Innovation and Business Models

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Summary

Starting from the mid-1990s, business models have received increased attention from both academics and practitioners. At a general level, a business model refers to the core logic that a firm or other type of organization employs to achieve its goals. Thus, in general terms, the business model construct attempts to capture the way organizations "do business" or operate to create, deliver, and capture value. Business model innovation (BMI) constitutes a unique dimension of innovation, different from and complementary to other dimensions of innovation, such as product/service, process, or organizational innovation. This distinction is important in that different dimensions of innovation have different antecedents, different processes, and, eventually, different outcomes.

Business models have been the subject of extensive research, giving birth to several lines of inquiry. Among them, one line focuses on business models in relation to innovation. This is a vast, somewhat fragmented, and evolving line of inquiry. Despite this limitation, it is possible to recognize that, at the core, business models are relevant to innovation in at least two main ways. First, business models can act as vehicles for the diffusion of innovation by bridging inventions, innovative technologies, and ideas to (often distant) markets and application domains. Therefore, business models speak to the phenomenon of technology transfer from the point of view of academic entrepreneurship and of corporate innovation. Thus, an important role of the business model in relation to innovation is to support the diffusion and adoption of new technologies and scientific discoveries by bridging them with the realization of economic output in markets. This is a considerable endeavor that relies on a complex process entailing the search for, and recombination of, complementary knowledge and capabilities. Second, business models are a subject of innovation that can become a source of innovation in and of themselves. For example, offerings that reinvent value to the customer—as opposed to offerings that incrementally add value to existing offerings—often involve designing novel business models. Relatedly, BMI refers to both a process (i.e., the dynamics involved in innovating business models) as well as the output of that process.

In relation to BMI as a process, the literature has suggested distinguishing between business model reconfiguration (BMR; i.e., the reconfiguration of an existing business model), and business model design (BMD; i.e., the design of a new business model from scratch). This distinction allows us to identify three possible instances, namely general BMR in incumbent firms, BMD in incumbent firms, and BMD in newly formed organizations and startups. These are arguably different phenomena involving different processes as well as different moderators. BMR could be understood as an evolutionary process occurring because of changes in activities and adjustments within an existing

configuration. BMD involves facing considerable uncertainty, thus putting a premium on discovery-driven approaches that emphasize experimentation and learning and a considerable degree of knowledge search and recombination.

Keywords: business models, innovation, business model innovation, business model reconfiguration, business model design

Introduction

The terms “business models” and “innovation” have an appealing, high-tech ring to them. Since 2000, there has been an explosion in the usage of the two terms as the Internet and digital business have penetrated almost all aspects of our daily lives and tech giants in the United States and China have grown tremendously. However, the terms are often used imprecisely, and scholars, policymakers, business executives, and the general public often speculate about them and the linkages between them.

The link between business models and innovation is not immediately obvious. Part of the reason is that both innovation and business models are broad lines of inquiry that are of interest to different disciplines, and within disciplines they are relevant to different phenomena. For example, innovation studies may focus on the creation of innovation, the context for innovation, the process of innovation, or the consequences of innovation. Similarly, the link between innovation and business models could be analyzed from the point of view of the role of the business model in innovation. Alternatively, the business model could be studied as a dimension and unit of innovation in and of itself. And in this case, business model innovation could refer to both the process as well as the output of that process.

These are just examples of the challenges one may encounter in trying to understand innovation and business models. Certainly, it is very difficult, if not impossible, to define innovation and business models in a universally valid way that would do justice to all the different interpretations and nuances within the field. This article offers a broad overview of both innovation and business models, and how they are linked. It begins with the concept of innovation and then moves on to the concept of business models before discussing the linkages.

Innovation

Innovation is “Arguably, . . . as old as mankind itself” (Fagerberg, 2006, p. 1). However, the scientific study of innovation, i.e., the study of the innovation phenomenon subject to the rules and methodologies of the scientific method, emerged only around the 1960s (Fagerberg, 2006). Since then, the study of innovation has expanded rapidly to span several fields in the social sciences and humanities, such as management, economics, geography, sociology, politics, psychology, and history. Innovation as a phenomenon cuts across these existing disciplines and specializations. Taken together, this multidisciplinary body of knowledge

reflects four main overlapping areas of interest related to innovation: (a) the creation of innovations, with particular focus on technology, firms, and networks; (b) the role of wider systematic settings influencing innovation and the role of institutions and organizations in this context; (c) the process of innovation—including how to organize for innovation and how innovations diffuse; and (d) the consequences of innovation with respect to economic growth, international competitiveness, and employment.

Thus, the literature on innovation is characterized by the presence of different areas of interest (e.g., creation, context, process, or consequences), and cuts across many different disciplines. No single discipline deals with all aspects of innovation. Each one provides important insights; at the same time, each one looks at innovation from very diverse starting points, often focusing on different units of analysis and emphasizing different aspects of innovation.

As becomes evident in this article (see the section "The Nexus Between Innovation and Business Models" and related subsections), something similar happens when one adds the business model to the innovation equation. The discussion of innovation in relation to business models is also characterized by the presence of different perspectives and "angles," all of which are relevant, none of which embraces all possible aspects of business models and innovation. As a consequence, it is difficult, if not impossible, to define innovation—or innovation and business models—in a singular way that would do justice to the different aspects and possible connotations.

As a matter of fact, definitions of innovation differ, sometimes widely. Even when the scope to definitions is limited to the management field, variance persists. Table 1 provides a number of selected definitions of innovation that have been offered in the management literature (Damanpour & Schneider, 2006) and that could be useful to provide a grounding for understanding innovation and business models.

Table 1. Definitions of Innovation

"Innovation is the generation, acceptance, and implementation of new ideas, processes, products, or services."—Thompson (1965, p. 2)
"Innovation can be defined as the effective application of processes and products new to the organization and designed to benefit it and its stakeholders."—West and Anderson (1996)
"(Industrial) innovation includes the technical, design, manufacturing, management, and commercial activities involved in the marketing of a new (or improved) product or the first commercial use of a new (or improved) process or equipment."—Freeman (1982)
"Innovation is the specific tool of entrepreneurs, the means by which they exploit change as an opportunity for a different business or service."—Drucker (1985, p. 17)
"Innovation is conceived as a means of changing an organization, either as a response to changes in the external environment or as a preemptive action to influence the environment. Hence, innovation is here broadly defined to encompass a range of types,

including new product or service, new process technology, new organization structure or administrative systems, or new plans or program pertaining to organization members.”—Damanpour (1996, p. 694)
Innovation is “the creation of new knowledge and ideas to facilitate new business outcomes, aimed at improving internal business processes and structures and to create market driven products and services. Innovation encompasses both radical and incremental innovation.”—Plessis (2007, p. 21)
“Successful innovation is the creation and implementation of new processes, products, services, and methods of delivery [that] result in significant improvements in outcomes, efficiency, effectiveness, or quality.”—Albury (2005)
Innovation is “the successful development, implementation, and use of new or structurally improved products, processes, services, or organizational forms.”—Hartley (2006)

A cursory review of the definitions provided in table 1 suggests that, at a general level and from the point of view of business and management, innovation implies an entrepreneurial act (Drucker, 1985), an effort to bring new ideas to a successful implementation (Hartley, 2006), involving organizational and other types of change (Damanpour, 1996). Or, as Roberts (1988) wrote, “Innovation = Invention + Exploitation.”

In addition to these high-level considerations, the literature also offers some specific insights and ideas that could help with a better understanding of the meaning and significance of innovation and business models, with the following considerations the most salient and relevant.

1. **Innovation is different from invention or new ideas.** While the use of the term “invention” versus “new ideas” (or other synonyms of the latter) may be a matter of context, notably science, high-technology, and even academic entrepreneurship for the former and organizations and organization theory for the latter, the underlying idea is conceptually similar. The generation of new knowledge or ideas does not ensure “successful implementation” or their “commercial use.” Thus, invention represents a necessary, yet not sufficient, condition for innovation. Innovation refers to the successful creation of a product or service that puts new knowledge or new ideas into commercial use or into practice (cf. Branscomb & Auerswald, 2002). A famous example is the invention of the laser (light amplification by stimulated emission of radiation—a monochromatic beam of light) and its different commercial applications. The laser, even when patented, in and of itself is not an innovation, at least according to the distinction made here. Its commercial exploitation and adoption in products like printers or medical devices are what qualifies as innovations.

   The distinction between invention (or new knowledge and ideas) and innovation is foundational to understanding not only innovation in relationship to phenomena like the diffusion of technology, but also the idea of business models as vehicles for innovation, which is one of the fundamental areas of inquiry in research on innovation and business models (see the section “Business Models as Vehicles for Innovation”).

2. **There are different dimensions of innovation**. The literature on business models has variously claimed that the business model is a new dimension of innovation, complementary to other dimensions of innovation (see Zott et al., 2011). What are possible dimensions of innovation? The literature has suggested several different categorizations. For example, Hartley (2006) distinguished between products, processes, services, and organizational forms. Albury (2005) omitted organizational forms but added methods of delivery. Damanpour (1996) emphasized organizational aspects, such as new organization structures or administrative systems, or new plans or programs pertaining to organization members.

   Independently of the particular classification scheme one favors and independently of the terminology used,[1] distinguishing between different dimensions of innovation is important from both a theoretical and a practical standpoint. From a theoretical standpoint, different dimensions of innovation entail different units of analysis and different antecedents, mechanisms, and possibly outcomes. Because of this, the study of a specific dimension of innovation (e.g., the business model), can only partly benefit from application of theories and insights that are useful to the study of other dimensions of innovation. From a practical standpoint, different dimensions of innovation benefit from different innovation processes and each has a unique potential for value creation.

3. **There are different types of innovation.** Perhaps the most classical distinction is between incremental and radical innovation (Ettlie et al., 1984), which are, respectively, a minor improvement in a product's features and a completely new product, often based on technology that is new to the organization. However, there are other possible types of innovation, such as, for example, architectural innovation (see Henderson & Clark, 1990), in which changes in a component trigger a rethinking of the product architecture, with possible negative consequences for the organization. Abernathy and Clark (1985) distinguished between reinforcing and disrupting existing linkages to the market while at the same time reinforcing versus disrupting existing linkages to the firm's technology, nicely describing different types of innovations on which future scholars built. Birkinshaw et al. (2008) focused on management innovation, which they defined as "the invention and implementation of a management practice, process, structure, or technique that is new to the state of the art and is intended to further organizational goals" (p. 825). A review of frameworks and models relevant to the exploration of types of innovation was provided by Rowley et al. (2011).

4. **Innovation involves both proactive and reactive moves**. From this point of view, there are two main views of innovation. The first one is innovation as the phenomenon associated with bringing something new to the world, perhaps in an effort to exploit an opportunity, to solve a problem, or to satisfy an unmet need. This is the view proposed by Drucker (1985), namely innovation as "the specific tool of entrepreneurs, the means by which they exploit change as an opportunity for a different business or service" (p. 17).

   The second view is innovation as the phenomenon associated with reacting to (perhaps tectonic) exogenous market forces and technological changes in order to "stay relevant." In this second connotation, innovation is not perceived as an opportunity, but as a necessity for ensuring future viability. It corresponds to the view of innovation as the background of the general slogan "Innovate or die," which underlies, more or less

implicitly, much of contemporary writing in practitioner-oriented articles featured in journals like the *Harvard Business Review* or *MIT Sloan Management Review*. This second perspective on innovation is important in relation to business models because it subtends an understanding of the business model as the "known way of doing things," which is threatened by external changes. (This aspect receives more attention in the section "The Increasing Interest in Business Models.")

5. Finally, **innovation can occur at the organization level, or at higher or lower levels of analysis**. For example, innovation can occur at an ecosystem level or at an individual or group level. Some of the literature on creativity and design (see Amabile, 1983) addressed the lower levels of analysis, whereas work by scholars like Autio and Thomas (2014) and Staudenmayer et al. (2005) addressed what has become known as the business ecosystem level. Still, most work in innovation management has centered on a focal organization (cf. Downs & Mohr, 1976) and how that organization changes and brings new ideas to market.

Business Models

Origins and Definition

Starting from the mid-1990s, business models have received increasing attention, from both academia and practitioners; consequently, the literature has virtually exploded, albeit not necessarily in a cumulative way (Massa et al., 2017; Zott et al., 2011). Definitions of the business model have differed across studies (see table 2), and this fact has induced scholars to perform systematic reviews in attempts to clarify the nature of the construct (Klang et al., 2014; Massa et al., 2017; Spieth et al., 2014; Wirtz et al., 2016; Zott et al., 2011).

Table 2. Three Interpretations of the Business Model

	Business Models as Properties of Organizations	Business Models as Mental Models and Linguistic Schemata	Business Models as Formal Conceptual Representations or Descriptions
Interpretation of the business model	Properties of firms that affect their performance in markets	Informal models, namely mental models and linguistic schema	Formal models, simplified representations of how a business functions
Unit of analysis	The firms and its network of exchange partners (Zott et al., 2011)	Individual and collective minds and discourse	The conceptual representation itself (which may or may not focus on a firm)
Function–What is the function of a business model? What does a business model do?	A source of… • competitive advantage (Casadesus-Masanell & Ricart, 2010; Markides & Charitou, 2004) and, in some cases, abnormal returns (Hamel, 2000; Kaplan, 2012); • change for the dynamics of an industry (Magretta, 2002); • innovation (e.g., a vehicle for linking innovative technologies to economic output in markets	Allows managers to… • systematically exploit information coming from the environment (Goldstein & Gingerenzer, 2002); • understand beneficial "effort/accuracy trade-offs" (Payne et al., 1993) mainly when time is scarce (Hauser, 2014; Hu & Wang, 2014; Pichert & Katsikopoulos, 2008); • improve decision making with low information	Allows analysts to… • formally simplify the complex and abstract away what is unnecessary and minor; • understand the context in which the organization finds itself (Osterwalder et al., 2005) • engage in experimentation (the model allows the posing of "what if" questions, thus supporting experimentation) (Chesbrough, 2010; Zott et al., 2011) and avoiding dominant logic and identity

	Business Models as Properties of Organizations	Business Models as Mental Models and Linguistic Schemata	Business Models as Formal Conceptual Representations or Descriptions
	Chesbrough & Rosembloom, 2002).	availability (DeMiguel et al., 2009); • avoid overfitting decisions to historic data (Pitt et al., 2002); • balance efficiency and flexibility (Eisenhardt et al., 2010).	traps (Chesbrough, 2010).
Sample keywords	Description, firm level, firm performance, firm's logic, how a firm makes money	Heuristic, cognition, mental model, dominant logic, story, narrative	Components, elements, architecture, system, business logic
Sample theoretical foundations	Theories of value creation, value network, strategy, Resource-Based View (RBV), strategic complementarities	Firms as interpretive systems, managerial cognition, sense-making, gestalt theory, heuristics, dominant logics, cognitive psychology	Conceptual modeling techniques (CMT), communication theory, system dynamics

Source: Based on Massa et al. (2017).

Despite the lack of consensus on how to operationalize the construct, there is some agreement that, at a general level, “business model” refers to the core logic that a firm or other types of organizations employ to achieve their goals (Massa et al., 2017). The idea of achieving goals is often framed in terms of value creation and value capture. In this sense, as Foss and Saebi (2017) noted, many definitions are, at least at a general level, close to, or consistent with, Teece’s definition of a business model as the “design or architecture of the value creation, delivery, and capture mechanisms” of a firm (Teece, 2010, p. 172). Thus, in general terms, the business model attempts to capture the way firms—or, again—other types of organizations (e.g., NGOs, social enterprises, foundations) “do business” or operate (i.e., organize their activities to create, deliver, and capture value). To do that, which is to encapsulate the logic of value creation, delivery, and capture, the business model introduces a new unit of analysis, nested between the firm and its network of exchange partners. Such a unit of analysis, it is claimed, spans the traditional boundaries of the firm to also include the network, contemplating both simultaneously (Amit & Zott, 2001; Zott & Amit, 2007, 2008).

The Increasing Interest in Business Models

While the systematic study of business models is a phenomenon dating back only to the mid-1990s, business models have been integral parts of economic behavior for much longer (Foss & Saebi, 2017; Teece, 2010), and instances of firms and organizations adopting innovative business models have been documented in business history (Osterwalder et al., 2005). Indeed, firms and organizations have always operated according to some logic and have organized their activities accordingly, but only in the 2000s has there been a stronger need to adopt a term for explaining such logic (Massa & Tucci, 2014).

Part of the reason is that, since the 1990s, the context in which organizations operate has changed widely, at least with respect to the attributes of the old industrial economy (see Massa et al., 2017). This is an important, particularly if one considers that many of the governing ideas and intellectual frameworks that constitute somehow “more normal” knowledge in the fields of business and management were developed during times in which the dominant paradigmatic image of the firm was that one of an industrial firm operating within the boundaries of a relatively well-defined industry (see Ghemawat, 2002; McGrath, 2013; Reeves et al., 2012). However, as directly or indirectly noted by many scholars, since the 1990s things have changed considerably, potentially reducing the usefulness of some of the governing ideas, framework, and theories that had proven to work well in a predominantly industrial economy. A radically altered context resulted from forces at the macro level, such as Internet and digital technologies; the increasing importance of postindustrial technologies like software, nanotech, and biotech; increasingly global markets; faster industry cycles; and globalization.

This fact has had many consequences. Two are particularly relevant for understanding the surge of interest in business models. On the one hand, macroforces and tectonic changes have opened opportunities for managers and entrepreneurs to experiment with different ways of organizing their activities. Several industries have witnessed a surge of novel ways of doing things, such as the music industry (with the introduction of iTunes and Spotify and the new ways of consuming music), the movie rental industry and, more broadly, TV (with Netflix and other new ways of consuming media content), the book industry (with online bookstores and

book summary services, such as Blinklist or Fourminutesbooks), the commercial banking industry (with virtual banks), the hotel industry (with booking.com and Airbnb), and the list goes on. One may be tempted to think that the changes are only related to Internet, e-businesses, and multisided platforms or, to use a more popular term, digital transformation. However, existing industries and dominant forms of doing business have been challenged by new "logics of doing business" not necessarily related to e-business; for example, the commercial aircraft industry has been shaped by the introduction and growth of the low-cost model, the pharmaceutical sector has been changed by the introduction of biotech, etc.

The observation of innovation happening in dimensions different from standard dimensions of innovation, such as product/service or process, has invited scholars and practitioners to try to describe and categorize the newly observed heterogeneity. In doing this, scholars have employed the business model construct and extended the traditional analysis of firms and their innovation initiatives to include activities and transactions between a reference organization and its network of exchange partners (see Amit & Zott, 2001; Zott & Amit, 2007, 2008). This has resulted also in moving beyond the idea of a value chain in favor of a value network, thus increasing emphasis on the different value transactions that an organization orchestrates in concert with different stakeholders and on the role of the architecture of revenues (how organizations get paid, by whom, and for doing what). These aspects were not considered very important or relevant a few decades ago.[2] Simply put, there was no need to describe differences in ways of doing business, given that many firms looked similar from that standpoint. However, since the popularization of the Internet, things have changed and several logics for value creation, delivery, and capture have started to appear more systematically across different industries and sectors.

Gassmann and colleagues (2014) produced perhaps one of the best-known lists of business models and identified 55 of them. Similarly, Lüdeke-Freund et al. (2018) documented 45 business models for sustainability. Overall, a first reason for the surge of interest in business models has been the attempt to understand and organize knowledge related to possible ways of "doing business." Such knowledge can also be the basis for the generation of ideas for new business models (Massa & Tucci, 2014), but achieving consensus on how to organize such knowledge is, implicitly or explicitly, subject to debate. This is the case, among other reasons, because business models can be described at different levels of granularity/abstraction, including business processes, bundles of activities and activity systems, components (as with the popular business model canvas), or—at the level of patterns—archetypes, as when business models are described by adopting terms like "freemium" or "razors and blades" (Rappa, 2001; see also Massa & Tucci, 2014, for an overview of the levels of abstraction).

On the other hand, the terms "business model" and "business model innovation" (BMI) have often been used in managerial discourse to express the general perception that things are changing and that the known way of doing business will no longer be valid in some near future, in ways that are difficult, if not impossible, to predict. This is the general sentiment expressed by senior business leaders and CEOs when they comment that the innovation of their company's business model ranks at the top of their priorities (e.g., see Economist Intelligence Unit, 2005; IBM survey, 2006; Chesbrough, 2007; Pohle & Chapman, 2006). In this case, the terms business model and BMI are used by managers as metaphors to expresses the general idea that increasingly volatile, uncertain, complex, and ambiguous (VUCA)

business environments, as well as the blurring of industry boundaries and the pace of technological development, challenge the long-term viability of known ways of conducting business.

In this connotation, the business model is a metaphor for the known, standard, and understood logic of conducting business within a known industry, an idea related to the notion of a dominant logic (Bettis & Prahalad, 1995) or the theory of the business (Drucker, 1994; see also the section "Cognitive Manifestations of the Business Model: Dealing With Cognitive Barriers in BMR"). Coherent with this understanding of the business model, the idea that BMI constitutes a strategic imperative (or a priority) is often used to express the perception that, because of all the changes occurring, the known way of doing things is no longer going to be valid. (The section "The Business Model as a Subject of Innovation" elaborates on this aspect.)

The Business Model and Dimensions of Innovation

As noted in the section "Innovation," business models represent a dimension of innovation that is distinct from other dimensions of innovation. Firms, for example, can address the same customer with the same product or rely on the same technology while adopting different business models. The process of innovating a business model (see the sections "Business Model Design" and "Business Model Reconfiguration in Incumbent Firms") differs from processes involved in innovating on other dimensions, such as new product development (NPD), service design, business process re-engineering, or organizational change in general. Concerning the outcomes, the general idea is that "superior business models beat superior technology" (Chesbrough, 2007). And the novelty presented by new, effective models can result in superior value creation (Morris et al., 2005) and even abnormal returns (see Johnson et al., 2008) and can replace the old way of doing things to become the standard for the next generation of entrepreneurs to beat (Magretta, 2002). Figure 1 depicts BMI and other "classic" dimensions of innovation relative to the necessary scope of innovation.

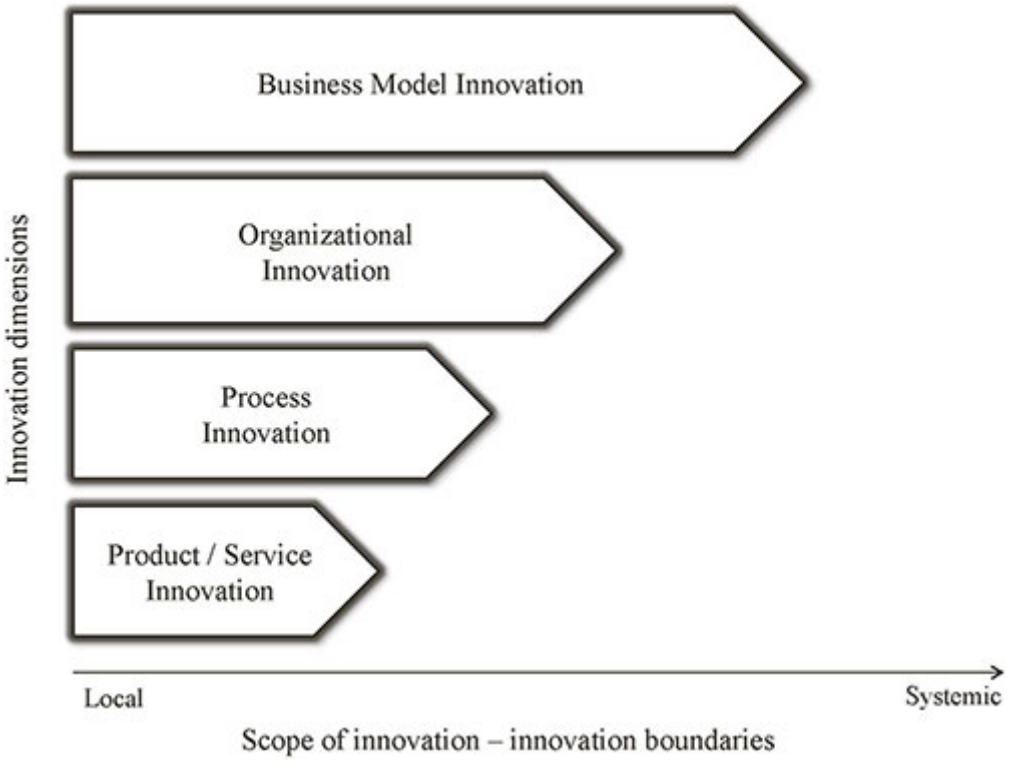

Figure 1. A possible way of graphically depicting BMI in relation to other dimensions of innovation and with reference to the scope of innovation, from more local to systemic. Adapted with permission from Massa et al. (2016).

Different Interpretations of the Nature and Manifestation of the Business Model

As noted, interest in the business model is, in many ways, related to the proliferation of novel ways of conducting business not observed before the advent of the Internet. This is an eminently empirical phenomenon, which assumes that business models are "real" in the sense of having an observable and measurable impact on a firm's performance. However, this is not the only possible interpretation of the notion of a business model. For example, the idea that novel business models challenge the known way of doing things has led scholars to explore the notion of business models in cognitive terms, overall producing an interpretation of the business model as a mental model, a high-level heuristic logic that helps managers make quick decisions by illustrating how business should be done in a given industry (Martins, Rindova, & Greenbaum, 2015; Massa et al., 2017).

Similarly, many would use the term "business model" to refer to the visual models and visual frameworks used to explain and communicate the logic of value creation and capture of specific firms and organizations (see Doganova & Eyquem-Renault, 2009). These are related but arguably different understandings of what a business is, and understanding this difference is important to avoid confusion and even to construct validity problems.

Thus, overall, there are three possible ways of understanding the nature of business models depending on the emphasis that is given to the terms "business" and "model," respectively. These are:

> (1) business models as attributes of real firms having a direct real impact on business operations, (2) business models as cognitive/linguistic schema, and (3) business models as formal conceptual representations/descriptions of how an organization functions. Arguably, these are conceptually distinct interpretations of the role and nature of the business model, which point to different phenomena: (1) how firms do business, (2) how the way firms do business is interpreted by organizational members, and (3) how (1) and (2) could be represented by means of formal conceptualizations, such as symbolic, mathematical, or graphical depictions, respectively.
>
> (Massa et al., 2017, p. 76)

Table 2 offers an overview of the three possible interpretations, emphasizing their different (but related) functions, their different units of analysis, and their different theoretical foundations.

Much of the literature on innovation and the business model tends to assume the first interpretation, thus referring to business models as something real. However, both cognitive manifestations and formal, conceptual representations play important roles in the link between innovation and business models. The section "Cognitive Manifestations of the

Business Model: Dealing With Cognitive Barriers in BMR” offers insights related to the interpretation of business models as mental models in the innovation of existing business models, as well as insights related to the use of formal visual representations of the business model.

The Nexus Between Innovation and Business Models

A discussion of the confluence of innovation and business models benefits from the following premises:

1. At the most general level, the role of the business model in innovation is twofold. First, the business model can be a vehicle for innovation (i.e., innovation by means of business models), in that it allows managers and entrepreneurs to connect innovative products, technologies, and offerings to markets and society (see Chesbrough & Rosenbloom, 2002). Second, the business model may also be the subject of innovation in and of itself (i.e., innovation of a business model).
2. BMI can be used to refer to the act of innovating business models (i.e., BMI as a process) as well as the result of that process (BMI as a consequence; Foss & Saebi, 2017). Clearly these are related phenomena, but there are some benefits in treating the two as conceptually distinct aspects of the same metaphenomenon.
3. With respect to BMI as a process but also the business model as a subject of innovation, one could distinguish between two arguably different phenomena, namely business model reconfiguration (BMR) and business model design (BMD; Massa & Tucci, 2014). To simplify slightly, BMR refers to how a whole organization can come to change its business model, typically in a more incremental way. Scholars have also used terms like “reinvention,” “renewal,” “dynamics,” “transformation,” and “evolution” to refer to the phenomenon (Foss & Sabi, 2017). Because BMR involves changing an existing business model, it puts strong emphasis on aspects like cognitive and structural barriers, organizational learning and change, inertia, and path-dependent constraints in general. On the other hand, BMD, which refers to the creation of a business model when none is in place, is generally discussed with less emphasis on challenges of this type, particularly when it refers to startups and newly formed organizations. Attention is often given to aspects like uncertainty, lack of legitimacy, lack of resources, and, in general, liability of newness (cf. Aldrich & Auster, 1986; Bruderl & Schussler, 1990). However, this is not to say that BMD is only about startups funded by venture capital. Even existing firms can engage in BMD, when, for example, they create units to exploit an opportunity outside the boundaries of their existing business model, as Nestlé did with Nespresso. Overall, BMD is relevant to two classes of phenomena that are important in the discussion of innovation and business models: (a) The general commercialization of scientific and technological discoveries, which speaks to phenomena like technology and knowledge transfer, regional and national innovation ecosystems, academic entrepreneurship, and the like; (b) the ability to bring fundamentally novel value propositions to the market that would reinvent value to the customer (as opposed to incrementally adding value to the customer), something that speaks to blue ocean strategy (Kim & Mauborgne, 2004) and strategic corporate entrepreneurship on the one hand, and to issues in disruption and business models (Markides, 2006) and playing with two business models simultaneously on the other

(Markides & Charitou, 2004). These considerations suggest that, while it may be useful to treat BMR and BMD as fully separate phenomena, in reality, at least in some cases, the two may overlap.

Business Models as Vehicles for Innovation

In one interpretation of the role of the business model in innovation, the business model is understood as a vehicle for innovation. This interpretation of role of the business model variously speaks to phenomena like technology management, technology commercialization, technology transfer, science, and academic entrepreneurship, as well as diffusion of innovation and diffusion of technology more generally. The point of departure for understanding this role of the business model is to recall the distinction between invention and innovation. Innovative technologies and inventions in general, per se, have no economic value, but only potential value (Chesbrough, 2007). There are two main reasons for this. One is that new technologies and inventions, particularly general-purpose technologies coming from research laboratories with low levels of technology readiness, look like prototypical artifacts that work within the boundaries of a laboratory with only a few abstract conjectures about what to do with them (Chesbrough & Tucci, 2020). The literature on technology transfer and innovation is rich in evidence that inventions may need long times to diffuse in markets (Rogers, 1995), and one of the reasons is that, to diffuse in markets, they require complementary knowledge about application domains, industrialization processes, and the like.

A second, related aspect is that, even when the technology readiness level is higher (the technology is somehow mature and closer to an application), there are still significant barriers to its diffusion, particularly when diffusion relies on market mechanisms (as opposed to governmental ones, such as subsidies, other types of incentives, or regulation). One of the main barriers is finding a customer. And customers do not just want products, they want satisfaction of their needs (Teece, 2010).

Overall, at the beginning, innovative technologies and inventions, whether at high or low levels of maturity, look like “solutions in search of a problem” that are distant from concrete application domains. The challenge, from an innovation standpoint, is to close the gap between the invention and its diffusion in society (a necessary condition for it to qualify as innovation) by finding one or more applications of the technology that could help someone “get an important job done” at an appropriate cost—a cost that would be consistent with a customer’s willingness to pay and also with making a profit. This is a considerable challenge; it involves developing a customer or, even, an entire market (Blank, 2013) by understanding customers’ needs and, on the basis of that, designing a value proposition, establishing mechanisms for collecting revenues, organizing production, including setting partnerships with third parties, or deciding which activities to internalize and which to outsource. It also requires establishing barriers to imitation and, overall, the ability to capture value vis-à-vis other value-claiming parties, such as owners of complementary assets (Teece, 1986). In short, it requires designing and validating an effective business model.

Thus, the first role of the business model is to support the diffusion and adoption of new technologies and scientific discoveries by bridging them with the realization of economic output in markets. As noted, this is a considerable endeavor that relies on a complex process entailing the search for, and recombination of, complementary knowledge and capabilities (Lanzolla et al., 2020).

The role of the business model as a vehicle for innovation is not limited to the gap between inventions and innovation or, to put it differently, to the “distance” between research laboratories and markets. It also embraces the commercialization of innovative ideas and offerings that can reinvent value to the customer. An example that helps clarify this point, while also stressing the distinction between NPD and the design of new business models, is that of Barilla, the Italian family-owned multinational company, which is the world’s largest pasta producer, producing and selling pasta in more than 120 shapes and sizes. In 2017, Barilla introduced to the market the Legumotti—a new type of pasta made with flour from legumes. Legumotti represented a successful case of innovation that did not involve business models (its commercial exploitation happened within the boundaries of the traditional Barilla business model, based on developing and selling pasta to consumers, mostly via grocery stores and grocery chains). Rather, it involved the development of a new product only. Almost at the same time, a team in the company developed the idea of Cucina Barilla. Largely inspired by the model successfully deployed by Nestlé with Nespresso—an elegantly designed machine-and-pod coffee concept for making espresso—Cucina Barilla is based on a new oven, made by partner company Whirlpool, and a range of kits designed and produced by Barilla. The kits contain the ingredients for cooking many dishes, such as pasta, risotto, bread, pizza, focaccia, and cake. Each kit has an RFID barcode: after the sensor scans the label, the oven recognizes the kit and automatically sets the cooking procedure and timing. Kits are purchased online via a subscription model. Cucina Barilla offers tasty, extremely easy to cook dishes. Unlike Legumotti, however, Cucina Barilla challenges the traditional business model of Barilla. For example, sales channels are different (online sales versus grocery chains), revenue streams are different (subscription model versus pay per product), and the product itself is very different (oven produced by third parties with kits produced by Barilla versus pasta products produced and sold by the company). Realizing the new offering requires going beyond the development of a new product—as done with Legumotti—and designing, validating, and running a business model that is different from the one dominant business model of the company.

In summary, one of the fundamental roles of business models in innovation is to catalyze the diffusion of innovation by allowing the connection of technologies, ideas, and products or services to markets or domains of application. Innovative technologies, particularly those coming from research laboratories, are often solutions is search of a problem, with only latent economic value; realizing that value requires finding a viable business model. New products and services can often be bridged to markets relying on established and/or existing business models, as in the case of Barilla’s Legumotti. In other cases, however, even ideas about products and services, not just novel technologies, require designing novel business models, as in the case of Cucina Barilla. In this sense, it is possible to understand another aspect of business models, which is their role in delivering offerings that “reinvent value” to the customer, and that often involves designing novel business models.

Business Models as a Subject of Innovation: The BMI Process

As mentioned earlier, BMI could refer to both a process and the outcome of that process, such as performance, value creation for different stakeholder groups, innovation, disruption, and the like. Due to space limitations, the emphasis here is on the BMI process, which has the highest potential for aiding understand innovation and business models. Considerations related to BMI as an outcome are only introduced opportunistically.

To understand business models as a subject of innovation, it is important to distinguish between innovating an existing business model (BMR) versus designing a new one when none is in place (BMD), a phenomenon sometimes referred to as validation (Blank, 2013). The fact that BMD refers to situations in which "no business model is in place" may lead one to assume that BMD is fundamentally about BMI in newly formed organizations and early-stage startups (i.e., temporary organizations operating in conditions of considerable uncertainty and searching for a viable business model). This is only partly correct. It is true that BMD involves operating in conditions of considerable uncertainty, and it is also true that this poses challenges to existing organizations, which are generally designed to manage their existing business efficiently and not to explore radically new ones (McGrath & MacMillan, 1995).

However, this does not mean that BMD is limited to startups. Even incumbent firms engage—perhaps episodically—in the design of new business models while simultaneously managing their main business and the related business model. Examples include Nestlé and the introduction of Nespresso's business model or Iberia and the introduction of the Clickair low-cost model (in order to compete with low-cost carrier Vueling) in the first decade of the 2000s. In a way, the previously mentioned Barilla case, which involved innovation by means of the new product Legumotti versus innovation by means of the new product and business model Cucina Barilla, is an example.

This simple consideration, that incumbents also engage in BMD, has an important implication for the understanding of innovation and business models. Incumbent firms can contemplate innovation outside of the traditional industry boundaries, but doing so may require designing novel business models. Sometimes referred to as blue ocean strategy, this is a type of innovation that involves facing considerable uncertainty and also thinking outside the boundaries of the existing business model. Thus, while newly formed organizations and early-stage startups that do not have a business model engage in BMD, existing firms operating a business model can engage both in BMR and BMD.

Business Model Design

From a theoretical standpoint, it is critical to understand that the design of novel business models, whether they are new to the world, new to the industry, or simply new to the focal firm or focal entrepreneur, is an entrepreneurial act involving considerable a priori uncertainty (McGrath, 1999; Venkataraman, 1997). From a decision-making standpoint, to face uncertainty means to be in a situation characterized by a relatively high number of assumptions, or hypotheses and conjectures, and relatively few facts.

There are several reasons why the design of novel business models involves considerable uncertainty. On the one hand, because BMD is often involved in entrepreneurial endeavors, such as high-tech and science entrepreneurship, blue ocean strategies, and the creation of new markets or simply the exploitation of more radical growth opportunities, it typically occurs in a condition of lack of knowledge. Decision makers simply do not know many things, largely because what they are working on is new. In addition, as noted by Snihur and Wiklund (2019), even when BMD happens in an existing firm, there is still considerable uncertainty. In fact, the existing knowledge in the firm, such as specialized technical or tacit business knowledge related to the existing business, is often of limited usefulness, because BMI requires general knowledge.

On the other hand, even if a decision maker has considerable knowledge, a situation generally not encountered in innovation and entrepreneurship, it is still difficult to predict how well a business model will work in the real world for a variety of reasons, including complexity (Massa et al., 2018), changing environmental conditions (Teece, 2010), changing customer or user tastes (Teece, 2010), technological progress (Baden-Fuller & Haefliger, 2013; Bohnsack et al., 2014), and so on.

Situations like these differ from situations involving decision-making in known industries, markets, or environments. Understanding the difference between decision-making in the presence of uncertainty and decision-making in the presence of realizable knowledge is critical to understanding the nature of BMD. When a firm introduces, for example, some form of incremental product innovation, such as when Volkswagen introduced the parking assistant in many of its cars, it faces uncertainty related, for example, to how customers will interact with the new feature and the possibility for unintended and undesirable consequences of this interaction, but it is largely operating within the boundaries of a relatively well-known environment. The company is still selling a known product, a car, through known sales channels, to relatively known customer segments, and the like. And the company has considerable reliable knowledge about the environment it is operating in, about what works, and about what does not.

However, entrepreneurs, particularly those working on radically new ideas and offerings for which markets do not exist yet, typically are not in such a situation. Similarly, the situation in which a company or an organization is working on growth opportunities outside of the boundaries of its business model, or facing exogenous tectonic changes in its environment, is one in which uncertainty is very high and the decision maker is unlikely to have good, reliable information about the environment.

The field of entrepreneurship has studied for many years the situation in which new businesses are created in highly uncertain environments with shifting and uncertain resources and in the absence of knowledge, and the recommended approach in the literature is to take a more “discovery-driven” or “lean” approach, as is explained next. This approach is also highly related to BMD and is identified explicitly in the lean startup literature as the link between entrepreneurship and BMD (Bocken & Snihur, 2019; Chesbrough & Tucci, 2020).

Essentially, discovery-driven planning concerns how an entrepreneur or intrapreneur organizes his or her time and prioritizes the tasks and milestones to make the startup successful (McGrath & MacMillan, 1995). Rather than setting up product development milestones, such as “first prototype,” “market launch,” and so forth, entrepreneurs are

advised to develop critical assumptions about their businesses. If these assumptions were to be proven wrong, it would be extremely detrimental, if not fatal, to the venture. Then milestone planning would be driven by the discovery and testing of these critical assumptions rather than product development milestones. McGrath and MacMillan (1995) were thus among the first scholars to think about a more flexible and reactive approach to entrepreneurship based on experimentation and learning rather than executing an all-encompassing plan:

> If “being wrong” is the normal state of affairs, then the key issue is not engaging in accurate lengthy decision-making processes based on attempt to avoid failure or to achieve predefined goals (as with standard planning), but, as McGrath has put it, “managing the cost of failure by limiting exposure to the downside while preserving access to attractive opportunities and maximizing gains.”
>
> (McGrath, 1999, p. 16)

McGrath (2010) explicitly extended the idea of discovery-driven planning to BMD. Her first point is that, as mentioned above, BMD cannot easily be anticipated in advance; therefore, experimentation is called for. Second, the ways in which entrepreneurs and executives analyze and evaluate new opportunities involving the design of new business models needs to be more like a real-options approach that values flexibility rather than a net-present-value approach that ignores flexibility. For that reason, investments in new business models need to be modest while the experimentation and discovery are ongoing. In addition to the idea of experimentation, there can also be an element of “bricolage,” stumbling upon new business models, or adapting a new solution based on the (limited) resources at hand. This process is often called effectuation, and it has also been applied to business models (Reymen et al., 2017; Sitoh et al., 2014) and has been found to be useful in the very early stages of developing new value propositions.

The thinking outlined above was developed further and popularized by the lean startup approach, pioneered by Ries (2011) and Blank (2013), with the idea that a startup company is an organization searching for a scalable business model in the midst of uncertainty. As in all prior “lean” waves in the management literature (e.g., lean manufacturing, lean product development, lean leadership), lean startup is intended to accomplish a goal (in this case, a scalable business model) with a minimum of “waste,” which in this particular case can be defined as spending a lot of money on producing a product or service that no one wants to buy, or investing resources in capital goods that due to scale are somewhat inflexible and difficult to change later when conditions change. In that regard, it is highly consistent with the approach outlined by McGrath (2010).

What Ries and especially Blank added to the conversation was the approach that an entrepreneur might experiment; in other words, the idea of customer development to identify a viable business model. In the lean startup parlance, a venture should make a “minimum viable product” as quickly as possible and then “get out of the building” to try and sell it. If nobody wants to buy the product (or service), the entrepreneur is advised to seek feedback and then pivot (change the features or the business model, or both; see Kirtley & O’Mahony, 2020) and keep doing that until someone actually pays for the product or service. At that point, the business model could be scaled up and further tested, until such time that the

product/service or business model can be fully scaled up. This approach is considered to be lean because the early business model ideas eventually change as the entrepreneur learns. An empirical study by Ghezzi and Cavallo (2020) suggested that experimenting and testing the overall business model, rather than products and services only, is a core step of BMI in early-stage digital startups. Based on this and other findings, they offer a framework connecting BMI with lean and agile development as well as strategic agility.

In summary, the design of novel business models (BMD) involves a process that, at the core, is discovery-driven, emphasizing the importance of learning and experimentation. New business models are not planned. Rather, they progressively emerge as firms and entrepreneurs experiment, learn, and pivot until achieving validation. Validation means that ideas about a new business model have been proven to work in the real world. And whether a new idea involving a new business model will work cannot generally be forecasted or anticipated with any reliability, for the reasons explained above. This fact poses significant challenges, particularly to incumbent firms, which are not generally structured to validate ideas but work to find valid ideas.

BMR in Incumbent Firms

Recall that BMR is defined as the activity of innovating, in the sense of changing, an existing business model. BMR constitutes a priority for managers across industries (Amit & Zott, 2012), but it is a notoriously difficult innovation activity (see Johnson et al., 2008) that, from a process standpoint, differs considerably from BMD in that it involves managing the conflicts related to the existence of a prior business model. This situation is typically not encountered in newly formed organizations.[3] In this sense, the phenomenon behind BMR is complex and multifaceted; it comprises aspects like organizational inertia, collective sense-making, structural and cognitive barriers, managerial interpretation, organizational learning, and many others—both scientific, as in “theory-driven” or “theory-oriented,” and more practice-oriented—that have variously been described by the literature under the umbrella term of “organizational change.” All these aspects influence, and may even constrain, the ability to innovate existing business models.

According to Chesbrough (2010), it is possible to distinguish two broad categories of conflicts related to two types of barriers to BMR: structural and cognitive barriers. To understand the nature of these conflicts, as well as the nature of BMR, it is important to establish some premises. The first premise is that there is an organization (and an organizational model) behind an existing business model (cf. Chesbrough & Rosenbloom, 2002; Massa & Tucci, 2014). This premise may look trivial, but it is important to acknowledge the fact explicitly, particularly considering that aspects related to organizing, such as organization design or organizational change, are often absent in early business model research and/or relatively vague in later business model research.

The second premise is that managers in existing organizations make sense of their (and others’) business model by creating, over time, cognitive representations of it (them). This premise has its theoretical foundation in the notions of organizations as interpretation systems (see Daft & Weick, 1984) as well as in theories concerning cognition and industry belief systems (see Porac et al., 2002; Spender, 1989). As briefly mentioned in the section “Different Interpretations of the Nature and Manifestation of the Business Model,” it means

that business models are manifested not only in how firms do business but also in management's collective interpretation of how their firm (or other firms) does, or even should do, business. This aspect has important implications for BMR.

The third premise is that, over time, managers make choices and execute them by implementing specific activities (or entire bundles of activities). Thus, at any given point in time, and independently of the extent to which choices and relative activities were planned versus emergent, a firm's business model is manifested in a configuration of (interdependent) activities that a firm is running. This has logical importance: namely, that innovating a business model means, at the core, innovating the system of activities that has been adopted. However, this is a challenging task, given the presence of both cognitive and structural barriers, which create path-dependence and inertia.

Cognitive Manifestations of the Business Model: Dealing With Cognitive Barriers in BMR

Managers in existing organizations make sense of their (and others') business model by creating, over time, cognitive representations of it (them). Martins, Rindova, and Greenbaum (2015) provided a comprehensive definition of business models as cognitive representations and conceptualized them as "cognitive structures that consist of concepts and relations among them that organize managerial understanding about the design of activities and exchanges that reflect the critical interdependencies and value-creation relations in their firms' exchange networks" (p. 105). Thus, understood as cognitive representations, business models are schemata that organize managerial understanding of the design of firms' value-creating activity systems.

Another interpretation, conceptually similar but not necessarily pointing to the activity-system perspective, is that of a cognitive schema as "a theory of the business" (Drucker, 1994), a prevailing "wisdom" within the organization. This may include assumptions about markets, the state of technology and its dynamics, how to identify and reach customers, what customers want, what a company gets paid for, and the like. These assumptions or theories act as heuristics that speed decision-making (Kahneman, 2011) and assign meaning to data and information, including equivocal findings, a precondition for deciding and acting. They operate as focusing devices, making decision-making by boundedly rational decision makers facing conditions of imperfect information and cognitive complexity more efficient (see Bettis & Prahalad, 1995; Doz & Kosonen, 2010).

However, the heuristics risk becoming sources of inertia, opposing innovation and change. They represent a "dominant logic" (Bettis & Prahalad, 1995) that may prevent the identification of opportunities falling outside what is believed to be important, a phenomenon defined as a dominant logic trap (Bettis & Prahalad, 1995). Schemata and rules behind a dominant logic tend to be self-reinforcing because the simplification they allow occurs automatically. Thus, a dominant logic is largely unquestioned and is taken for granted. For this reason, it can easily engender myopic thinking (Levitt, 2004).

Thus, a first important aspect to contemplate in BMR (but also in cases in which existing incumbent firms engage in BMD) is the existence of cognitive barriers related to cognitive representations of business models.[4] One way to avoid the risks related to identity and

dominant logic traps is to neutralize the relative cognitive barriers by mean of visual representations (or other types of formal explicit representations) of the existing business model. This leads to the possibility of explicitly analyzing and even challenging otherwise taken-for-granted assumptions and theories. These challenges can take the form of posing "what ifs" or validity questions. In this way, a visual representation would contribute to avoiding dominant logic traps.

Despite this general intuition, which we consider reasonable, we know relatively little about the effectiveness of the use of visual representations to overcome cognitive barriers to BMR, and this is largely due to the fact that rigorous studies aimed at testing the cognitive value of different visual representation and maps of the business model are largely missing (Massa & Hacklin, 2020; Tausher & Abdelkafi, 2017).

BMR as Changing Activities

Dealing with cognitive barriers is only one aspect of BMR. The second important aspect to consider is structural barriers. The existing business model constrains managers' ability to innovate not only by blinding them to novel opportunities to innovate but also by limiting their ability to act upon opportunities for change when they do see them (Pisano, 2006). How could an existing business model constrain action in addition to cognition?

A general answer is that opportunities for innovating a business model may generate conflicts with the current configuration of assets, thus creating inertia and increasing the challenges related to changing (Chesbrough, 2010). A more fine-grained answer—one that, to the best of our knowledge, has not been sufficiently discussed yet—is that structural impediments and challenges with the existing configuration of assets are present because of interdependencies among the different parts of a business model. What does that mean?

One way to answer this question is to point to the activity-system perspective on business models (Casadesus-Masanell & Ricart, 2010; Zott & Amit, 2010) and to understand the link between managerial choices, activities, and configurations. Managers manage their organizations by making concrete choices about how the organization operates (Alt & Zimmermann, 2001). For example, choices regarding contracts, location of facilities, assets employed, extent of vertical integration, and sales and marketing initiatives are, for the most part, choices made by management (Casadesus-Masanell & Ricart, 2010). To realize these strategic choices, the organization implements specific activities. In this sense, choices and activities could be seen as two sides of the same coin (Zott & Amit, 2010): existing activities imply committed choices (Ghemawatt, 1991) and vice versa. Thus, an existing business model could be viewed as the result of many choices that management has made (intended strategy) and as a manifestation of their implementation (realized strategy), including how choices have been implemented in activities that would somehow fit with the system of activities already in place. To put it slightly differently, at any given point in time, an existing business model is manifested in the specific configuration of interdependent activities that a firm is running.

The first implication is that existing business models change when activities are changed. According to Amit and Zott (2012), there are three ways in which existing activities can be changed: (a) by changing the "content" of an activity (e.g., by adding novel activities, as through forward or backward integration); (b) by changing the "structure" linking activities;

and (c) by innovating the “governance” of an activity (e.g., by changing one or more parties that perform any of the activities). In short, the locus of innovation and one of the fundamental units of analysis in the process subtending BMR are the single activities (or bundles of activities).

The second implication is that a single activity cannot be changed without making changes to other activities (Amit & Zott, 2012). Because activities are interdependent, changing some implies necessary adjustments—whether radical or more incremental—to the rest of the business model. This suggests a view of structural barriers in BMR that points to the difficulties of moving parts within a tightly coupled structure. Over time, certain activities have been retained (while others have been abandoned) because they proved to work in combination with the other activities that are carried out, independently of whether the ultimate criteria for establishing what works is efficiency in a market, the preservation of interests from powerful coalitions, or other possible criteria related to the different goals of organizations as complex systems (Massa et al., 2018). This suggests that, at any given point in time, a business model can be seen not only as a system of activities but also as a configuration that has evolved toward some form of internal consistency and fit (see Siggelkow, 2002).

Because of this, managers may fail to act on identified opportunities when seizing them would require changing activities in a way that would alter consistency within the configuration as a whole. Strategic choices become imprinted and may be enduring (Snihur & Zott, 2020). As noted by Massa and Hackling (2020), things may get even more complicated in that there are several different ways in which activities are interdependent. For example, activities could be interdependent by virtue of complementarities, when doing more of one activity would increase the value of another activity. Or they could be interdependent in terms of information processing, knowledge management, and learning, when altering one activity would disrupt the relative processes and routines within the entire business model. Or they could be interdependent from the point of view of maintaining equilibrium within the organization as a coalition and preserving the interests of powerful parties. Because of the multidimensional nature of interdependencies, two activities that are not interdependent on one dimension (e.g., complementarity) could still be interdependent on another dimension (e.g., information processing). It follows, as a corollary, that neutralization of the structural constraints related to one type of interdependence is not sufficient and requires an understanding of the possibilities for conflicts with other activities from several perspectives simultaneously.

Finally, the third implication of this perspective is that one could, at least in theory, assess the degree of centrality versus peripheral status of activities within a configuration by virtue of their linkages. The idea that activities are interdependent does not imply that they are all interdependent to the same degree. Activities that are more connected with the rest of the configuration by virtue of a higher number of connections and of structurally stronger connections (e.g., connections with other activities that are themselves highly connected with other activities) could be said to have a higher degree of centrality. Changing them requires bigger adjustments to the rest of the configuration, and the risks of altering consistency within the configuration are stronger. Activities with fewer connections are more peripheral to the configuration, and altering them requires fewer adjustments to the rest of the configuration. This suggests that, ceteris paribus, changing peripheral activities involves fewer structural barriers than changing highly central activities in a business model.

In summary, BMR occurs because of changes in existing activities. Activities can be changed in three ways, by substituting them, by changing how they are connected, and by changing who performs them. This is a relatively complex exercise, in that activities are interdependent. Changing one or more activities involves necessary adjustments in the rest of the configuration, and this can create structural impediments.

Discussion and Conclusion

This broad assessment of innovation and business models concludes with a synthesis and organization of the main ideas and insights offered. To start with, business models are relevant to innovation in at least two ways. First, business models can act as vehicles for the diffusion of innovation by allowing the bridging of inventions, innovative technologies, and ideas to markets and application domains (see figure 2). Therefore, business models speak to the phenomenon of technology transfer from the point of view of both academic entrepreneurship and corporate innovation.

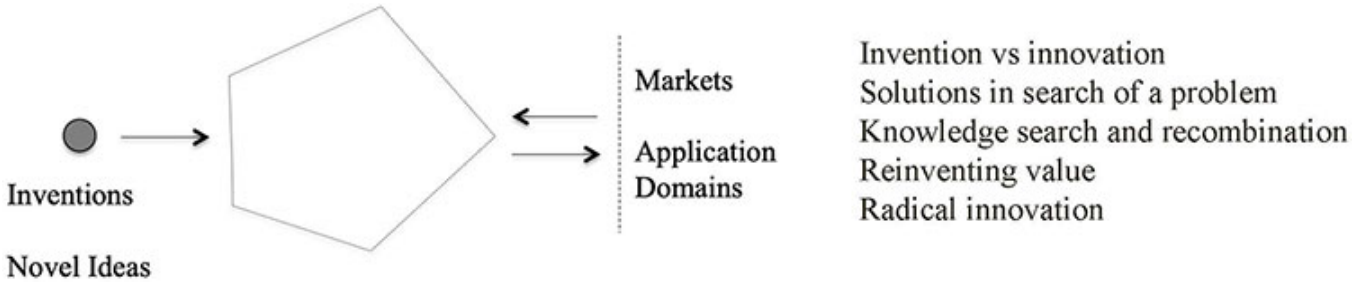

Figure 2. The business model as the “bridge” between innovative ideas or inventions, such as scientific discoveries, and a market.

Second, business models are a subject of innovation that can become a source of innovation. For example, offerings that reinvent value to the customer often involve novel business models. Relatedly, BMI refers to both a process (i.e., the dynamics involved in innovating business models) and the output of that process.

To discuss BMI as a process, it is appropriate to distinguish between BMR, the reconfiguration of an existing business model, and BMD, the design of new business models from scratch. This distinction identifies three possible instances: namely, general BMR in incumbent firms, BMD in incumbent firms, and BMD in newly formed organizations and startups. These are arguably different phenomena involving different processes as well as different moderators. For example, while BMR is characterized by the existence of cognitive barriers related to implicit mental models and structural barriers related to interdependencies within an existing business model, BMD is characterized by different attributes, such as considerable uncertainty, the need for knowledge search and recombination, and, in general, liability of newness.

Figure 3 offers an overview of BMR and BMD in incumbent firms, as well as BMD in newly formed organizations. It emphasizes BMR as an evolutionary process occurring because of changes in activities and adjustments within an existing configuration. It also emphasizes that BMD, both in incumbent firms and in newly formed organizations, is a different process that

involves facing considerable uncertainty, thus putting a premium on discovery-driven approaches that emphasize experimentation and learning. BMD in incumbent firms involves facing the challenges related to managing two business models simultaneously. Furthermore, BMD in newly formed organizations, particularly in the case of technology transfer and commercialization of novel ideas and pieces of knowledge that are “distant” from possible application domains and markets, is a process involving a considerable degree of knowledge search and recombination.

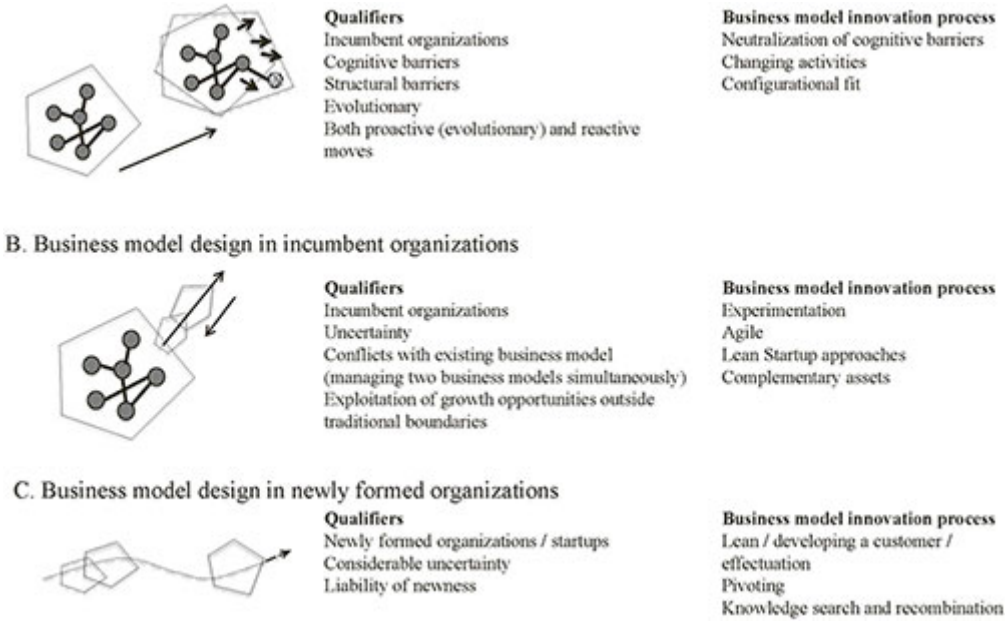

Figure 3. Three possible different manifestations of the BMI process (BM as a subject of innovation): BMR in incumbent organizations (emphasis on the activity system and on changing activites), BMD in incumbent organizations (emphasis on agile and lean startup approaches and complementary assests) and BMD in newly formed organizations (emphasis on knowledge search and recombination in addition to discovery driven approaches).

To conclude, the topic of business models and innovation is vast, and there is much potential for studying this topic further. The ideas discussed here represent a high-level orientation to a relatively young but evolving line of inquiry.

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Notes

1. For terminology used, there is also a distinction made between dimensions of innovation (what is innovated) and types of innovation (how or how much it is innovated).

2. As Teece (2010) noted, “The absence of consideration of business models in economic theory [and in theories of management rooted in the same paradigmatic view] probably stems from the ubiquity of theoretical constructs that have markets solving the problems that in the real world business models are created to solve” (p. 175).

3. Design and reconfiguration are not fully distinct activities, in that reconfiguration of existing business models includes also performing activities that could be considered as falling in the realm of creating, implementing, and validating a new business model, such as ideation or testing and experimentation. The focus in this section is on the challenges that manifest because of the prior existence of a business model.

4. Cognitive representations may be developed, at least in theory, at varying degrees of granularity. For example, cognitive representations may manifest as schemata organizing the managerial understanding of a firm's activity system and exchanges, somehow a relatively granular and detailed manifestation (Martins, Rindova, & Greenbaum, 2015). Alternatively, cognitive representations of the business model can occur at the level of heuristics, reflecting a broader theory of the business, as suggested by Drucker (1994), even if without explicit mention of the term "business model." At even higher levels of aggregation, cognitive representations could manifest in linguistic schemata resembling single business model patterns, such as when management at Polaroid—the successful chemical-based photography firm that eventually failed in the face of digital photography—described their business model by pointing to the logic behind the razor and blade pattern: "cheap cameras, expensive film" (Tripsas & Gavetti, 2000). This suggests the possibility of implicit levels of aggregation for mental schemata, heuristics, and assumptions behind business models as mental models, perhaps increasing the complexity of studying them (cf. Massa et al., 2018).

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