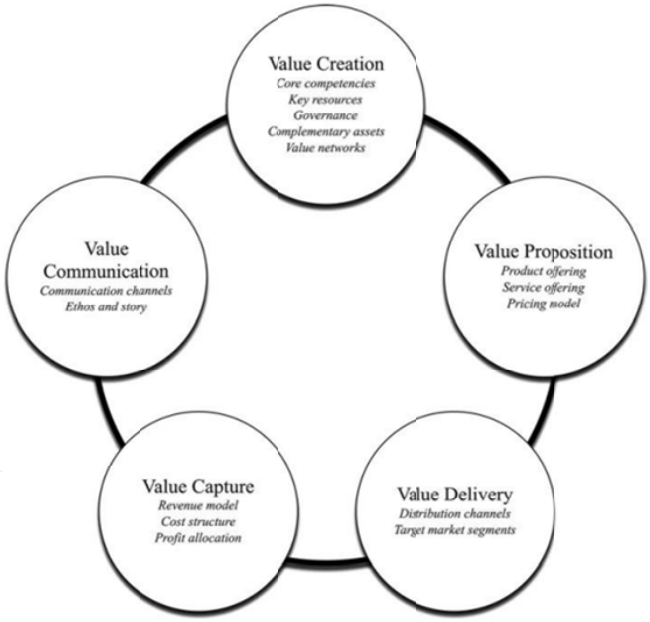

Figure 1: The 360° Business Model Framework

The value captured by the firm, also referred to by some scholars as the profit formula (Johnson et al., 2008), can be assessed according to three indicators the revenue model, the cost structure, and the profit allocation across the value chain. The greater the total value created, the more a company reinforces its bargaining power and the greater the amount of value that can be appropriated or captured (Zott et al. 2010).

The value proposition represents the benefits delivered to stakeholders for which payment or another value exchange occurs (Bocken et al., 2013). It defines the type of services or products offered by firms and the price of these offerings. On the other hand, value delivery looks at the distribution channels through which these products and services are provided and the targeted customer segments.

Lastly, value communication defines the way companies communicate with stakeholders in their environment about the value they create. As argued by the authors, it includes *"the story the firm tells and the ethos it communicates which allows the firm to set itself apart from the competition and encourage customers to build an emotional identification with the company"* (Rayna et Striukova, 2016, p23).

Analysis of coopetitive settings

Different definitions of the concept of coopetition have been suggested in the literature (Bengtsson & Kock, 2014). Yet, most of them agree that coopetition is characterized by the simultaneous presence of two contradicting logics, cooperation and competition (Gnyawali & Ryan Charleton, 2018), which make these settings particularly complex (Lado et al., 1997). We retain the following definition suggested by Bouncken et al. (2015, p. 591): *" Coopetition is a strategic and dynamic process in which economic actors jointly create value through cooperative interaction, while they simultaneously compete to capture part of that value".*

Coopetitive settings have been observed and studied at multiple levels: at the inter-organizational level (Bengtsson & Kock, 2000), within different units of the same firm (Tsai, 2002), and even at the individual level (Chiambaretto et al., 2019). Similarly, coopetition has been analyzed on the horizontal and also on the vertical level (Lechner et al., 2016) for instance between suppliers and their customers.

Case company

The Corporate Bank was set up in the late 1800. It totalizes about 30 million clients, employs over 120 000 people, and is present internationally (in over 50 countries).

Starting from 2015, the corporate bank has been an active player in terms of investment, acquisition, and

collaboration with FinTech companies. Researchers identified:

- Three acquisitions of FinTech companies: a crowdlending platform (CL), a startup providing banking services to small businesses (S1), and a startup providing one-stop shop banking services to rising FinTech startups (S2),
- One FinTech created internally providing banking services to small and medium enterprises (SMEs),
- Several partnerships with FinTech companies

Data Collection

Researchers relied on primary and secondary data representing a six-year period (from 2015 to 2021). Primary data were gathered through semi-structured interviews and are still being collected. The interview questions varied according to the profile of interviewees: either presenting the perspective of the case bank or presenting the perspective of FinTech startups. In the first case, the questions aimed at understanding the approach of the case bank in terms of innovation and in relation with FinTech startups. Researchers also asked interviewees to reflect on the case of the FinTech companies which were acquired by the case bank.

In the second case, the interview questions covered aspects that allowed researchers to understand the specificities of the business model of the considered FinTech startups and asked interviewees to reflect on the nature of their relationships with the corporate bank.

The interviews allowed researchers to hear from:

- Representatives from the case bank (four interviews)
- Representatives of FinTech startup acquired by the bank (three interviews)
- Interviews with FinTech startups created internally (one interview)
- Interviews with FinTech companies which are indirect customers of the bank (four interviews)

The interviews lasted between 33 min and 53 min. They were recorded and then transcribed as soon as possible in order to preserve the quality of the data (Dumez, 2016). They were then transcribed in English since the original data set was in French.

Secondary data was collected through press reviews, the screening of different conferences and podcasts that specifically addressed the nature of the relationship between the corporate bank and the FinTech companies it is associated with.

Key Insights

The first findings concern the qualification of the nature of the relationship between banks and FinTech companies. A first positioning was identified where FinTech companies position themselves as suppliers of technological solutions for Banks. This first positioning was confirmed by certain scholars (Hornuf et al., 2020; Schmidt et al., 2018) which show that banks rely on the services and solutions provided by FinTech companies to accelerate their digital transformation processes . This is also observed in the context of the case bank with a number of partnerships serving operational needs (solutions to track fraud, cash collection solutions) and allowing the bank to swiftly adapt to the needs and challenges brought by the digital age (Klus et al., 2019). As argued by one of the bank's representatives: *"These are back-office partnerships"*.

We observed a number of partnerships with FinTech startups that allowed the bank to offer extra-financial services to its customers, such as accounting services, website development services or e-commerce platforms development . As argued by one of the interviewees: *"These collaborations allow us to integrate products that are not ours into our channels [..] It is in fact the opportunity for us to better serve our customers"*.

These products or services, offered through partnerships with FinTech companies, constitute complementary assets for the bank and are a vector for retaining old customers. For the time being, the bank is remunerating itself on the basis of a business service provider model and enables its customers to benefit from certain advantages (discounts, free services, etc.) if they make use of their partners'

services. Therefore, we uncover another positioning of FinTech companies, as complementors of the bank. Building on the 360° framework (Rayna & Striukova, 2016), we see that these FinTech companies exert an impact on the value creation component, precisely on the two sub-dimensions of value networks and complementary assets.

With respect to the impact on the value capture dimension, we assume that such partnerships could provide the bank with new revenue models. However, uncertainties remain concerning the bank's ability to accentuate the relevance of such partnerships to its existing customers or whether these partnerships could be a driving force to attract new clients. This aspect is currently being investigated. This aspect needs to be investigated (or deepens) in future studies.

Our results also uncover a third positioning of FinTech companies as clients of Banks. This aspect is salient to the banking industry, which is a highly regulated industry, and requires companies evolving in this industry to operate as regulated actors and therefore obtain a license. A second alternative consists in leaning against a regulated actor, a bank, or another regulated company, in order to be able to operate. Thus, the acquisition of S2, an example of such regulated actors that is the driving force behind many other FinTech companies presenting an overlap in certain market segments covered by the bank (segment of young adults, segment of small businesses..) was a strategic move for the case bank. Indeed, by allowing the bank to have access to the ecosystem of S2, it also allows it to operate as an active contributor to this ecosystem. As argued by a representative from the bank: *"The way we see it is that a customer comes to S2, they will grow. They will go into the whole ecosystem of services that we offer".*

Thus, building on the 360° framework (Rayna & Striukova, 2016), we see that the corporate bank is able to boost its value delivery through S2, which serves as a vehicle for distributing its products and also have access to other market segments. It is also a way for the corporate bank to generate new revenue streams that ultimately impact the way it captures value. Moreover, we see that the bank positions itself through S2 in a vertical coopetitive setting as a supplier of technological facilities while remaining in competition on certain market segments with clients of S2.

Lastly, the analysis of FinTech companies as coopetitors is still ongoing. The first assumption is that such actors will certainly impact the value delivery dimension on the two levels of target market segment since coopetition often involves competition on markets or clients and potentially distribution channels. In the context of this study, this aspect is salient when we look at the case of S1 which provides banking services to small businesses, a market segment that the corporate bank already addressed through its traditional branches. As argued by one of the bank's representatives: *"We bought a vehicle that we thought would meet the expectations of a segment we wanted to enter"*. Thus, we suggest the following building on the 360° framework (Rayna & Striukova, 2016): FinTech companies positioned as coopetitors in the ecosystem of the corporate bank exert an impact on the value delivery dimension of the business model.

Discussions and Conclusions

This paper tried to look at the process of business model adaptation within an incumbent player following the rise of entrants in the market. As highlighted by scholars, the description of the business model adaptation process is an area that remains to be further investigated and clarified (Foss & Saebi, 2016; Schneider & Spieth, 2013; Wirtz & Daiser, 2017) and we aimed, through our study, to contribute to improving the understanding of this process in two ways.

First, we showed how the incumbent bank was able to construct an ecosystem by engaging with FinTech companies that play different roles: suppliers - complementors - clients and to some extent coopetitors. In the two cases of complementors and clients, we saw how the bank's business model evolves with regard to the way it creates and captures value and to a lesser extent to the way it delivers value.

With respect to the positioning of FinTech companies as coopetitors, we tried to shed light on how engaging in coopetition contributes to the evolution of the business model of the incumbent bank. Our preliminary results indicate the existence of a link between the two concepts with respect to the value delivery dimension, which was already suggested by some scholars but hasn't been presented in previous studies, at least to our best knowledge (Ritala et al., 2014). As these are preliminary results, we also expect to have additional findings concerning the impact of coopetition on the two dimensions of value creation and value capture.

We have primarily taken the perspective of the large firm in this study. Yet, we believe taking the perspective of young entities and seeing how such coopetitive settings affect the design of their business models (Massa & Tucci, 2014) deserves further consideration.

Concerning, the link between coopetition and business models, we present a first level of analysis on how both concepts could be analyzed simultaneously. Future studies could try to look at other levels of analysis such as the risk management processes implemented by firms which chose to engage in the two processes/settings of business model innovation and coopetition, often described as risky and presenting a high level of failure (Velu, 2018).

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Capability Framework Implementing Pay-Per-Outcome Business Model in Equipment Manufacturing Companies

Veli-Matti Uski[1], Prasanna Kumar Kukkamalla[2], Hannu Kärkkäinen[3], and Karan Menon[4]

Abstract

The primary objective of this paper is to enhance our understanding of the capabilities necessary for implementing a pay-per-outcome business model and how equipment manufacturing companies can successfully implement such a business model. Based on systematic literature research, we analysed 12 research publications that discussed pay-per-outcome capabilities in the equipment manufacturing industry. We identified 36 capabilities and formulated a capability framework for pay-per-outcome business models in the equipment manufacturing industry. We also identified that pay-per-outcome business models require specific capabilities related to customer relationship and contracting, compared with other service-based business models (such as pay-per-use business models). Since earlier studies have failed to distinguish the capabilities necessary for pay-per-outcome business models from those for other types of product–service system business models or focused on some specific required capabilities for the former business models, we contribute to current business model literature by uncovering the unique characteristics of pay-per-outcome business models in the equipment manufacturing industry.

Keywords: Pay-per-outcome, Capabilities, Equipment manufacturing

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1–4 Tampere University

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Introduction

In recent years, sustainable business models such as pay-per-x (PPX) business models (BMs) have gained interest among the equipment manufacturing industry (EMI) as companies try to increase their profitability and find competitive advantage by shifting from product-orientated towards service-orientated business (Cuc, 2019; Gebauer et al., 2017). In PPX BMs, the customer pays depending on equipment usage, such as by used hours (pay-per-use), kilometres (pay-per-output) or produced outcomes (pay-per-outcome), rather than buying the equipment (Menon et al., 2019). In PPX BMs, consumers pay for the unit of service (e.g. clothes wash) without gaining product ownership, and thus they are often linked to increased environmental performance (Tunn et al., 2020). PPX BMs are reasonably popular in the energy industry where the customers does not own e.g. solar panels but pay only based on how much energy the panels generate (Xu et al., 2018). Another example may be a compressed air and vacuum products manufacturer offering customers a fixed price per cubic meter of compressed air. PPX services require the value proposition to be reconfigured from products (input-orientated) to services (output-orientated)(Cusumano et al., 2015). PPX BMs allow the customer to move capital costs to operational costs, while the supplier carries the operational risks. This risk transfer is priced, and thus central in PPX BMs (Adrodegari et al., 2015). Pay-per-outcome BMs are the most advanced version of PPX BMs; there are various terms for these in the literature, such as outcome-based contracts (Ng et al., 2009), performance-based contracts (Liinamaa et al., 2016) and result-orientated product–service systems (Möller and Shahnavaz, 2020). Furthermore, the meaning of a pay-per-outcome BM varies among authors, and some do not even distinguish between pay-per-use and pay-per-outcome BMs (Grubic and Jennions, 2018). In pay-per-outcome BMs, the customer pays for the results the product/service provides, rather than for usage of products, while the ownership of product and maintenance responsibilities remains with supplier (Gebauer et al., 2017). The customer pays a fee, which depends on the achievement of a contractually set result in terms of product performance or outcome of its usage (for instance, the final output quality) (Adrodegari et al., 2015). For example, with independent power producer contracts, the customer neither buys the energy facility nor leases it but commits to buying a fixed amount of energy (Mwh) at a pre-defined price. Thus, the provider (or third party) owns the facility, and if the provider can produce excess energy, it gains the profits from that. If it cannot produced the agreed level of energy, however, it will have to buy the necessary energy from the markets (Korkeamäki and Kohtamäki, 2019).

Despite, the popularity of pay-per-outcome BMs, their implementation has been difficult due to significant risks and technological challenges (Gebauer et al., 2017). These difficulties may prevent the implementation of such BMs in equipment manufacturing companies. Michelin, for example, had endured many years challenges to attain a commercially successful pay-per-kilometre service; it finally succeeded only after it was able to develop new monitoring and service development capabilities (Gebauer et al., 2017).

To successfully implement a pay-per-outcome BM, a company needs to reconfigure its current capabilities (Teece, 2018) and develop new ones (Grubic and Jennions, 2018). The needed capabilities related product–service systems as wider concept have already been researched (Annarelli et al., 2021), but only a few studies have considered the capabilities needed specifically for PPX BMs (Gebauer et al., 2017; Möller and Shahnavaz, 2020; Sousa-Zomer et al., 2018; Story et al., 2017). However, these studies do not take into account the specific capabilities needed for pay-per-outcome BMs such as those related to customer co-production (Schaefers et al., 2021) or legal–technical capabilities related to contracting (Ng and Nudurupati, 2010).

Hence the primary objective of this paper is to fill this gap related to the capabilities required for pay-per-outcome BMs and to understand how equipment manufacturing companies can successfully implement such models. Thus, we aim to answer the following research question:

> *RQ: What kind of new capabilities are needed for implementing pay-per-outcome business models in the equipment manufacturing industry?*

To answer the research question, we have used a systematic literature review approach. Based on the articles, we have identified the necessary capabilities and formulated a capability framework for pay-per-outcome BMs in the EMI.

Since earlier studies have either failed to distinguish the capabilities required for pay-per-outcome BMs from other types of product–service system BMs or focused on some specific capability required for pay-per-outcome BMs, we contribute to current BM literature by uncovering the unique characteristics pay-per-outcome BMs in the EMI.

Approach

This study adopted a systematic literature approach (Kitchenham, 2004). In research carried out during June 2021, we searched only for journal articles written in English and published in the Scopus and Web of Science databases. As our research topic was capabilities of pay-per-outcome BMs in the EMI, we used the following keywords and search string: ("pay per output" OR "pay per outcome" OR "outcome-based" OR "performance-based" OR "performance-based logistics" OR "performance-based contract" OR "product service systems" OR "product service systems business model" OR "result-oriented" OR "servitization" OR "advanced service") AND ("manufacturing" OR "manufacture" OR "manufacturer" OR "machine builder" OR "equipment") AND ("capabilities" OR "capability" OR "competencies" OR "competences"). In total, we identified 260 articles from Scopus and 236 from Web of Science; after removing duplicates, we were left with 327 journal articles. After screening records by title and/or abstract, we reduced the amount to 32 articles that specifically discussed pay-per-outcome BMs in EMI. These articles were studied carefully, and from them we finally identified 9 articles eligible for our study. In addition, we complemented the identified articles with a search by Google Scholar and a backward search from references that revealed 2 articles and 1 conference paper published in a *Procedia CIRP* special issue. The conference paper was included due to its interesting viewpoint on co-production and financing. Thus, we commenced our review with 12 articles (See Table 1).

Table 1.

	Article	Journal	Perspective for capabilities	Reference
1.	Outcome-based contracting from the customers' perspective: a means-end chain analytical exploration	Industrial Marketing Management	Service development and customer relationship perspective	(Schaefers et al., 2021)
2.	The role of servitization in the capabilities–performance path	Competitiveness Review	Digitalisation and organisational capability perspective	(Manresa et al., 2021)
3.	To outcomes and beyond: discursively managing legitimacy struggles in outcome business models	Industrial Marketing Management	Co-production perspective	(Korkeamäki and Kohtamäki, 2020)

Table 1: Selected articles (*Continued*)

Table 1.

	Article	Journal	Perspective for capabilities	Reference
4.	Ecosystem of outcome-based contracts: a complex of economic outcomes, availability and performance	Procedia CIRP	Co-production and financing perspective	(Korkeamäki and Kohtamäki, 2019)
5.	Investigating risks of outcome-based service contracts from a provider's perspective	International Journal of Production Research	Customer relationship and contracting perspective	(Hou and Neely, 2018)
6.	The path to outcome delivery: interplay of service market strategy and open business models	Technovation	Service development perspective	(Visnjic et al., 2018)
7.	Servitization through outcome-based contract – a systems perspective from the defence industry	International Journal of Production Economics	Customer relationship and value network perspective	(Batista et al., 2017)
8.	Performance-based and functional contracting in value-based solution selling	Industrial Marketing Management	Contracting perspective	(Liinamaa et al., 2016)
9.	Servitized manufacturing firms competing through remote monitoring technology: an exploratory study	Journal of Manufacturing Technology Management	Digitalisation perspective	(Grubic and Peppard, 2016)
10.	Pricing strategies of service offerings in manufacturing companies: a literature review and empirical investigation	Production Planning & Control	Financing perspective	(Rapaccini, 2015)
11.	Outcome-based service contracts in the defence industry – mitigating the challenges	Journal of Service Management	Customer relationship and value network perspective	(Ng and Nudurupati, 2010)
12.	Outcome-based contracts as a driver for systems thinking and service-dominant logic in service science: evidence from the defence industry	European Management Journal	Organisational capability perspective	(Ng et al., 2009)

Table 1: Selected articles

The thematic analysis was used to identify capabilities from the literature (Corbin and Strauss, 2008). It was conducted in two stages: in the first stage, we identified the necessary resources, activities and knowledge described in the articles, and in the second phase, we categorised these thematic items into capabilities (Day, 1994). For example, according to Rapaccini (2015), complex services such as pay-per-outcome services should be priced based on the value they provide for the customer rather than on the costs they generate. We interpret from this that pay-per-outcome BMs require 'capability to quantify the value provided by the offer'.

Key Insights

We identified 36 capabilities that we divided to seven dimensions, thus creating the framework (Table 2). The dimensions were based on business activities–derived servitisation frameworks found in the literature (Sousa-Zomer et al., 2018; Story et al., 2017), but they were modified to address the key characteristics of pay-per-outcome BMs, such as customer relationship and digitalisation, which were emphasised in the identified capabilities. In the following sub-sections, we describe each of these dimensions in more detail.

Table 2.

Dimension	Capabilities	Differences compared to pay-per-use BM
Customer relationship	– Capability to establish trustworthy relationships with customers (Korkeamäki and Kohtamäki, 2020) – Capability for transparent interorganisational communication (Korkeamäki and Kohtamäki, 2020) – Capability to co-develop with customers (Schaefers et al., 2021) – Capability for co-production with customers (Schaefers et al., 2021) – Capability to communicate new roles and responsibilities among customers' BMs (Hou and Neely, 2018) – Understanding customer needs (Hou and Neely, 2018; Visnjic et al., 2018) – In-depth understanding of customer processes (Korkeamäki and Kohtamäki, 2020; Schaefers et al., 2021) – Capability to convince customers about the value of non-ownership BM (Korkeamäki and Kohtamäki, 2020; Schaefers et al., 2021)	– Capability for co-production with customer (Schaefers et al., 2021) – Understanding customer needs (Hou and Neely, 2018; Visnjic et al., 2018) – In-depth understanding of customer processes (Korkeamäki and Kohtamäki, 2020; Schaefers et al., 2021)
Value network	– Capability to identify and analyse relevant partners (Ng et al., 2013) – Capability to evaluate partner's performance (Hou and Neely, 2018) – Capability to orchestrate the value network of partners (Hou and Neely, 2018)	– Capability to evaluate partner's performance (Hou and Neely, 2018)
Digitalisation	– Capability for remote monitoring (Grubic and Peppard, 2016) – Capability to convince the customer to share data (Grubic and Peppard, 2016) – Capability to translate data into value (Grubic and Peppard, 2016) – Capability to ensure data privacy and security (Grubic and Peppard, 2016) – Capability to simulate equipment performance (Grubic and Peppard, 2016)	– Capability to simulate equipment performance (Grubic and Peppard, 2016)

Table 2: Pay-per-outcome business model (BM) capability framework. (*Continued*)

Table 2.

Dimension	Capabilities	Differences compared to pay-per-use BM
Organisation and governance	– Service-orientated attitude (Ng et al., 2009) – Capability to quantify, control and monitor risks (Ng et al., 2009) – Capability to quickly react to fast-changing situations (Ng et al., 2009) – Capability to establish a continuous learning culture (Ng et al., 2009) – Leadership (Ng et al., 2009) – Teamwork (Ng et al., 2009) – Technical competencies for marketing personnel (Schaefers et al., 2021)	– Technical competencies for marketing personnel (Schaefers et al., 2021)
Contracting and legal	– Legal-technical capabilities (Ng and Nudurupati, 2010) – Capability to negotiate value-based contracts (Liinamaa et al., 2016) – Capability to manage intellectual property and tacit knowledge (Liinamaa et al., 2016) – Capability for functional contractual techniques (Liinamaa et al., 2016)	– Legal-technical capabilities (Ng and Nudurupati, 2010) – Capability to manage intellectual property and tacit knowledge (Liinamaa et al., 2016) – Capability for functional contractual techniques (Liinamaa et al., 2016)
Service development	– Capability to quantify the value provided by the offer (Liinamaa et al., 2016; Rapaccini, 2015) – Definition of logistics and distribution processes (Korkeamäki and Kohtamäki, 2019) – Definition of installation and maintenance services procedures (Korkeamäki and Kohtamäki, 2019) – Capability to develop processes for reverse logistics and remanufacturing (Schaefers et al., 2021) – Understanding of service design (Schaefers et al., 2021) – Capability to anticipate potential causes of product failure (Schaefers et al., 2021)	– Capability to anticipate potential causes of product failure (Schaefers et al., 2021)
Financing	– Capability to finance non-ownership BM (Rapaccini, 2015) – Capability to calculate life-cycle cost of product-service systems (Rapaccini, 2015) – Capability to convince financial partners (Korkeamäki and Kohtamäki, 2019)	– Capability to convince financial partners (Korkeamäki and Kohtamäki, 2019)

Table 2: Pay-per-outcome business model (BM) capability framework.

Customer relationship

In pay-per-outcome BMs, the provider's profitability is dependent on the outcome of the customer's process (Korkeamäki and Kohtamäki, 2019). Hence, the role of the customer relationship is emphasised, and without mutual trust between the provider and customer, the pay-per-outcome BM is doomed to fail (Korkeamäki and Kohtamäki, 2020). The trust is built on fairness and honesty (Korkeamäki and Kohtamäki, 2020), which can be ensured through deep partnership with the customer and fair profit-sharing (Korkeamäki and Kohtamäki, 2019). Sometimes it can be beneficial to reveal the weak points of an offering, to give the customer a feeling of openness and honesty (Schaefers et al., 2021). In addition, mutual expectations should be realistic and possible to keep (Ng and Nudurupati, 2010). Above all, to prove the credibility of the service, references have a significant role in pay-per-outcome BMs (Schaefers et al., 2021).

Furthermore, capability for co-production is crucial in pay-per-outcome BMs, since performance increases can only be achieved that way. For example, one interviewee in Schaefers et al.'s (2021) study remarked that if they notice that the customer is not committed on co-production, it is no worth pursuing (Schaefers et al., 2021). Similarly, Liinamaa et al. (2016) showed how one company failed to deliver a profitable pay-per-outcome service because it could not adapt to its customer's processes. The provider did not gain access to the customer's business data and knowledge that it would have needed to improve its process performance (Liinamaa et al., 2016). However, when the complexity of the process and number of parties involved in it increase, it is not uncommon for the ownership of many of the activities to become unclear (Batista et al., 2017). Thus, defining clear roles and responsibilities for each party is also essential in pay-per-outcome BMs (Hou and Neely, 2018).

Proving the value for the customer in pay-per-outcome BMs is difficult, and to do that, the provider must understand the customer's needs (Hou and Neely, 2018; Visnjic et al., 2018), how its business works and how decisions in the customer's organisation are made (Liinamaa et al., 2016). When the provider and the customer do not understand each other, the customer might start to demand more things for the contract until the contract ends up being too complicated to be implemented (Hou and Neely, 2018). Furthermore, Hou and Neely (2018) showed that customer demands might vary between and even within countries and regions depending on business environment and business drivers. For example, in a case study introduced by Liinamaa et al. (2016), the customer's earning logic was such that any performance increase would not have benefited the customer but its partners, which thereby would not encourage the customer to buy the service as such. Thus, understanding the customer's unique needs is crucial for the success of a pay-per-outcome BM.

However, to understand the value its equipment creates, the provider must have an in-depth understanding of the customer's processes (Korkeamäki and Kohtamäki, 2020); it must understand the role in its process the offering plays (Korkeamäki and Kohtamäki, 2020) and how the whole system works together (Schaefers et al., 2021). Without understanding the entire process, it would be hard to make the best out of it. Both Korkeamäki and Kohtamäki (2020) and Schaefers et al. (2021) emphasised that even salespeople must have a technical understanding of the process, so that they can credibly communicate the value created by the equipment.

Value network

The performance of a system can be improved internally only up to a certain point. After that, it becomes essential to collaborate with other value network parties (Korkeamäki and Kohtamäki, 2020). In pay-per-outcome BMs, collaboration with partners quite often becomes inevitable because earning logic is based on improvements in the system. To get the most out of this kind of such partnerships, all the parties must be able to efficiently share knowledge and resources with each other as well as align their BMs, which might not always be easy (Korkeamäki and Kohtamäki, 2020). Thus, successful pay-per-outcome BMs usually need partnering capabilities, such as to identify and evaluate partners.

Furthermore, incorporating third parties for delivering a value proposition constitutes a risk because if

some partner cannot deliver what it has promised, it might compromise the outcome of the entire offering (Hou and Neely, 2018). Thus, it is also necessary for the provider to have the capability to orchestrate the partner network and mitigate possible risks related to it.

Digitalisation

In pay-per-outcome BMs, equipment requires remote monitoring capability and data connection (Grubic and Peppard, 2016) For example, monetisation is based on performance improvements, and remote monitoring capabilities are needed to measure that. Thus, the provider must be able to convince the customer to share data and do so in a secure way (Grubic and Peppard, 2016).

Secondly, the provider must be able to estimate performance improvements in advance so that it can define the proper risk premium for its offering. Without that, it cannot price the offering or provide guarantees related to performance (Liinamaa et al., 2016). Therefore, simulation capability is emphasised especially in pay-per-outcome BMs (Liinamaa et al., 2016; Rapaccini, 2015). However, investment in simulation capability may be costly, since the provider should be able to take into account, for example, market conditions, business environment and the customer's activities while estimating performance (Liinamaa et al., 2016).

Organization and governance

The role of human capacity and capability is significant in complex service systems (Ng et al., 2009). Therefore, the success of pay-per-outcome BMs is also dependent on organisational capabilities (Manresa et al., 2021). A company implementing a pay-per-outcome BM needs organisational capabilities such as coordinating and leading people in a changing environment, working in teams and forming relationships, quantifying, controlling, and monitoring risks, reacting quickly to fast-changing situations and establishing a continuous learning culture (Ng et al., 2009).

Furthermore, an organisation must be able to define and communicate clear roles for both its own personnel and interorganisational personnel. It must also be able to reduce uncertainty and the feeling of loss of control while organisational boundaries fade between the provider and customer (Ng and Nudurupati, 2010).

Lastly, pay-per-outcome BMs require the removal of silos and broken borders within an organization (Korkeamäki and Kohtamäki, 2020). Engineers need to have soft skills such as teamwork and leadership (Ng and Nudurupati, 2010), and marketing personnel must have technical skills to be able to convince customers about the performance potential of the offering (Schaefers et al., 2021).

Contracting and legal

The successful implementation of a pay-per-outcome BM is highly dependent on contracts (Liinamaa et al., 2016). Pay-per-outcome contracts are complex, and negotiating them requires a new kind of legal–technical capability (Ng and Nudurupati, 2010); thus, many companies fail to implement pay-per-outcome BMs (Liinamaa et al., 2016). According to Liinamaa et al. (2016), the contract should be considered a key sales object, and salespeople should have the capability to negotiate value-based contracts (Liinamaa et al., 2016).

Negotiating pay-per-outcome contracts takes a lot of time, and even years (Korkeamäki and Kohtamäki, 2020, 2019). The contract should be clear, unambiguous and verifiable, and it should contain the responsibilities of both parties (Liinamaa et al., 2016). However, Korkeamäki and Kohtamäki (2020) remarked that a contract that is too may might decrease 'goodwill-based trust' between the customer and provider.

Earnings in pay-per-outcome BMs are based on exceeding pre-defined performance levels. Defining this baseline is a crucial activity in contract negotiation (Liinamaa et al., 2016); however, it is far from easy. The baseline should be defined mathematically in consideration of the risks, customer environment (Korkeamäki and Kohtamäki, 2019), equipment capabilities, market conditions and value created for the customer (Liinamaa et al., 2016). Therefore, negotiating the contract requires technical capabilities among the all negotiating partners (Schaefers et al., 2021).

Above all, managing intellectual property (IP) and tacit knowledge in pay-per-outcome BM delivery is crucial because performance improvements are quite often based on these. For example, Liinamaa et al. (2016) showed how the case company was forced to reveal its technical plans to prove the value of its service, and the customer used this opportunity to forward this knowledge to the case company's competitor to get the same service for a lower price (Liinamaa et al., 2016). Without proficient IP management capabilities, there is nothing to restrict the customer from exploiting this knowledge (Korkeamäki and Kohtamäki, 2020). Thus, Liinamaa et al. (2016) proposed that the company should have a contracting technique whereby the ownership of IP rights is negotiated before it reveals more detailed technical plans.

Service development

According to Rapaccini (2015), complex services such as pay-per-outcome services should be priced based on the value they provide for the customer rather than costs they generate. For example, Liinamaa et al. (2016) argued that most PPX types of BM in the literature, such as Rolls-Royce's Power-by-the-Hour, are rather simple and based on used hours alone rather than the actual value they provide. Hence, in a pay-per-outcome BM, the company needs the capability to quantify the value it provides for the customer.

Secondly, as in pay-per-outcome BMs, when the provider is responsible for equipment throughout its life-cycle, the life-cycle costs are emphasised (Schaefers et al., 2021). The company must be able to anticipate potential equipment failures, understand the processes for reverse logistics and remanufacturing and know how to optimise equipment life-cycle costs so it can price the service correctly (Schaefers et al., 2021). Maintenance activities in particular are crucial in pay-per-outcome BMs, and with well-defined maintenance, logistics and distribution processes, the company can create a competitive advantage (Korkeamäki and Kohtamäki, 2019).

Financing

Pay-per-outcome BMs always have a financial risk due to the upfront investments the provider must make, and realising the value is usually a lengthy process (Hou and Neely, 2018). Thus, the company must have the financial capability to carry out this upfront investment and undertake the risk that the outcome might not always be realised. In addition, specific pricing capabilities are needed, since the pay-per-outcome BM is based on pricing possible performance increases and the related risk premium (Rapaccini, 2015).

The provider does not always need to carry the entire financial risk alone, and it can outsource it to financial partners (Korkeamäki and Kohtamäki, 2019) However, in that case, the provider must have the capability to convince financial partners about the profitability of the pay-per-outcome BM and communicate it in financial terms (Korkeamäki and Kohtamäki, 2019).

Discussion and Conclusions

This study provides evidence about the new capabilities needed for implementing pay-per-outcome BMs. We identified 36 capabilities and grouped them to 7 dimensions to show that there are indeed differences between pay-per-use and pay-per-outcome BMs. With this, we contribute to the existing BM innovation and PPX literature by showing that pay-per-outcome BMs do need additional capabilities compared with more traditional pay-per-use types of BM.

We showed that although customer relationships have a significant role in pay-per-use BMs (Gebauer et al., 2017; Möller and Shahnavaz, 2020; Sousa-Zomer et al., 2018; Story et al., 2017), such BMs require an even closer relationship with the customer and much more in-depth understanding of its processes and business, since the provider's revenues are dependable on improvements in the customer's process. Close relationship with customer enable gaining the customer data (Luoma et al., 2021) which is necessity for the pay-per-outcome business models. In addition, we showed that pay-per-outcome BMs require a new kind of capabilities related to contracting, as pay-per-outcome contracts are much more complex and require technical

definitions of accepted performance levels. Thus, it is important for pay-per-outcome BMs to be studied separately from pay-per-use BMs rather than being grouped together as similar BMs.

Secondly, even though previous studies (Gebauer et al., 2017; Möller and Shahnavaz, 2020; Sousa-Zomer et al., 2018; Story et al., 2017) have created capability frameworks for PPX BMs, they have failed to distinguish between the different types of PPX BM. As the capabilities of these models differ in essential ways, it is necessary to have a pay-per-outcome-focused capability framework that emphasises its peculiarities. Thus, we contribute by developing a capability framework specifically for pay-per-outcome BMs in the EMI.

The study also has a practical contribution. We identified the capabilities that a company requires to implement a pay-per-outcome BM and provided insight into why these capabilities are so important and what a lack of them can lead to. Practitioners can utilise the presented framework while developing such BMs.

Finally, as in any study, this one has its own limitations. The most obvious relates to the selected methodology, which is a systematic literature review. The capability framework was developed based on existing literature that might not have identified all the required capabilities. In addition, it is always possible that we have missed some literature during our review process. However, the current study was able to create a quite extensive but generic capability framework that should be tested with empirical data through future research. Secondly, as we tried to create an overall picture of the required capabilities, we could not focus too deeply on individual dimensions. This creates fertile ground for future research to study how companies should develop such individual capabilities.

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Ecosystem Legitimacy Challenges in the Platform, Data, and Artificial Intelligence Business Models

Julia Helena Zhang[1], Oxana Gisca[2], Rashid Sadeghian Dehkordi[3], and Petri Ahokangas[4]

Abstract

Digitalisation lays the groundwork for the emergence of novel business models taking advantage of modern technologies. Simultaneously, the new business models face an array of legitimacy challenges. This paper proposes an integrated framework for studying legitimacy challenges through the lens of managerial choices and consequences of the business model at the ecosystemic level. It combines and elaborates on essential legitimacy aspects connected to digitalisation, reflecting on stakeholders at the business, individual and ecosystemic level. The value of the paper is based on providing a comprehensive and ecosystemic view of studying the legitimacy challenges connected to the platform, data, and Artificial Intelligence (AI).

Keywords: Ecosystem Legitimacy, Business Model, Digitalisation

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1 Doctoral researcher, Martti Ahtisaari institute, Oulu Business School, University of Oulu
2 Doctoral researcher, Martti Ahtisaari institute, Oulu Business School, University of Oulu
3 Rashid Sadeghian Dehkordi, Doctoral researcher, Martti Ahtisaari institute, Oulu Business School, University of Oulu
4 Petri Ahokangas, Professor of Future Digital Business at Martti Ahtisaari institute, Oulu Business School, University of Oulu

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Introduction

Digitalisation building on the use of platforms, data and artificial intelligence provides an impetus for the emergence of novel business models that enable increased efficiency, greater flexibility, and the individualisation of services (Mishra & Tripathi, 2020). However, cutting-edge technology alone is insufficient to ensure effective value capture (Fountaine et al., 2019) and legitimacy (Dehler-Holland et al., 2021). Digitalisation exposes an array of diverse legitimacy challenges related to rapid technological change, increased complexity, changing customer preferences, and legal requirements (Rachinger et al., 2018). Legitimacy is often defined as a "generalised perception or assumption that the actions of an entity are desirable, proper or appropriate within some socially constructed system of norms, beliefs, and definitions" (Suchman, 1995, p. 574). Entrepreneurs, innovators, users, and policymakers are among the actors with different decision-making and behavioural principles, and whose perception contributes to the formation of legitimacy. As legitimacy can be considered a "proxy-indicator" for assessing the complex institutional dynamics that influence the embedding of a new industry in relevant structures (Bergek et al., 2008), it can be seen as a prerequisite for the effective adaptation of business models built on new technologies. While the extant literature explores the concept of legitimacy from the stakeholder/actor perspective, recent studies have started to consider legitimacy from the ecosystem perspective (Thomas and Ritala, 2022).

The ecosystem can be viewed as a dynamic, multilayer social network that consists of actors with different attributes, decision principles and beliefs (Tsujimoto et al., 2017) characterized by high complexity, interdependence, and cooperation (Ilvari et al., 2016). The ecosystem participants interact with each other and the external environment, together driving ecosystem legitimacy (Thomas and Ritala, 2022). Applying an ecosystemic view to the study of the legitimacy challenges of digitalisation-enabled business models therefore appears relevant, given the high degree of newness and disparate change that affect the various actors who commonly contribute to legitimacy attainment.

The business model enables companies to understand the sources of value, and how a company operates in general (Zott et al., 2011). It connects the firm and its external business environment, customers, competitors, and society in exploiting business opportunities (Zott and Amit, 2010). In the context of digitalisation, the business model literature elaborates on platform business models, data business models, and AI business models. Although the relationship between the platform, data, and AI is multifaceted, most of the existing literature approaches the business models built on AI, data, and platforms in isolation, meaning that platform-, data-, and AI-driven business models are often researched without highlighting their interconnectedness.

In considering the above, this paper's contributions are as follows. The study contributes to the existing body of knowledge by presenting an exploratory framework for identifying ecosystem legitimacy challenges in the context of digitalisation. It takes a holistic approach in referring to the digitalisation layers of data, platform, and AI and their respective legitimacy challenges. The provided framework depicts managerial choices and consequences (Casadesus-Masanell and Ricart, 2010) of the business model regarding legitimacy challenges under a single integrated framework. The results of this study increase the understanding of the complex issues revolving around business model legitimacy, with the illustrated framework providing high empirical value to the managers.

Approach

This paper aims to propose a holistic framework for researching the ecosystem legitimacy challenges of digital business models that comprise platforms, data, and AI. Business model thinking is mirrored as managerial choices in Opportunity (O), Value (V), and Advantage (A), and consequences in Scalability (S), Replicability (R), and Sustainability (S) (Casadesus-Masanell and Ricart, 2010; Ritter and Lettl, 2018). The choices aim to depict on *what basis* and *how* a business operates, while the consequences answer *why*, *where*, and *when* the business is done. The business model choices thus refer to the concrete

choices made by management, while consequences address the implications of such choices (Casadesus-Masanell and Ricart, 2010). Adopting business model thinking helps integrate the digitalisation layers of platform, data, and AI into a single ecosystemic framework to assess the legitimacy challenges.

The success of any business model is determined not only by whether value creation/capture can provide a competitive advantage but also by the legitimacy received from the institutional environment and social acceptance (Dehler-Holland et al., 2021). A consideration of stakeholders' perspectives, particularly those of individuals, businesses, and the ecosystem, therefore appeared essential to underline the most prominent legitimacy challenges connected to the digitalisation layers.

Digitalisation allows the emergence of novel ecosystemic business models by combining an increasing number of IoT sensors, vast amounts of data, and more efficient, effective, and comprehensive AI or machine learning (Ricart, 2020). AI applications should not be considered in isolation as a mere technological infrastructure (Zamora, 2020) but coupled with data and the platform (Figure 1), because connected data constitute both the input and output for the AI algorithms. In such a configuration, the platform functions as a tool to "extract and harness immense amounts of data that allow them to operate as critical intermediaries and market makers" (Rahman and Thelen, 2019, p. 178). The data collected

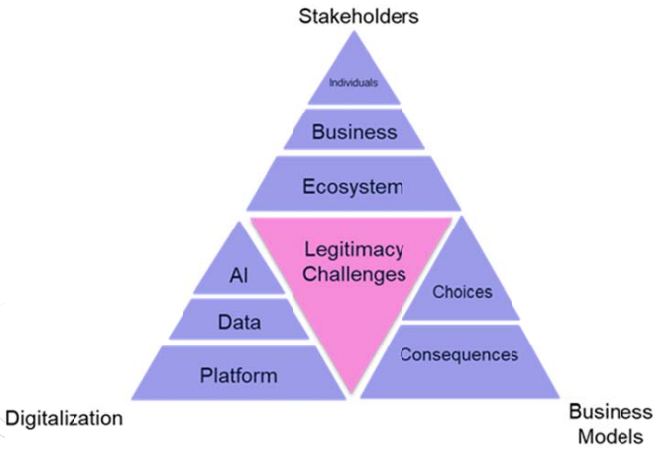

Figure 1: The approach to researching legitimacy challenges in the digitalization context.

from multiple points are incorporated into a large-scale information infrastructure that fuels the AI algorithms and is further deployed in various settings for various purposes across multiple actors that allow the application of novel AI solutions. AI, data, and connectivity platforms therefore play a vital role in new opportunities for digitalisation (Ahokangas et al., 2021) and the transformation of business models (Ricart, 2020).

Platform: Converging platforms play an essential role in digitalising different sectors of society (Ahokangas et al., 2021). They provide value to all actors within the ecosystem while turning a profit for the organisation that created and maintains it through different business models. The digital platforms handle an end-to-end business process necessary to achieve an improved experience for customers, employees, and partners.

Data: During the last decade, the world has witnessed an immense growth of data volumes and the advent of new data streams, leading to ubiquitous quantification (Sareen et al., 2020). That growth is expected to continue, driven by the ongoing business needs to capture and utilise the unstructured data across all the dimensions of the business operations, such as customer data, supply chains, or social media interactions (Gil-Gomez et al., 2020). Furthermore, the unprecedented speed of data generation and data availability from numerous touchpoints parallels unprecedented computing power, AI and data processing capabilities (Sareen et al., 2020). Such data integration and exploitation may turn into valuable information and knowledge, becoming a source of value for novel business models (Luoma et al., 2021).

AI: AI changes the rules of competition between industries worldwide. It can be seen as intelligent systems created to use data, analysis, and observations to perform certain tasks without being programmed to do so (Antonescu, 2018). As a result, AI redefines the decision-making principles in organisations, making business practices simpler and leaner, and thus becoming one of the essential modern technologies, with implications for businesses worldwide (Canals and Heukamp, 2020).

Key Insights

To achieve this study's objectives, the ecosystem legitimacy challenges are presented in Table 1. The digitalisation layers – platform, data, and AI, with the business model choices (OVA) and consequences (SRS) – allow us to present the legitimacy challenges of the emerging business models. The identified challenges presented in Table 1 have been derived based on the authors' understanding of legitimacy in the context of emerging technologies and trends, issues related to personal data management, smart energy, and societal changes. The provided theoretical framework emphasises a new way of studying legitimacy challenges. Platforms, data, and AI are intertwined concepts at the ecosystem level as firms' business models in the ecosystem can be built on any combination of platforms, data and AI.

The ecosystem legitimacy challenges illustrated in the framework above are discussed in two blocks (Choices and Consequences) related to three digitalisation layers (AI, Data, Platform) to provide a comprehensive yet clear overview. As legitimacy challenges connected to digitalisation concern multiple stakeholders, certain considerations at the individual, business, and ecosystem levels are reflected in each block. This is because legitimacy is a social evaluation made by multiple actors such as individuals, organisations, the media, or regulators that constitute a collective legitimacy judgement (Bitektine and Haack, 2015).

The managerial choices regarding the ecosystem participants' limited understanding of the previously unconsidered behaviours and reservations concerning the unknown must be addressed to pursue the market opportunity. In particular, educating, facilitating, and accommodating the real needs of the end user appears essential for legitimacy attainment. Raising awareness of the value arising from technical innovation and facilitating human-machine interaction is vital for value recognition. The advantages derived from digitalisation must be diligently managed by establishing optimal ratios of human intervention.

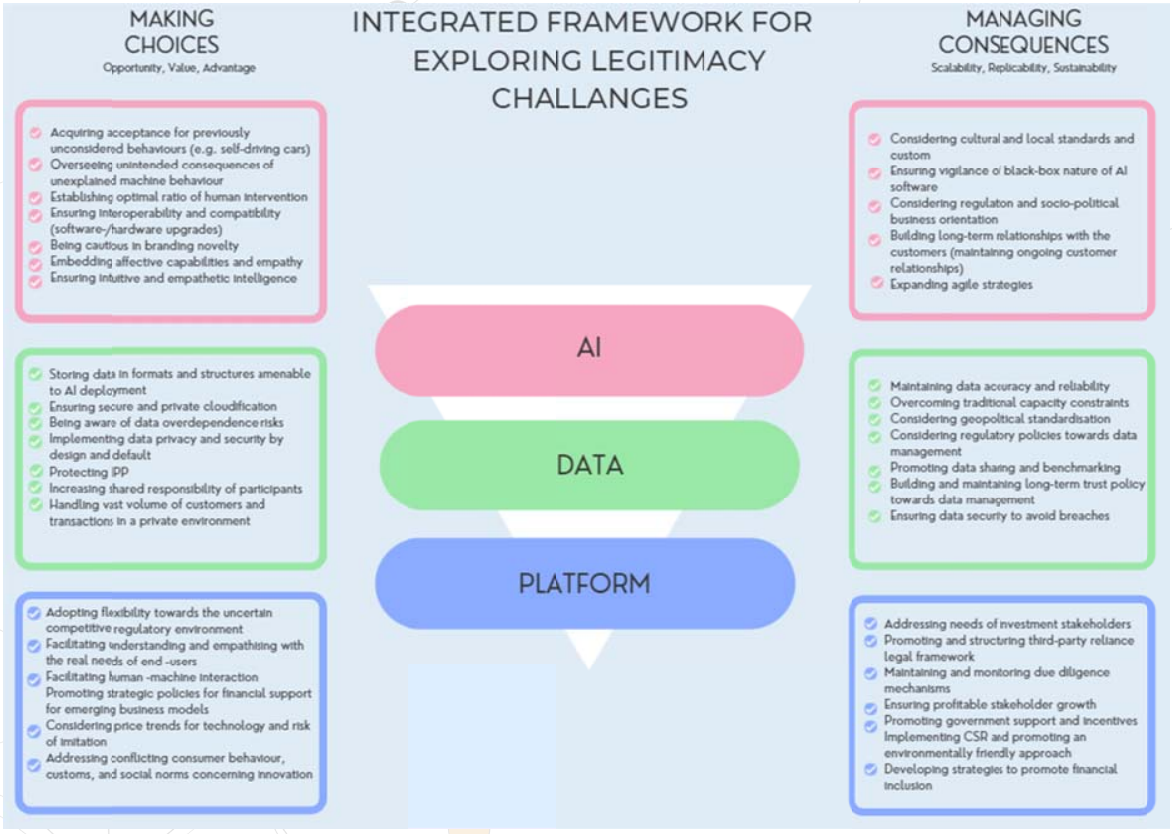

Figure 2: Integrated framework for exploring legitimacy challenges.

The interdependent risks of multi-agent environments and effective collaboration between ecosystem participants are essential from the legitimacy perspective. Clear data ownership rules, and robust and secure data structures must be established and communicated internally and externally to cope with data-related legitimacy vulnerabilities. As the digital environment is characterised by the dominant role of the data operator, the platform provider as the ecosystem orchestrator must ensure data management practices are not only built on existing rules and regulations, but also sufficiently communicated to the users to avoid raising legitimacy concerns. The potential data management structure fragilities must be continuously monitored to avoid data breaches, and the promotion of participant responsibility and the interoperability of actors in the ecosystem because of its diverse audiences must be ensured.

The legitimacy challenges assessed in the context of digitalisation indicated specific concerns at each layer. At the platform level, the essential aspect refers to obtaining high-quality data necessary for accurate and credible AI predictions and outputs. This can be obtained by providing the users with a trusted and secure environment that does not raise legitimacy concerns. It can be addressed through UX (user experience) design elements that increase the credibility and proper communication of a company's data management practices. Data quality assurance must be prioritised. In addition, novel features that are not essential from the users' perspective (for example, when operating in the backend) must be hidden to avoid raising unnecessary concerns. The building of AI literacy in the organisation and the public due to AI software's black box nature is depicted as another legitimacy challenge.

From the consequences' perspectives, we can underline particularities tailored to each layer related to legitimacy challenges. To foster sustainability, the focus should be directed at geopolitical standardisation and the implementation of regulatory policies with the aim of secure data management practices. Equally, agile strategies that allow changes in market conditions and the implementation of new strategies quickly and decisively when necessary must be followed. Because of the limiting of human involvement, the effectiveness of AI in interactions with the users must be monitored. Cultural and country-specific standards and customs and the accommodation of the different needs and expectations of various stakeholders are vital for addressing the legitimacy challenges connected with business model replicability.

As the above discussion indicates, platforms, data and AI are interdependent. The identified ecosystem legitimacy challenges influence not only the key stakeholders' business models but the whole ecosystem in which the firms are active. Therefore, making choices and managing their consequences need to be considered both at business model and ecosystem levels of analysis.

Discussion and Conclusion

The theoretical framework developed in this paper provides a holistic view of the study of the legitimacy challenges for emerging business models. The findings highlight the necessity of applying the ecosystemic perspective in discussing the legitimacy of digitalisation-driven business models. This has been claimed, because legitimacy challenges involve multiple ecosystem participants that ensure ecosystem viability (Thomas and Ritala, 2021). A multi-participant environment requires considerations of different collaborative methods, including the unambiguous determination of data ownership, assurance of interoperability, common growth, and profitability that are directly related to the attainment of legitimacy. Although the proposed framework showcases the significant legitimacy challenges of emerging business models, it is essential to note that the ecosystem cannot strive for the status quo, because continuous innovation requires constant evolution over time (Lehto et al., 2013). Assessing and mitigating the legitimacy challenges must therefore be an ongoing process rather than a one-time task.

This paper's academic contribution lies in combining the business model and ecosystem legitimacy literature, first, by apprehending the layers of digitalisation – AI, data, and platforms – and second, by examining them through the lens of managerial choices and consequences as a business model

thinking framework for analysing legitimacy challenges. This study underlines the necessity of understanding the nature of legitimacy challenges through the co-dependent lens of business model thinking that helps us integrate the context of the digitalisation layers. The originality of this research is thus related to expanding the business model and legitimacy literature from an ecosystemic perspective. It further highlights the emphasis on business ecosystems and stakeholder interaction identified in the recent stream of business models literature (Golzarjannat et al., 2021). Furthermore, the approach applied in this paper constitutes a key conceptual contribution, because it combines the digitalisation elements of the platform, data, and AI within a single integrated framework.

Regarding the practical implications, this study was conducted to present the legitimacy challenges in digital application and pave the way for managers in their considerations and decision making concerning the legitimacy attainment of emerging business models. The issues around data management, AI, the expansion of agile strategies, and the promotion of financial inclusion must be considered and addressed to overcome the liability of the newness of the emerging business models. Cultural and local standards and customs must be understood and adequately addressed, as well as the laws and regulations when considering the business models' broader adaptation, scalability, and replicability. Managerial intervention also relies on educating and facilitating the adoption of newness across various audiences. It is noteworthy that the interconnected nature of digitalisation means the inadequate addressing of legitimacy challenges determined at one layer may negatively affect the overall business model. A holistic approach that combines multiple aspects of the digital business model thus mimics the reality and facilitates reflections on fragile points in legitimacy attainment.

Despite the intriguing framework provided in this paper, the study has certain limitations, laying the groundwork for future research. Although the proposed framework has reflected on the legitimacy challenges in the overall context of digitalisation, some business models may require extra context-specific variables when determining the particularities of the legitimacy challenges. As legitimacy is an audience-dependent construct, certain stakeholders and audiences may have specific needs that may have been overlooked within the proposed framework, and which must be addressed in some scenarios. Future studies could test the empirical relevance and improve the provided framework. Additional research into how to facilitate the process of legitimation in business models is required.

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JOURNAL OF BUSINESS MODELS

A Business Model Approach to Smart City Governance

Sari Perätalo[1], Mahmoud Mohamed[2], and Marika Iivari[3]

Abstract

In transitioning from hierarchal corporate governance to platform governance mechanisms, smart cities need to develop new models for managing the dynamics of platform governance between city divisions. By conceptualizing smart cities as a platform of platforms, this paper uses the business model approach to develop a platform governance framework in the smart city context. The contribution of this paper is to illustrate how the business model approach can enhance better communication between different layers of smart cities and thus improve smart city development.

Keywords: Business model, smart cities, platform governance

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1-4 University of Oulu, Oulu Business School, Martti Ahtisaari Institute, Finland

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Introduction

Smart cities emerged as a concept to explain the integration of ICT in the provisioning of city services and urban development (Walravens, 2015). In this study, we view smart cities as a system of systems, which comprises all systems involved in providing a better life for the citizens. The smart city comprises all day-to-day services accessed by its citizens, including infrastructure systems, healthcare systems, education systems, transportation and mobility systems, water, energy, and waste management systems (Timeus et al, 2020). Hence, when cities try to integrate all these smart systems to provide one unified system for their citizens to interact and deal with, they run into the platform of platforms dynamics (Kretschmer et al., 2020), where the data exchange and knowledge-sharing, governance, and coopetition between different city departments take place in such setting (Cusumano et al., 2020; Fenwick et al., 2019).

Governance has been identified as one of the main components of smart cities and their development (e.g., Perätalo & Ahokangas 2018), but several angles of smart governance remain unexplored. In particular, the history of rural and regional politics-driven governance models has been identified as the main cause of performance challenges in smart city development (Honeybone et al. 2018). According to Bolívar and Meijer (2016), smart city governance is about collaboration in which the role of governance is to enhance the communication and collaboration among different actors and encourage improvement and new innovations. Cities are becoming aware that they need new tools to transform and deliver services to their citizens, but they are equally challenged in how to estimate the value of those services to their citizens (Kuk and Janssen, 2011).

Previous research (e.g., Bolívar & Meijer, 2016) has also defined six elements of smart governance, which are (1) the use of ICT, (2) the decision-making process, (3) the government's ability to collaborate with citizens online and deliver services to them online, (4) the ability to achieve collective goals through internal collaboration, (5) the ability to collaborate externally, and (6) the ability to achieve social inclusion of citizens in public services. The evolving city context has opened new opportunities and innovative business models using digital solutions as a response to challenges in the city (e.g., Walravens & Ballon, 2013; Perätalo & Ahokangas, 2018). City developers have recognised the importance of smart city ecosystems in order to chart plans for the future (Perätalo and Ahokangas, 2018). Conceptualizing smart city ecosystems as platforms can thus help cities to identify the points of governance in the collaborative creation and capture of opportunities, value, and advantages that are based on smart city systems.

However, little is known in extant research about the tensions that arise during the transition process from traditional hierarchical governance mechanisms to platform governance mechanisms (Koo and Eesley, 2021). Contributing to this gap in our current knowledge, we argue that using the business model approach that embraces the key concepts of value, opportunity, and advantage (e.g., Demil & Lecocq, 2010; Perätalo & Ahokangas, 2018), cities can respond to the ever-growing pressure to advance effectiveness and quality of life and develop new ways of operating to make their cities smarter.

Accordingly, the purpose of this paper is to conceptualize smart cities as platforms and how, in this context, the business model approach can accordingly address issues related to the governance of smart cities. We ask "*how could smart city governance benefit from the business model approach?*" We first discuss the main literature on the intersection of smart cities, governance, and platforms, and we then present our framework and end with a discussion and conclusion.

Approach

In this conceptual paper, we combine two main themes from extant literature: smart cities and platform governance. In this chapter, we discuss previous research on smart cities as platforms, then business models, and smart cities and platforms governance.

Smart cities as multi-sided platforms

The smart city as a concept includes a strategic course that emphasises the increasing importance of ICT (innovation and communication technologies)

in social and societal regional and urban development (e.g., Walravens, 2015). Smart cities also attempt to prioritise their ecosystems to aim for social and environmental sustainability via urban planning. Smart cities can be viewed as platform ecosystems that are evolving as meta-organisations, including multiple platforms working together and known as the platform of platforms (Cusumano et al., 2020; Kretschmer et al., 2020). Likewise, smart cities nowadays are incorporating various platforms to work together and migrating from hierarchal corporate governance to platform governance mechanisms (Fenwick et al, 2019). Hence, smart cities often emerge around customer-centric platform ecosystems. In that, the hierarchal models are divided into multi-layered modular platforms working together within the same ecosystem (Iivari & Ahokangas, 2021).

According to Tilson et al. (2012), a digital platform can be defined as a sociotechnical constitution including technical elements and associated organisational standards and processes. Digital platforms integrate products, services, and companies using private networks or the Internet, and they concern many business functions (Teece, 2018). These two descriptions represent well the smart city business platforms. In practice, the smart city platforms are continuously evolving due to different services that are changing citizens' daily lives and behaviour, as well as those of businesses, in an urban context in which modern technologies open new possibilities to multiple business models applied to public services in smart cities (Díaz-Díaz et al., 2017).

The paradox of smart city platforms is that in a public context, there is a need to both be stable and have control in order to keep a solid foundation for further development, but also to be flexible to be able to support growth and new innovations (Tilson et al., 2012). As in a multi-sided platform setting, the city is in the centre of the platform, because it must both provide services to the citizens as platform owners and facilitate access to services provided by third parties. For example, the city must coordinate and provide financial capital to create a structure for the business ecosystem it aims to create (Teece, 2018). The latest technological developments offer cities new ways to create value, which requires new business models (Díaz-Díaz et al., 2017). That is why it is necessary to design innovative business models for smart city platforms. Furthermore, the business model and its three anchoring concepts of opportunity, value, and advantage become relevant in the context of cities.

Business models and smart city governance

Previous research has shown that governance can use business model logic as a tool to address change (e.g., Nielsen & Aagaard, 2021). In a fast-developing context, governance should loosen its mindset and move towards a more entrepreneurial way of working, to increase the resilience and preparedness of the organisation. In other words, it is important to understand and recognise how change creates new business opportunities (Nielsen & Aagaard, 2021). Smart cities can create competitive advantages through business model thinking. In practice, this means that business model thinking can act as an instrument to build synergies between different stakeholders in the ecosystem, and thus define how the ecosystem innovates.

The three core concepts of business models are opportunity, value, and advantage (e.g., Amit & Zott, 2001). Opportunity can be defined as something positive to be reached (Holm et al., 2015), and opportunity is strongly dependent on the external context (Atkova, 2018, p. 20). In other words, the business model can help to recognise and exploit opportunities that exist in the external environment (Atkova 2018). According to business model thinking, value creation can be a source of competitive advantage, and competitive advantages are needed by organisations to become and remain competitive (Demil & Lecocq, 2010). A competitive advantage enables the creation of greater value for the organisation, shareholders, and stakeholders, and thus, it gives a competitive edge related to competitors. The scalability of technical solutions and economic sustainability are also denominators of the business model, but they can also be regarded as important outcomes for the smart city (Alusi et al., 2011).

Smart city platform governance

Governance in a platform ecosystem refers to the design roles created by the platform owner to control

the platform ecosystem (e.g., deciding on the degree of openness/closedness of the platform), to govern complementary interactions with the platform owner and other stakeholders (Zhang et al, 2020; Koo and Eesley, 2021). According to Tiwana et al. (2010), a platform has to be governed not only by the platform provider but also by other actors, to be able to take advantage of the platform's collaborative and open infrastructure and to have a functioning platform business model. Together, technological infrastructure and governance are the key characteristics of platform business models. If a platform ecosystem remains ungoverned, it can create imbalance, with some players dominating the platform ecosystem, which makes it less attractive for new complementors to join the platform and develop smart offerings (Wareham et al., 2014).

The governance aspect also addresses how those players that complement the platform owner comply with the platform goals and objectives (Wareham et al., 2014). Platform governance is the main key in the stakeholders' heterogenous incentives to join and contribute to the growth of the platform ecosystem. However, among all governance mechanisms, the key goal in platform governance is to offer stakeholders the opportunity to balance their heterogeneous interests to work together (Zhang et al., 2020).

Platform governance has been addressed by strategic management researchers from two perspectives. First, granting authority mechanisms have been found to strategically divide the decision-making process between the platform owner and stakeholders. This ensures that the overall platform ecosystem makes the best use of the value creation and capture process (Tiwana et al., 2010). Second, the compliance mechanism in the platform ecosystem ensures alignment of the various incentives of stakeholders to ensure the establishment of the coopetition framework within the platform ecosystem (Zhang et al., 2020; Wareham et al., 2014). Further, the extant research has proven that the platform owner, namely the city, can shape stakeholders value creation activities through platform governance roles (Zhang et al., 2020), as platform owners define how information can be shared between stakeholders and how they interact with each other (Tiwana et al., 2010; Zhang et al., 2020). Governance is hence important especially in a smart city context, as governance impacts the overall sustainability and survival of the platform ecosystem as a whole, where city organisations act as platform owners.

Key Insights

In this chapter, we illustrate how the business model as an approach can be applied to governing smart cities as platforms.

What does a business model approach bring to the governance of smart cities?

We apply a 4C business model framework in the analysis of smart city platform governance. Wirtz et al. (2010) suggested a 4C model for classifying digital-age business models, but their classification can also be used in a smart city context. The 4C model covers most of the classical Internet-based business activities, consisting of (1) connection, (2) content, (3) context, and (4) commerce layers, which each have their own value proposition (Wirtz et al., 2010; Yrjölä et al., 2015; Iivari & Ahokangas, 2021). In the smart city context, the 4C model can be described as a layered platform structure in which the lower layers are needed to enable the existence of the higher-level business models (Yrjölä et al., 2015). Hence, the 4C model is manifested in how cities as platform owners may provide their services and how citizens can use those services, as illustrated in Figure 1 below.

The ultimate goal for cities is always the provision of better services for their citizens. The role of smart governance is therefore to control and foster communication and collaboration among different city units for service utilisation and provisioning for the citizens and also for the businesses providing those services (1).

However, to make this possible, cities also need to facilitate the socio-technical integrations and synergies, both on a large scale in between different sectors and within specific sectoral services, meaning contexts (2), such as transportation, education, healthcare, and so on. Therefore, context can be further

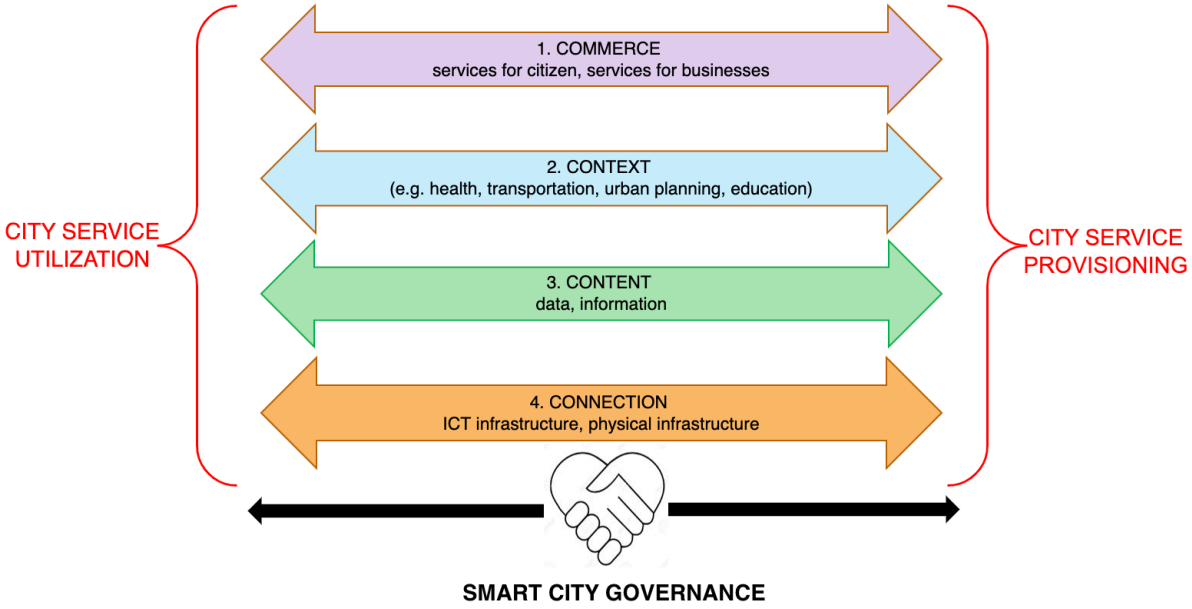

Figure 1: 4C platform governance framework for smart cities

defined as situation or location-based, as cities are always bound to a certain physical location. Hence, in smart cities, the context layer contributes especially to the government's ability to deliver city services, irrespective of location, via online interfaces.

So that the creation and facilitation of different innovative city services can take place, city governance also needs to manage the vast amount of data and information related to different systems and services, meaning content (3). Taking advantage of different types of data for decision-making, in particular, can be acknowledged as one of the key factors in fostering the competitiveness of cities.

Nevertheless, none of the above layers can exist without information and communications technologies. Connection (4) is the backbone of digitalization and smart cities, and therefore smart city governance needs to pay specific attention to the control and alignment of the physical infrastructure and the key enabling ICT technologies (such as the Internet, mobile network communications, and IoT technologies), as together these provide the smart city infrastructure upon which all the upper layers are built.

As a whole, the layered 4C platform perspective of smart city governance results, then, in the city authorities' ability to make informed decisions, for example, regarding the city's ability to achieve the collective goals of wellbeing and sustainability by fostering collaboration and openness among cities as platform owners and different stakeholders such as businesses and citizens. These layers can therefore be considered as the foundations of novel smart opportunities and value for cities, improving their competitiveness with digital technologies.

Discussion and Conclusions

In the transition from corporate governance to platform governance, smart cities need to develop new models for managing the dynamics of platform governance between city divisions. By conceptualizing smart cities as a platform of platforms, new insights can be created for developing a smart city platform governance framework. Identifying the 4C platform business model layers and their contents can help smart city governance to appreciate specific characteristics of smart cities and use these insights when planning and implementing governance decisions.

Digital technologies have opened new opportunities and helped to create platforms through which citizens, companies, also public utilities, and cities can share their products and services. Thus, the question of opportunities, values, and advantages

in the context of a wider public good is vital for understanding digital platform economies and planning a business model framework that works in practice. We have seen that both the business model and smart city development have moved towards a collaborative and cooperative way, and thus the business model can act as a tool for city development (Perätalo & Ahokangas, 2018) in breaking sectoral silos and bridging the different layers of smart cities together. By viewing smart cities from a layered rather than sectoral perspective, enables us to pinpoint key issues that smart city developers need to acknowledge when steering and governing their cities. In answering the research question of how smart city governance could benefit from the business model approach, we suggest city governance to:

- consider if the physical infrastructure can respond to the increased phase of digitalization and collaborative networks at the connection layer
- be aware of the key services that can be built upon those infrastructures, and what should be enabled at the content layer
- evaluate how the context of services determines the governance model for individual sectors
- consider the role of multi-sided platforms in engaging citizens in value creation at the commerce level

As this study is conceptual in nature, these aspects give rise to future research opportunities. For example, Nielsen and Aagaard (2021) identified that business model innovation can provide solutions and highlight the challenges by reassessing value creation in an intricate business environment in which technology and different platforms play an important role. We call for further research in the context of smart cities. Demil et al. (2018) argue that business ecosystems are becoming the dominant level of analysis in strategic management, and recently, discussions about business models are also related to increased discussions on platform models (e.g., Walravens & Ballon, 2013). Here, especially the innovation ecosystem approach to smart cities in the context of platforms could increase our understanding of public–private types of platforms, as digital ecosystems and platforms enable us to combine data and capabilities across boundaries into new, effective, innovative solutions that not only create but also capture new sorts of value (Nielsen & Aagaard, 2021).

This paper aimed to provide some conceptual and theoretical tools to apply the platform business model approach to smart cities and give preliminary ideas on what a smart city platform business model approach needs to include from a governance perspective. As the governance of smart cities has not been extensively studied in prior research, we conclude that the business model approach can bring novel insights regarding the intersection of platforms and business models.

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Documenting the Contribution of People to Successful Business Model Implementation: An Exercise in Integrated Reporting

Robin Roslender[1] and Christian Nielsen[2]

Abstract

The absence of people (employees) from the business model literature is at odds with their pivotal contribution to the value creation, delivery and capture process. As a resource that management is continually challenged to grow, their success in doing so has been identified as an outcome falling within the scope of Integrated Reporting, an approach currently touted as the new corporate reporting. This short paper suggests a number of employee attributes that might be documented in such reports.

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1-2 Aalborg University Business School, Denmark

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Introduction

In their 2015 paper Nielsen and Roslender characterise a business model (BM) in the following way:

> "[A business model provides] a description of the organisation's *concept* for 'earning 'money' [that] identifies the platform that connects value creation and delivery between the organisation, its stakeholders, and its customers in order to capture value." (Nielsen and Roslender, 2015: 265, italics as in original).

The context in which this characterisation was originally framed was a continuing lack of engagement with the BM concept by financial accounting and reporting researchers. By the time of publication the International Integrated Reporting Council (IIRC) was providing evidence that its Integrated Reporting (IR) approach to corporate reporting was being subscribed by a growing number of organisations across the globe. The IIRC identified the BM as playing a central role within IR, in combination with the asserted necessity to focus on the underlying value creation process (IIRC, 2013). As Roslender and Nielsen (2018) observed, what IR signposts is the need to rethink corporate reporting as "accounting through the business model" for value creation, delivery and capture.

Despite its potential importance, IR has continued to attract only limited interest from accounting researchers, arguably starving the IIRC's agenda of sufficient oxygen, and potentially hastening IR's disappearance, much as its similarly iconoclastic predecessor Business Reporting had in the early 2000s. One field in which IR has attracted a measure of attention from accounting researchers is that of environmental and sustainability accounting. For the most part, however, the narrative is one of disappointment that while in its initial formulation the IR concept promised to 'integrate' environmental and sustainability considerations with those of a financial nature, in line with the Triple Bottom Line perspective, following the publication of the IIRC's *Framework* in 2013, such issues were evidently to be accorded less importance. Flower (2015) provides an excoriating critique of the IIRC's motivations, becoming the 'received wisdom' for critical accounting researchers. Roslender and Nielsen (2021) reinforces the critique advanced by Flower and subsequent researchers, including Rowbottom and Locke (2016) and Humphrey, O'Dwyer and Unerman (2017). Nevertheless, they also encourage colleagues to take a second look at IR, and in particular its hitherto weak engagement with both the BM concept and the value creation process.

Roslender and Nielsen (2021) returns to the above characterisation of the BM, particularly the identification of the importance of customers to organisations seeking sustainable competitive advantage. They argue that during the past 40 years customers have become an increasingly important stakeholder for many organisations, to the point that some observers have identified them as their most important/valuable assets, e.g., Peppers and Rogers (2005). Roslender and Nielsen suggest that this should be viewed as a positive development as C21st customers have become more discriminating in their behaviours, thereby progressively wresting control of the marketplace from organisations. Rather than abandon IR, the BM and the value creation process, accounting researchers should engage the challenge of taking customers into account (Roslender, Hart and Nielsen, 2021).

The value/importance of customers to organisations has been axiomatic to the development of the BM field since the late 1990s, with the value proposition identified as its central focus. Not everyone believes customers are the most valuable organisational asset, however, with employees having long been regarded as deserving this accolade. They too are key stakeholders within an organisation, something the IIRC acknowledges, identifying human capital as one of the six capitals that IR must now account for and report on. It is therefore surprising to find that the extant BM literature makes little explicit reference to employees. The purpose of this short paper is to promote a debate about how this oversight might be addressed.

Approach

Osterwalder and Pigneur's core message is that in order to fashion successful value propositions it is

necessary to understand how best to configure a growing range and diversity of business assets for that purpose. Within their Business Model Canvas when describing the key resources building block Osterwalder and Pigneur initially observe that:

> "The Key Resources Building Block describes the most important assets required to make a business model work……Key resources can be physical, financial, intellectual, or human". (Osterwalder and Pigneur, 2010: 34).

They continue by acknowledging that:

> "Every enterprise requires human resources, but people are particularly prominent in certain business models." (p.35).

In a subsequent monograph Osterwalder, Pigneur, Bernarda and Smith (2014) affirm that an organisation's key resources are its most important assets (p.xvi), although continuing to refrain from any further elaboration. With some justification, these authors may respond that focusing on employees is not their concern in these texts or that they lack the knowledge and understanding to provide the requisite insights. A more worrying explanation is that they believe the availability of such resources can largely be taken for granted. In the case of human resources, which are also the source of intellectual assets, this is both unfortunate and inaccurate. Unfortunate because it is human resources that are the critical driving force in creating and delivering on customer value expectations, and thus should not be overlooked. Inaccurate because it has become evident that the ready availability of sufficient key human resources can no longer be assured.

In respect of the first observation, that human resources, or hereafter 'people', should never be taken for granted, it cannot be claimed that people are the only source of value – both nature and financial capital also have this capacity. Nevertheless, as the source of labour power, people are the most critical factor in creating and delivering value for customers, as well as to the providers of financial wealth via the value capture mechanism, and to the broader society and its myriad stakeholders. During the past two generations we have become acquainted with Porter's value chain concept, which identifies the generic process of adding value through the performance of a series of activities undertaken within different business functions (Porter, 1985). Referring to activities and functions within the value chain in this way obscures the reality that activities are performed by people who are present within the functions in question. While there is now a much greater presence of technology within the workplace, it is under the control of people, having originally been fabricated by people. Enthusiasm for extending the scope of artificial intelligence has also had the consequence of focusing on what such intelligence can, in many cases beneficially do, while overlooking what it cannot presently do but that people can. There are ready explanations of why documenting the criticality of people is downplayed in several quarters, not least the challenge any rectification would pose to the prevailing social arrangements including the social organisation of work.

There has never been a time when the demand for and supply of the most talented people have been in full alignment, as a result of which a minority of people has always been able to command higher rewards from employers. To counteract this situation systematic deskilling has been widely pursued, initially among skilled manual workers but subsequently for most blue-collar workers and thereafter many white-collar and professional workers (Braverman, 1974). During the past half century a massive expansion of higher education opportunities has been funded to ensure that the supply of knowledge workers has not proved too problematic, combined where possible with their deskilling. The development and diffusion of information and communication technologies that characterise the existence of the information society has largely performed the same function. Nevertheless, a 'war for talent' has been a continuing feature of the labour market throughout the C21st (Michaels, Handfield-Jones and Axelrod, 2001), with employers acknowledging that as the market becomes ever more competitive, it is imperative that organisations are able to attract, recruit, develop and retain the very best people available. Although it might seem that such practices have long been a core component of the *modus operandi* of

the human resources function, the lengths to which many organisations are prepared to go nowadays to ensure that they consistently attract and retain the best talent are extraordinary. In the most progressive organisations such practices are likely to be widespread, consistent with people's pivotal role in creating and delivering value to customers and the broader society alike.

It is not people *per se* but the myriad attributes they bring to the organisation that constitutes their importance. The most fundamental attributes have been recognised for many years – educational attainments and practical training. Over time the average level of individual competence has increased as jobs have required more skills, the continued existence of the generic deskilling process identified above notwithstanding. Complementing this pair of attributes is a second pair, those of experience and expertise. These attributes are developed and accumulated over time as people pursue their careers, learning 'on the job' as opposed to in the classroom or training facility. In many cases as individuals develop their expertise they become highly specialised, as a result of which they may become more attractive to employers other than their current ones. Equally it has also become more commonplace for occupations to become unnecessary, sometimes very suddenly, often in the wake of technological advance. Consequently, a willingness to be flexible and prepared to engage in a process of continuous learning have emerged as desirable people attributes, possibly accompanied by a readiness to accept the need for geographical mobility. Although always present among employees, nowadays there is often more focus on personal initiative, ingenuity, responsibility and creativity, for people who are comfortable to 'just do it'. However, the importance of soft skills has become recognised in recent times, e.g., teamworking, ad hoc project leadership, enthusiasm for sharing skills and experience, etc, all of which contribute to the presence of integrated functioning within the workplace.

These and similar people attributes constitute the substance of the human (capital) component of the key resources invoked by Osterwalder and Pigneur. Their availability in abundance is required to ensure greater levels of value creation for and delivery to customers, and successful value capture on behalf of shareholders. Although this is well-understood within the BM field, little attention continues to be afforded people, and in particular the contribution that reporting people-related information can make to society's assessment to the integrity of organisations. It is to this focus that we now move.

Key Insights: 'Taking People Into Account'

However sincere the assertion that 'our people are our greatest asset' might be, in the absence of a robust demonstration of that status it is easy to dismiss these words as an exercise in rhetoric. A century ago Paton, one of accounting's founding theorists, observed that:

> "In the business enterprise, a well-organized and loyal personnel may be a more important "asset" than a stock of merchandise.....At present there seems to be no way of measuring such factors in terms of the dollar; hence they cannot be recognized as specific economic assets. But let us, accordingly, admit the serious limitation of the conventional balance sheet as a statement of financial condition." (Paton, 1922: 486-7)

People were present in the income statement but as costs, and from a fundamental financial management perspective the challenge was to reduce these costs wherever possible. Incorporating people in the balance sheet would recognise people as assets, which in turn suggested it was desirable to place a financial ("dollar") value on them, i.e., on the attributes people brought to the organisation. It took several decades before Hermanson identified some sound bases on which this might be done in the context of his human asset accounting approach (Hermanson, 1963, 1964). 'Putting people on the balance sheet' by means of robust financial valuations then became a fertile research field for much of the next decade. It the 1970s it was replaced by a managerial accounting approach focused on understanding the broader cost and benefit implications of human resource

decision-making, labelled human resource accounting. This proved a major research topic for a further decade but quickly waned in the early 1980s, in part because it was regarded as unlikely to deliver cost savings (Flamholtz, Johanson and Roslender, 2020). In the view of its principal advocate, Flamholtz, what it did urge managers to do was to "think people', an imperative that resonates strongly with the content of the previous section.

The emergence of human capital accounting (HCA) in the later 1990s, and its challenge to continually strive to 'grow' people, was consistent with Flamholtz's motivations. Equally significant is that by this time managerial accounting had identified how it might be possible to take people into accounting without recourse to the cost and value calculus (Sort and Roslender, 2021). Many of the key information needs of contemporary management were now recognised to be addressed using relevant non-financial metrics and in some instances contextualising narratives. Beyond this, by embedding these within scoreboard frameworks provided a means to communicate information more widely within the organisation and, crucially, to those outside the organisation, i.e., to both shareholders and their advisors and to a variety of external stakeholders. For the most part, such developments have yet to find favour with many accounting practitioners, who remain comfortable with the cost and value calculus despite it acknowledged shortcomings. Equally, the more inclusive nature of such reporting regimes means that the annual report package that has traditionally been the accepted preserve of the profession may become progressively colonised by competitor professions and functions.

As we observed at the beginning of the paper, in its 2013 *Framework* document the IIRC commends accounting for and reporting on six capitals present within the value creation process, one of which is human capital, a second being somewhat confusingly referred to as intellectual capital. As essentially a think-piece, the IIRC omits any specific guidance on how organisations might set about taking people into account. The choice is therefore left to individual organisations to do so in the light of their own critical success factors. The following categories of people information would seem to be of initial relevance in such exercises.

1. *Demographics* Many organisations already provide some information on workforce composition, e.g., by age, gender, level of education, category of employment, longevity of employment, etc. An additional metric might be staff turnover rate, supported by details of its possible impact on the future performance of the organisation. For example, if turnover is high amongst those people whose attributes are important to the organisation, some information on how this compares with previous turnover is important, as is information on any initiatives designed to moderate turnover. In the case of less valuable people, similar explanations may not be necessary. However, where such people leave the organisation as a result of structural changes or business reconfiguration, there may be merit in providing information on any assistance that was provided to departing people towards securing new employments, perhaps complemented by details of their subsequent employment status. Disclosures of this sort can reinforce how seriously an organisation takes its people responsibilities.
2. *Training and development provision* In the light of the importance that people have within the value creation and delivery process (and value capture), there is reason to expect that organisations would wish to retain the services of the majority of them. The existence of a wide range of development opportunities and ready access to these will usually be viewed positively by many people, while contributing to the long-term competitiveness of the organisation. Providing information on such provision, including levels of investment, uptake, outcomes and impact on levels of employee engagement would seem to be desirable. The existence of unusual or ambitious initiatives would merit publicising, as would provision designed to benefit those with disabilities, learning difficulties or from recognised deprived socio-economic backgrounds. The introduction of provisions specifically designed to contribute to the availability

of future generations of people is something that organisations should also consider both pursuing and publicising.

3. *Corporate culture – "a great place to work"* Throughout most of the C19th and C20th work was widely regarded as a necessary commitment but not necessarily a source of enjoyment or fulfilment for the majority of people. Understanding that when the workplace is a place where considerable enjoyment might be had, and indeed encouraged, has increased in recent times. Ben and Jerry's, Microsoft, Cisco, DHL and Hilton have all attracted that designation, evidencing strong, inclusive, responsible, flexible and rewarding corporate cultures. In such organisations many inherently positive attributes have become the norm. A key attraction is a commitment to communication both from the top down and the bottom up. People are continuously kept apprised about what is happening within the organisation locally, nationally and globally. A comprehensive consultation process often complements this. Recognition and rewards for exemplary levels of performance are commonplace, while generous discounts within the organisation and in partner organisations also feature extensively. Increasingly these organisations have prioritised the pursuit and publicisation of corporate social responsibility activities, thereby documenting what measures have been taken to ensure that every employee is treated as well as they might be.
4. *A healthy organisation* In most more advanced societies decades of health and safety legislation have had the consequence of reducing their incidence to relatively stable, low levels. Accidents continue to happen and people still become sick as a consequence of unfortunate oversights at a local level, resulting in pain and suffering for those affected. As one era appeared to be drawing to an acceptable conclusion, evidence of an equally unpalatable new era has begun to emerge – the health and safety couple has been replaced by the health and wellbeing couple as work health issues have begun to become more evident. Levels of sickness absence rose to high levels in many European countries around the time of the millennium and although empirical evidence has indicated that days lost has been on a downward trajectory, the cost of absence has continued to edge up. The spread of presenteeism – continuing to work while unwell – has reached worrying levels, more recently complemented by increasing leaveism. Over time there has been a move towards mental health conditions driving absence, often necessitating long-term absences. There is also some consensus about the underlying issues: understaffing; continual change; poor communication; dated management behaviour; and job security concerns, all of which are in principle addressable within a comprehensive, well-defined people strategy. Such organisations might reasonably be designated as healthy. By providing a package of information of absenteeism, its extent and any provisions designed to reduce the loss of people's input will allow an organisation to demonstrate its worthiness to be regarded as a healthy organisation.
5. *Employee value proposition* This strangely familiar term was coined some time ago (Minchington, 2006) to identify the specific package of conditions and benefits that an organisation makes available to its employees and, critically, prospective employees as part of its engagement in the war for talent. As with the customer value proposition, employee value propositions normally extend beyond financial aspects, reflecting the realisation that many people now expect a much broader range of attractive features from their employment and careers than simply money, a tolerable workplace environment and a measure of job security.

Discussion

In an age where ever greater levels of transparency and accountability regarding corporate responsibility are becoming the norm, an increasing number of organisations recognise the many benefits that can flow from actively engaging with their various stakeholder groups. It might be deemed generous

to be suggesting that the IIRC's IR initiative has been strongly impacted by such thinking. Despite IR's shortcomings, in acknowledging that new capitals now need to be taken into account, it appears that there is indeed a powerful genie in the bottle that clearly demands to be released ('let out'). IR's conceptual framework incorporates the BM concept while focusing on a generic value creation process. Unfortunately, although the BM literature acknowledges people to be among the most important assets of any organisation, to date it has very little more to say on this observation. By embedding people's many attributes within BM thinking, we believe this will provide both fields with a much better understanding of what they bring to the organisation and an indication of what should be taken into account for the benefit of the generality of present-day stakeholder groups.

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Building Resilient and Innovative Business Models in the Era of Covid-19: A Process Approach

Marco Montemari[1] and Marco Gatti[2]

Abstract

The role that the Business Model (BM) concept and BM-related tools may play during times of crisis have been insufficiently investigated. This paper presents a process aimed at supporting companies in building resilient and original BMs through continuous innovation based on the existing BM literature. The present study highlights the role that BM tools may play during crisis situations, providing managers and entrepreneurs with an alert system (i.e., BM measurements) capable of signaling when a change should be implemented; a "library" of potential changes (i.e., BM pivots) to be generated in the BM; and a portfolio of potential available options when considering how the BM should be changed (i.e., BM configurations). The paper additionally highlights how tools for BM mapping, control, and innovation can provide one another with information and can be connected in a way that allows companies to achieve a synergetic effect in the face of instability and uncertainty.

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1 Department of Management, Università Politecnica delle Marche, Ancona, Italy

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Introduction

The crisis associated with the COVID-19 pandemic has disrupted the ways in which companies operate and the Business Models (BMs) that they implement (Bagnoli, Dal Mas, Biancuzzi and Massaro, 2021). Supply chain access, production processes, channel management, and customer relationships have changed radically over the last two years, exerting pressure on revenues and cash flow and, ultimately, putting business continuity at risk (Seetharaman, 2020).

In managing the impacts of the lockdowns and health crisis, companies must prepare for the mid- and long-term effects of the COVID-19 pandemic. The ways in which business is conducted will be dramatically altered, and achieving stability in the new "normal" will not be easy; many after-shocks are anticipated and, following gradual exits from severe lockdowns, restrictive measures will fluctuate to mitigate new outbreaks.

The base case setting will thus be a bumpier path with persistent disruptions to the environment in which companies operate over the coming years, creating fluid and continuously changing scenarios. In such settings, society will likely oscillate between imposing and lifting rules and policies (e.g. travel restrictions, social distancing, hygiene requirements), and shifts will occur on many fronts, such as regulation (e.g., new privacy laws), technology (contactless transactions), and channels (universal home delivery), to name a few.

Overall, significant instability may be expected, and new scenarios will regularly bring new risks that must be faced but also new opportunities to be seized (Ritter and Pedersen, 2020). Successful companies in the COVID-19 era will be those that will manage to remain flexible and innovate swiftly to work amid the scenarios that are likely to emerge over time (Aagaard and Nielsen, 2021). In such a context, the BM concept may play a key role since research has acknowledged that companies' approaches to designing, changing, and innovating their BMs provide key leverage points for performance and competitive advantage (Chesbrough, 2010) in hyper-competitive, unstable, and turbulent business environments (Achtenhagen, Melin and Naldi, 2013) such as those that emerged during the pandemic. Despite this, the roles that the BM concept and BM-related tools may play during times of crisis remain poorly investigated, with few exceptions (Oleksiy and Dewald, 2018; Breier, Kallmuenzer, Clauss, Gast, Kraus and Tiberius, 2021). As such, company managers and consultants are left relatively empty-handed by the existing literature and the limited available frameworks when it comes to refining, redefining, or renewing BMs in crisis situations.

This consideration lends itself to this paper's aim, which is to provide a process aimed at supporting companies in building resilient and original BMs through continuous innovation by drawing on the existing BM literature. In doing so, this paper also reflects on the role that BMs and their tools can play in assisting companies to navigate the COVID-19 era. The remainder of the paper is structured as follows: Section 2 provides an overview of the BM tools proposed in the literature for BM mapping, control, and innovation; Section 3 demonstrates how these tools can be combined and organized within a process that can support companies in navigating in the COVID-19 era. Finally, Section 4 concludes the paper by detailing its main contributions.

Business Model Tools: An Overview

The Business Model Canvas

The Business Model Canvas (Osterwalder and Pigneur, 2010) is a popular tool that companies use to design and map their BMs. It may be deconstructed into nine basic building blocks that provide a complete and structured overview of a company's BM and illustrate the logic according to which value is created, delivered, and captured. The nine blocks cover the four main areas of a business: customer interface (customer segments, channels, customer relationships), products and services (value proposition), infrastructure (key activities, key resources, key partnerships), and financial viability (revenue streams, cost structure).

Aside from being a powerful tool for designing and mapping the "as-is" BMs of both start-ups and established companies, the Business Model Canvas has become a particularly popular tool for assessing a given BM's strengths and weaknesses, thus

triggering discussion around how best to challenge and change the current way in which a company creates, delivers, and captures value (Athanasopoulou and De Reuver, 2020).

Business Model Measurements

Research has shown that BMs significantly affect companies' performances (Rédis, 2009; Zott and Amit, 2007, 2008) and thus represent fruitful platforms for identifying Key Performance Indicators (KPIs) (McGrath, 2010; Montemari and Chiucchi, 2017; Nielsen and Montemari, 2012). McGrath (2010) and Nielsen and Montemari (2012) acknowledged that BMs help managers design KPIs that reflect the critical dimensions of firm performance and provide information on how a company's competitiveness may be increased or decreased. Montemari, Chiucchi and Nielsen (2019), in particular, demonstrated that BMs help uncover the crucial aspects of the value creation, delivery, and capture process, and this helps direct the measurement process toward what is actually worth measuring, thus enhancing the resulting KPIs' relevance. Moreover, Nielsen and Roslender (2015, p. 265) further argued that BMs have the potential to enable the "entangling of indicators". Entanglement is an important process that reduces the risk that individual KPIs will ultimately be uncoordinated and unrelated to the company's means of value creation, delivery, and capture.

Overall, BM-designed KPIs have the potential to guide managerial decision making toward the pursuit of the company's strategy by defining strategic objectives, identifying actions aimed at achieving those objectives and assessing the extent to which the objectives have been achieved (Montemari et al., 2019). Moreover, they provide information that can help identify and manage the BM's strengths and weaknesses and evaluate its validity (i.e., reveal opportunities to innovate the BM) (Nielsen, Lund, Montemari, Paolone, Massaro and Dumay, 2019).

Business Model Pivots

Over the last 15 years, BM innovation has attracted increasing attention in management research and among practitioners (Foss and Saebi, 2017). The ever-shorter lifecycles of products and services along with the hyper-competitive and global business landscape have led companies to more frequently and radically rethink and innovate their BMs (Sosna, Trevinyo-Rodríguez and Velamuri, 2010). As such, it often happens that one or more assumptions underlying the current BM must be altered, and it was within this context that Ries (2011) coined the concept of the "pivot", intended as a change in a fundamental aspect of the BM. A pivot may entail a simple change, such as recognizing that the product's price was inappropriate, or it may entail a more complex change, such as switching the target customers or repackaging a monolithic product into a family of products (Blank and Dorf, 2012). Ries (2011) identified ten types of pivot:

- Zoom-in pivot: This occurs when a single feature of a product becomes the entire product, resulting in a simpler and streamlined solution. It is fruitful when the company recognizes that a single feature of a product achieves greater traction and interest than the other features.
- Zoom-out pivot: This is the zoom-in pivot in reverse and occurs when the existing product becomes just a single component in a suite of features as part of a larger product. It is fruitful when the existing product is insufficient to support a customer set.
- Customer segment pivot: The products or services can attract real customers but not the customers it originally planned to serve. This pivot type thus entails a switch from the original customer segment to a new one and is optimized for this new target. It is likely that the value proposition, pricing, and channels will all need to be reviewed.
- Customer need pivot: The products or services can solve an actual problem for the customers that the company aims to target but not the problem it originally planned to solve. Other relevant problems prove to be more important, and the customers are willing to pay to solve them. Pivots of this type thus take place within the original customer segment but may require that existing value proposition be repositioned or that a completely new value proposition be developed.

- Platform pivot: This involves a change from an application to a platform or vice versa. Pivots of this nature may occur when individual applications converge and become a platform that third parties may also use to create their own related products.
- Business architecture pivot: Either of two basic logics will underpin a given BM: the complex systems model (low volumes, high margins) or the volume operations model (high volumes, low margins). Performing a business architecture pivot means moving from one logic to the other. This switch typically impacts other aspects of the BM, particularly with respect to the customer interface.
- Value capture pivot: This entails changing how the company monetizes or earns revenues (i.e. changing the revenue model). Pivots of this type may also impact other areas of the BM, such as the features of the value proposition and sales and marketing operations.
- Engine of growth pivot: This entails a change in the growth strategy to achieve faster or more profitable growth. There are three basic engines of growth: viral, paid, and sticky. The viral engine occurs when current customers recommend the company to other potential customers; the paid engine is the traditional means of growing by investing in marketing to acquire new customers; and the sticky engine focuses on existing customers and aims to enhance customer loyalty and retention. Pivots of this type entail switching from one engine to another and typically require a change in the revenue model.
- Channel pivot: This entails changing how and where the company delivers its products or services to customers (own stores, partner stores, websites, apps, sales agents, wholesalers, etc.) to promote greater effectiveness. Pivots of this nature typically require adjustments to many elements of the BM, such as the product's price, features, and competitive positioning.
- Technology pivot: This means using a new technology to achieve the same solution with benefits in terms of lower costs, superior prices, and improved performance. Such pivots do not typically entail major changes in the targeted customer segments, the problem to be solved, the revenue model, and the channels used.

Business Model Configurations

Increased awareness of BM innovation's vital importance to companies has driven research efforts toward the creation of frameworks and tools that could assist managers and entrepreneurs in renewing and updating their organizations' existing BMs (Foss and Saebi, 2017). One promising approach is to leverage creative imitation and build on reoccurring bestselling solutions as a blueprint for BM innovation (Weking, Hein, Böhm and Krcmar, 2020; Montemari, Taran, Schaper, Nielsen, Thomsen and Sort, 2022) since research has shown that 90% of successful BM innovations actually recombine existing BMs (Gassmann, Frankenberger and Csik, 2014). Following this line of reasoning, innovation lies in the understanding, translation, recombination, and transfer of successful patterns from one industry to another (Remane, Hanelt, Tesch and Kolbe, 2017). This approach to BM innovation is based on the concept of BM configurations, i.e., ideal-type examples that describe and distinguish the behavior of companies that have proven successful in the past in different industries or contexts, thus providing managers, practitioners, and academics with formulas that have already been tried and tested in the real world (Baden-Fuller and Morgan, 2010). These BM configurations have the advantage of inspiring other companies to adopt alternative ways of designing their logic to create, deliver, and capture value (Taran, Nielsen, Montemari, Thomsen and Paolone, 2016).

For example, the BM configuration called "multi-sided platform" (Osterwalder and Pigneur, 2010) creates value by facilitating interactions between two or more distinct but interdependent customer

segments. The value proposition differs for each customer segment served, and each customer segment produces a different revenue stream, even though one or more segments may enjoy free offers or reduced prices subsidized by revenues from other customer segments. The key resource required for this configuration is the platform, and creative human resources to manage and to promote the platform are also vital. This BM configuration is used by Google to connect Internet users and advertisers and by Nintendo to connect gamers and game developers.

"Inside-out" (Osterwalder and Pigneur, 2010) is a BM configuration through which companies generate revenues by selling or licensing their own unused or underused intellectual properties or technologies to firms operating in other industries. This BM configuration requires a strong patenting strategy and is used by knowledge-intensive companies, such as GlaxoSmithKline or BASF, to monetize R&D that cannot be directly applied to new products in the core business.

It is worth noting that real-life companies tend to represent mixtures of different BM configurations. For example, Dell combines the following:

- "mass-customized commodity", as it offers "have it your way" models along with competitive prices and fast delivery;
- "disintermediation", as the models are delivered directly to the customer rather than through intermediaries;
- "long tail", as the company sells a wide range of customized models in relatively low quantities;
- "upfront payments", as the customers pay upfront and generate high liquidity;
- "outside-in", as it gathers competences and electronic components from its network of partners.

The most complete BM configuration approaches, to date, are those of Gassmann et al. (2014) and Taran et al. (2016), who presented lists of 55 and 71 BM configurations, respectively.

Combining And Organizing Business Model Tools: A Process to Build Resilient And Innovative Bms in the Era of Covid-19

This section will show how the abovementioned tools can be combined and organized within a seven-step process to support companies in navigating the COVID-19 era and in building resilient and original BMs through continuous innovation.

A) Map the current BM: The first step of the process involves mapping the "as-is" BM to understand its main features and idiosyncrasies. To perform this step, the Business Model Canvas (Osterwalder and Pigneur, 2010) can be used to quickly and simply map the company's current BM as a fundamental prerequisite to performing the next steps in the process.

B) Assess the impact of the new scenario on the current BM: This step investigates which building blocks are most affected by the new scenario in which the company must operate.

Entrepreneurs' and managers' perceptions should be confirmed through the use of two or three KPIs for each building block. Overall, the Business Model Canvas can be used as a platform for establishing KPIs, as suggested by Montemari et al. (2019), and the weekly/monthly trend of these KPIs must be analyzed to provide information on what is happening within each building block, thus identifying those that merit closer managerial attention.

Typically, building blocks pertaining to the customer interface and infrastructure include non-financial (quantitative-physical and qualitative) KPIs (i.e., leading measures that capture the causes of the company's success) (Eccles, 1991), while building blocks pertaining to financial viability include financial lagging KPIs, meaning that they merely measure outcomes of managerial actions, shifting the focus away from what actually generates the results (Kaplan and Norton, 1996).

Table 1 below provides a platform to perform this step and some exemplar KPIs.

Table 1.		
Building blocks	**KPIs**	**Trend**
Customer segments	Orders per segment, sales per segment	Very negative
Value proposition	% of orders delivered with damaged products, % of overdue orders	Steady
Customer relationships	Customer retention rate, customer acquisition rate	Mildly negative
Channels	Average sales per channel, average sales per salesman	Mildly negative
Revenue streams	Total sales, ROS	Very negative
Key activities	Efficiency and effectiveness KPIs	Mildly negative
Key resources	Staff turnover, training hours per employee	Mildly negative
Key partnerships	Average spend per supplier, average spend per purchase order	Very positive
Cost structure	Average production cost of items, average handling cost per order	Mildly positive

Table 1: Exemplar KPIs within each building block

It is likely that the building blocks will be affected in different ways and, depending on the KPIs' trend, the impact can be very negative, mildly negative, mildly positive, or very positive; alternatively, the new scenarios can have no effect on some of the current BM's building blocks.

All in all, the aim of this step is to understand where to intervene and which building blocks need to be innovated because the new scenario poses them, and the BM as a whole, at risk, or because the new scenario offers new opportunities to be caught.

C) Decide what kind of pivot or combination of pivots the BM needs: Step b raises managers' and entrepreneurs' awareness of where they should intervene and which building blocks are at risk or present new opportunities and thus require innovation. The question now is what to do next. Step c aims to provide an answer to this question through pivots. Pivots indeed provide managers with a "library" of potential changes that may be generated in the BM based on the outcomes of step b. It is likely that a pivot on customer segments or needs will be appropriate when KPIs demonstrate that customers are under pressure. A channel pivot is suitable when the way in which the company delivers its products is no longer effective in the new scenario; when customer relations have been identified as an area in distress, an engine of growth pivot can be used to improve this building block's performance.

D) Decide how to operationalize the pivots through BM configurations: Based on the concept of BM configurations, step d provides companies with a portfolio of available potential options with which to perform the pivots or a combination of pivots defined in step c.

For example, when it comes to performing a value capture pivot, several BM configurations are available to change the revenue model of a company: leasing, subscription, bait and hook, pay-as-you-go, cell phone, to name a few. Thus, in such a context of change, a company might decide to modify the way it earns revenues by adopting a BM configuration based on the pay-as-you-go logic (Johnson, 2010) - that is, by charging the customer for metered services based on actual usage (e.g., Zipcar). Another option would be to adopt bait and hook logic (Osterwalder and Pigneur, 2010), which entails offering customers an inexpensive or free initial product and then have them pay more for additional related products (e.g., Gillette).

A channel pivot can be performed through BM configurations such as disintermediation, channel maximization, e-shop/shop, or e-mall/mall. In particular, how and where a company delivers its value proposition to customers might be changed by adopting a disintermediation logic (Johnson, 2010) - that is, by delivering a product or service directly to the customer rather than through intermediary channels (e.g., Dell). Another logic that could be adopted is entry into an e-mall (Timmers, 1998)—a constellation of e-shops, typically under the common umbrella of a well-known and trusted brand (e.g., eBay).

E) Assess the impact of innovation on the current BM: The decision to perform one or more pivots and adopt new BM configurations entails a change in the current BM. It is relevant at this stage to understand the items (resources, activities, partnerships, etc.) that must be added to execute the innovated BM, those that are no longer useful and that should be eliminated from the innovated BM, and those that remain unchanged in the move from the current BM to the innovated BM.

Some building blocks will be significantly impacted by the pivoting process and the adoption of new BM configurations, while for others the impact will be lower or even non-existent. It is likely that the building blocks identified in step b will undergo major changes, since they are at the epicenter of the pivot process (i.e., the building blocks at risk that needed closer managerial attention). These changes are known as first-order changes. However, since the BM is a system of interconnected items (Massa et al., 2018), it is also relevant to understand second-order changes - that is, the impacts of the pivot process and the adoption of new BM configurations on the remaining building blocks.

F) Execute and measure: This step leads the company to provide itself with the missing items

required to perform and execute the innovated BM. At this stage, the trend of KPIs - particularly those that were proven to be under pressure in step b - should be monitored to determine whether the pursued innovations have generated the desired improvements.

G) Restart the process from step b when a new scenario pops up.

Discussion and Conclusions

Drawing on the BM literature, this paper aimed to provide a process capable of supporting companies in building resilient and original BMs through continuous innovation. This seems to be particularly relevant in highly dynamic contexts, such as that which characterizes the COVID-19 era.

Through a combination of the Business Model Canvas (Osterwalder and Pigneur, 2010), BM measurements (Montemari et al., 2019), BM pivots (Ries, 2011), and BM configurations (Gassmann et al., 2014; Taran et al., 2016), this process provides a structured approach to unveiling the main features of the current BM, to regularly assessing the impacts of new scenarios on the BM, to identifying the areas that require innovation, and to choosing a course of action for adapting the BM to new scenarios that will emerge over time.

This paper's theoretical contribution is twofold. First, the paper connects, organizes and systematizes within a structured process several BM tools that have been proposed in the BM literature. The paper thus highlights how tools for BM mapping, control, and innovation can convey information to one another and can be connected in a way that allows companies to obtain a synergy effect when it comes to face instability and uncertainty. Overall, the paper shows that the combined and organized use of such tools is more valuable and useful than the application of single tools in isolation, thus highlighting that silo mentalities should be avoided. In doing so, this paper contributes to the extant literature by providing a holistic view of the different BM tools while research hitherto has analyzed them individually to show their usefulness along with their organizational implications. This contributes to our knowledge with respect to BMs and opens up new opportunities for research in which benefits resulting from the adoption of BM tools are observed from a holistic rather than an individual perspective.

Second, given the scarcity of the literature on the role played by BM in times of crisis, this paper contributes to this stream of research by highlighting that BM tools can play a key role in responses to crisis situations since they provide managers and entrepreneurs with

- an alert system (i.e., BM measurements) capable of signaling when to change;
- a "library" of potential changes (i.e., BM pivots) to be generated in the BM;
- a portfolio of potential options available to decide how to change the BM (i.e., BM configurations).

This is relevant from both the theoretical and practical perspectives. At a theoretical level, it offers preliminary insights on the ways in which managerial tools such as BM-related ones can be crucial when faced with uncertainty like that which characterizes the COVID-19 era. From a practical perspective, the paper proposes a tool-based process that companies can adopt to face the crisis linked to the spread of COVID-19 and that may also be useful in other crisis situations not directly related to the current pandemic. In fact, BM tools, if used in combination, have the potential to increase companies' resilience when faced with crises since they can help managers and entrepreneurs to shift their trajectory and adopt original and innovative solutions. This may help support managers in their decision making activities, which are even more critical during crisis situations such as the ongoing one.

Future research should seek to apply the abovementioned process in practice to explore its functioning and, in particular, its effects, and eventually its criticisms, within organizations.

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