

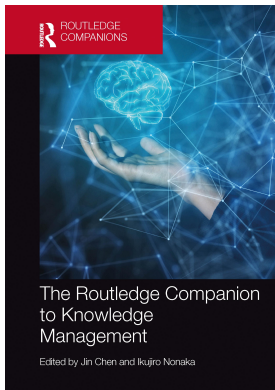
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Access details: *subscription number*

Publisher: *Routledge*

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The Routledge Companion to Knowledge Management

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Toward a Knowledge-Based View of a Business Model

Publication details

<https://test.routledgehandbooks.com/doi/10.4324/9781003112150-23>

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Published online on: 23 May 2022

How to cite :- Guannan Qu, Luyao Wang, Jin Chen. 23 May 2022, *Toward a Knowledge-Based View of a Business Model from: The Routledge Companion to Knowledge Management* Routledge
Accessed on: 31 Mar 2023

<https://test.routledgehandbooks.com/doi/10.4324/9781003112150-23>

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TOWARD A KNOWLEDGE-BASED VIEW OF A BUSINESS MODEL

A Multi-Level Framework and Dynamic Perspective

Guannan Qu, Luyao Wang and Jin Chen

Introduction

As a firm's strategy means emphasizing value creation and conversion, business models (BMs) have gained widespread attention both in academia and practice in recent years (Chesbrough & Rosenbloom, 2002; Morris et al., 2005; Johnson et al., 2008; Björkdahl, 2009; Demil & Lecocq, 2010; Teece, 2010; Zott et al., 2011; Casadesus-Masanell & Zhu, 2013; Wirtz et al., 2016).

In 1957, the term "*business model*" was first introduced to academia by Bellman et al. (1957) to describe a firm's business behaviors including "*multi-stage and multi-person*." Since then, the concept of a BM began to be used in the field of administrative science as a management tool to analyze business operations and competition (Konczal, 1975). The academic interpretation of the concept of a BM has also evolved over time. In the early literature, a BM was generally described as a mode of a firm's operative activities. In recent years, with the development of information technology and the advent of the "*digital era*," e-business has begun to rise, and the research on BMs has ushered in new situations, showing a more vigorous trend. However, although BMs have been studied for several decades, there are still great discrepancies in scholars' interpretations of the nature, structure, and dynamics of BMs (Chen et al., 2021). Neither have an underlying logic and an integrated framework based on the BM been well established (Zott et al., 2011). This is primarily due to the lack of clear ontological comprehension of this concept (Wirtz et al., 2016).

To fill up this gap, Chen et al. (2021) introduced a knowledge-based view (KBV) to re-explore the nature and structure of a BM and linked them to a firm's competitive advantages. In this part, we follow this stream to propose a multi-level framework of a BM and discuss its design and diffusion from the perspective of knowledge management (KM).

Definitions: BM as a Structured Knowledge Cluster

Why from KBV

Knowledge is often considered to be a significant asset, even more important than other resources (Quinn, 1992; Druker, 1993; Grant, 1996), for a firm to achieve managerial success

and gain competitive advantages through organizational learning (Lam, 2000), innovation (Lam, 2000), and product development (Kreiner, 2002), and so forth. However, when it comes to the research of business-related activities in the design, imitation, and reconfiguration of a BM, fewer perspectives have been taken from KM or KBV. In other words, existing researches have taken BM and knowledge as two separate parts and concern mainly about the role of knowledge in realizing the value creation function of the BM (Wu et al., 2013). Few studies have focused on the knowledge properties of the BM itself and discussed in depth the underlying implications of its properties (Chen et al., 2021).

In fact, a BM itself could be taken as an aggregation of knowledge. The notion of BM was first brought into the administrative science by Bellman et al. (1957) and was defined by Konczal (1975) as a “management tool” containing management-related guidance and knowledge. Then, the rising focus of e-business is helping drive a boom in BM research from different angles (see Table 20.1). Afuah and Tucci (2001) and Chesbrough and Rosenbloom (2002) see it as a “method” of doing business. Magretta (2002) regarded it as the “stories that explain how enterprises work.” Morris et al. (2005) viewed it as the “representation of how an interrelated set of decision variables...are addressed to create sustainable competitive advantage[s].” Casadesus-Masanell and Ricart (2010) defined it as “a reflection of the firm’s realized strategy” and (Teece, 2010) proposed that a BM is “the logic, the data, and other evidence that support a value proposition for the customer.” Although difference remains in the above definitions of the BM, it is not difficult to discover that the above interpretations (such as “story,” “reflection,” “representation,” and “logic”) have become commonplace that a BM could be understood, in nature, as a kind of knowledge in conducting firm’s value creation process.

What Is BM from KBV?

By introducing a KBV, we would like to propose a nature-oriented BM definition. As shown in Table 20.1, scholars have tried to interpret a BM and explore its connotation and nature from different aspects. Representative definitions such as a logic (Chesbrough & Rosenbloom, 2002; Magretta, 2002; Teece, 2010), a statement (Stewart & Zhao, 2000), a method (Afuah & Tucci, 2001), a conceptual tool (Osterwalder, 2004; Osterwalder et al., 2005), a hypothesis (Teece, 2007), an abstraction (Seddon et al., 2004), or a representation (Morris et al., 2005) show that all these understandings of the nature of a BM, in some ways, are related and converge toward the notion of knowledge. Moreover, definitions such as “an architecture” (Chesbrough & Rosenbloom, 2002; Teece, 2010), “a framework” (Afuah, 2004), “a structural template” (Amit & Zott, 2001), “a pattern” (Brousseau & Penard, 2007), or “a system” (Zott & Amit, 2010; Wirtz et al., 2016) imply that BM is the aggregation of knowledge in a specific structure.

From the perspective of KBV, the BM could be conceptualized as:

a structured knowledge cluster of how a firm conducts business, it depicts how a firm combines business-related components (factors, resources, institutional conditions, etc.) to form business themes, and how it coordinated these themes (core strategy, sense-making processes, representative sub-models, etc.) to create and deliver value.

(Chen et al., 2021, p. 28)

Properties of BM from KBV

In the previous section, we proposed that a BM could be understood as a cluster of knowledge. Based on this view, it is necessary to discuss further the composition and characteristics

Table 20.1 Representative definitions of business model (from Chen et al. 2021)

<i>Author(s)</i>	<i>Keywords</i>	<i>Year</i>	<i>Definition</i>
Konczał	A management tool	1957	BM is a management tool for conducting business, and “managerial guidance and knowledge is important throughout model construction and implementation” (p. 12).
Stewart & Zhao	Statement	2000	BM is “a statement of how a firm will make money and sustain its profit stream over time” (p. 290).
Afuah & Tucci	Method	2001	BM is “the method by which a firm builds and uses its resources to offer its customers better value than its competitors and to make money doing so” (Ch. 1, p. 4).
Chesbrough & Rosenbloom	Logic	2002	BM is “the heuristic logic that connects technical potential with the realization of economic value” (p. 529).
Osterwalder	Logic	2004	BM “contains a set of elements and their relationships and allows expressing a company’s logic of earning money” (p.15).
Morris et al.	Representation	2005	BM is “a concise representation of how an interrelated set of decision variables in the areas of venture strategy, architecture, and economics are addressed to create sustainable competitive advantage in defined markets” (p. 727).
Casadesus-Masanell & Zhu	A set of choices	2010	“The business model is a set of committed choices that lays the groundwork for the competitive interactions that will occur between the incumbent and the ad sponsored entrant down the line” (p. 3); “a reflection of its [firm’s] realized strategy” (p. 205).
Demil & Lecocq	Articulation	2010	“The concept refers to the description of the articulation between different business model components or ‘building blocks’ to produce a proposition that can generate value for consumers and thus for the organization” (p. 227).
Teece	Logic	2010	“A business model articulates the logic, the data and other evidence that support a value proposition for the customer, and a viable structure of revenues and costs for the enterprise delivering that value” (p. 179).
Johnson, et al	Integration of elements	2008	BM is an integration of business-related elements that “taken together, create and deliver value” (p. 52).
Zott & Amit	Activity system	2010	BM is “a system of interdependent activities” (p. 216). “An activity system is thus a set of interdependent organizational activities centered on a focal firm, including those conducted by the focal firm, its partners, vendors or customers, etc...” (p. 217).
Doz & Kosonen	Representation	2010	“...for the firm’s management, business models also function as a subjective representation of these mechanisms.”
Martins et al.	Activity system	2015	“The designed system of activities through which a firm creates and captures value” (p. 99).
Wirtz et al.	Representation of activity	2016	“A business model is a simplified and aggregated representation of the relevant activities of a company. It describes how marketable information, products and/or services are generated by means of a company’s value-added component” (p. 41).

of the knowledge cluster. First, as one of the influential discussions from KBV, the classical division of explicit knowledge and implicit knowledge is a helpful way to understand the BM's composition and properties. From this point of view, we see the BM as a structured knowledge cluster that contains not only explicit parts such as organizational activity patterns (Brousseau & Penard, 2007), customer value propositions (Afuah & Tucci, 2001; Weill & Vitale, 2001; Chesbrough & Rosenbloom, 2002), a revenue model (Cantrell & Linder, 2000; Petrovic et al., 2001), and key resources and processes (Johnson et al., 2008), but also implicit parts such as practical skills (Hau & Evangelista, 2007), mental maps and schemas (Leonard & Sensiper, 1998), emerging meanings (Strombach, 1986), and sense-making processes (Malhotra, 2000). And the construction of a BM can be measured by the proportion of the implicit (or explicit) component.

Besides, despite the coexistence of both explicit and implicit parts in a BM, we propose that BM researchers and practitioners pay more attention to the implicit parts since it could help us better understand the essence of the BM. Unlike the explicit parts such as the formed operating systems and models in a BM that can be recorded and transferred with ease, the un-verbalized (un-coded) or even non-verbalizable (uncodified) implicit part of the BM constitutes a more secure portion of knowledge.

Implicit parts are hard to be immediately disseminated and imitated, and cause difficulty (Hall & Andriani, 2003) for competitors to copy the BM that is beginning to bear fruit. Thus, the implicit parts of the BM are essential in terms of creating the incumbent's competitive advantage.

The properties of ambiguity and high contextualization of implicit components of a BM not only act in a natural "imitation defense" to help firms gain competitive advantage, but also play a critical role in our understanding of the dynamic development of a BM. The BM was not built in a day. It is a long journey with a constant struggle, learn, and trial and error that facilitate to the emergence, formation, and development of a BM. "It is often the case that the right business model may not be apparent up front, and learning and adjustments will be necessary" (Teece, 2010, p. 187). And the implicit parts are practically useful to promote the dynamic learning and adjustment process for the implicit knowledge is often born and embedded in a social context and is conducive for individuals or teams to comprehend, adapt, and cope with the concrete situations (Collins, 2001) and rapid changes in the development of a BM.

The KBV tells us that a BM is more than just a "formula" consisting of interdependent components; it also contains the tacit, underlying logic, and wisdom of implementing and realizing the value capture and creation and putting the designed "scheme" into effect. From this perspective, the implicit part is not only the "soil" produced by a BM from practice, but also a bridge to link it with practice. A firm's core competency relies on the implicit "know-how" to put "know-what" into practice (Brockmann & Anthony, 1998; Brown & Duguid, 1998) and a BM cannot survive without using it. We believe the adoption of a KBV is conducive to a better understanding of the BM's nature, a balanced perspective on its explicit and implicit parts, a holistic view on its structure, and a more comprehensive analysis of its dynamics. In the next section, we systematically discuss the architecture of the knowledge cluster by proposing a three-level model which includes its basic components, sub-cluster themes, and the integrated cluster.

Architecture: A Multi-Level Framework of BM

Based on the previous discussion on the definition and properties of the BM, a multi-level framework is proposed (in this section) to explore its architecture. In essence, a BM is about

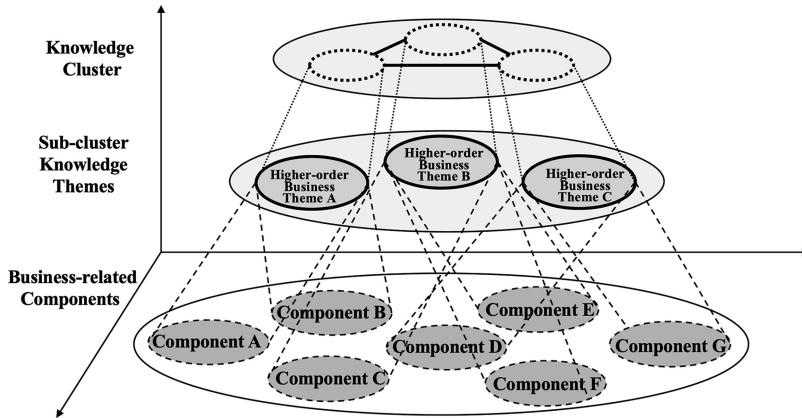


Figure 20.1 The Architecture of a Business Model

how firms do business (Johnson & Lafley, 2010; Zott & Amit, 2010; DaSilva & Trkman, 2014). To be regarded as a system (Zott & Amit, 2010; Zott et al., 2011; Wirtz et al., 2016), a BM may contain numerous components with linkages between them (Afuah & Tucci, 2001). From a KBV, this system can be theorized as a hierarchical framework. Like the structure of a firm's *capabilities* (Collis, 1994; Schilke, 2014), business-related knowledge can also exist on various levels. Therefore, the proposed framework here includes three sets of parameters that describe a BM's architecture: components, linkages, and hierarchies. These three parameter sets are discussed in a three-level model (see Figure 20.1).

Level 1: Basic Business-Related Components

The basic components refer to the knowledge components about fundamental (material/immaterial and internal/external) *resources* (Hedman & Kalling, 2003; Afuah, 2004; Demil & Lecocq, 2010), *core assets* (Wirtz et al., 2016), (tangible/intangible) *input factors* (Petrovic et al., 2001; Currie, 2004), *value propositions* (Chesbrough & Rosenbloom, 2002; Morris et al., 2005; Johnson et al., 2008; Teece, 2010), *market opportunities* (Applegate & Collura, 2000; Johnson et al., 2008), *institutional conditions* (Meyer & Rowan, 1977; DiMaggio & Powell, 1983; Scott, 2005), *partners* (Applegate & Collura, 2000; Osterwalder, 2004), *competitors* (Hedman & Kalling, 2003; Afuah, 2004; Kallio et al., 2006), *customers* (Hamel, 2000; Stewart & Zhao, 2000; Wirtz et al., 2016), *products, and services* (Applegate & Collura, 2000), among others. Together, these basic components—acting as “bricks” of higher-order knowledge clusters and sub-clusters—form the first level of our analytical framework as the foundation of a BM (see also Table 20.2).

Level 2: Higher-Order Business Themes

In a complex external environment, the designers of a BM are faced with a large number of decision variables (components). Some of these bring advantages to the enterprise, some might act as constraints, and some (e.g., institution conditions and networks) do both. The complex interdependence between components prevents designers from arriving at an optimal BM through exhausting the possible combinations. In this regard, the design of a BM is an innovation process that enables a valuable combination of existing components in a

Table 20.2 The hierarchical framework of business model

Level 3	Level 2	Level 1
Business model (knowledge cluster)	Business themes (sub-cluster knowledge)	Basic (business-related) knowledge components
Business model	<ul style="list-style-type: none"> • Core strategy • Key capabilities • Value creation processes • Representative sub-models: <ul style="list-style-type: none"> • Customer model • Market model • Profit model • Financial model • Supply chain model • ... 	<ul style="list-style-type: none"> • Knowledge about resources • Knowledge about (tangible/intangible) input factors • Knowledge about value propositions • Knowledge about market opportunities • Knowledge about institutional conditions • Knowledge about partners • Knowledge about competitors • Knowledge about customers • Knowledge about products and services • ...

complex adaptive system (CAS). According to the NK model (Kauffman, 1993; Fleming, 2001), the usefulness of a combination is affected by its architecture. In order to efficiently search for valuable combinations in the “landscape” of numerous interdependent components, designers must “modularize” their models (Baldwin & Clark, 2000). Designers tend to nearly “de-composite” a BM into a series of business themes and then search for the components and structure to support them (Yayavaram & Ahuja, 2008). That is to say, the BM needs a second level to involve some “sub-clusters” of knowledge which represent some higher-order business themes.

These themes cover a series of sub-clusters of knowledge such as *core strategy* (Hamel, 2000), *core competencies* (Wirtz et al., 2016), *value-related meanings* (Strombach, 1986), *sense-making processes* (Malhotra, 2000), and *representative sub-models*, which include: *customer model* (Wirtz, 2001; Magretta, 2002), *market model* (Petrovic et al., 2001), *product and service (provision) model* (Wirtz et al., 2016), *profit model* (Osterwalder et al., 2005; Johnson et al., 2008; Osterwalder & Pigneur, 2010), *capital/financial model* (Afuah, 2004; Demil & Lecocq, 2010), and *supply chain model*. Each of these knowledge-based themes may involve some or all of these components above (see Table 20.2). From our point of view, these business-related knowledge themes can be specified as core strategy, key capabilities, value creation processes, and some representative sub-models.

The first sub-cluster knowledge theme is “*core strategy*.” Core strategy describes the logic of how resources, capabilities, institution conditions, and other internal/external factors are integrated to gain competitive advantages. The relationship between strategy and BMs has long been discussed. Although there are still disagreements on some specific issues, mainstream scholars agree that strategy has an essential impact on the development of a firm’s BM (Afuah & Tucci, 2001; Afuah, 2004; Teece, 2010; Wirtz et al., 2016). For some scholars, “core strategy” may even be considered the main BM component (Hamel, 2000; Seddon et al., 2004; Casadesus-Masanell & Ricart, 2010).

“*Key capabilities*” constitute another theme that cannot be ignored, for it portrays the design of processes and routines to realize the core strategy by configuring and reconfiguring

an enterprise's overall resources. In this regard, not only are the components of core resources involved but the related organizational capabilities, routines, managerial experience, and practical skills are required to exploit and coordinate these resources. These capabilities could be used to form a firm's core competencies and help improve and revise an established BM to adapt to the rapidly changing environment. Key capabilities are used in the design, promotion, adjustment, and remodeling processes of a BM. It is an important parameter set in the whole life cycle of the BM and is a concentrated reflection of the merging and evolution of explicit and implicit knowledge.

“Value creation processes” describe the logic of the value discovery and transformation processes of a BM. As Nonaka and Takeuchi (1995) argue, the traditional information processing paradigm (Neisser, 1976) largely ignores the implicit part of knowledge creation based on value or meaning. From a KBV, we argue that the value creation process originates from the “problem setting” part, which is deeply rooted in the designer's experience, emotions, ideas, behaviors, and interactions. It integrates the processes of sense-making and information processing (Malhotra, 2000, 2005). The value created through the BM has both “semantic” and “syntactic” aspects (Nonaka, 1994): the former represents the knowledge of “problem setting” developed from subjectivity (Nonaka & Peltokorpi, 2006) and intersubjectivity (Nonaka et al., 2016), while the latter conveys the information of “problem-solving” that transforms these discovered “valuable” problems into realized value.

In addition, some **“representative sub-models,”** such as customer model, market model, product and service model, profit model, financial model, and supply chain model together form the major explicit part of a BM knowledge cluster which constitute the higher-order business themes of it.

- **Customer Model** describes the logic of how a firm's business-related offers (products and services) can meet customers' demand in a better way and create more value for them. “The special importance of customer is frequently referred to in the literature” (Wirtz et al., 2016, p. 41). The customer model represents the BM designer's understanding of customers' existing demands and the prediction of their potential demands. For some e-commerce enterprises or platform enterprises (e.g., Facebook, WeChat, Alibaba, etc.), a “customer portrait model” has become the cornerstone of their BM and is responsible for their primary business income.
- **Market Model** depicts the BM designer's understanding of competitors and the competitive environment, the decision-making of market positioning, and the awareness of *an* entry opportunity. Specifically, enterprises need to consider the competitors in the same market position while meeting customer demand. In most cases, a change in the competitive environment will moderate the relationship between the supply of products and services and the performance of a focal BM (Hedman & Kalling, 2003; Afuah, 2004). From Porter's point of view, the enterprise's market positioning is the core of its competitive strategy and the most important factor affecting its performance (Porter, 1980, 1985, 1996).
- **Product and Service Model** portrays the design of a firm's internal/external process of transforming practical skills, managerial capabilities, means of production, and labor force into valuable output. This model describes the intermediate part of a BM, and essentially concerns the implementation of a value proposition. In the literature, researches on this part have mainly focused on BM-related “activities” and “processes” (Afuah, 2004; Johnson & Lafley, 2010; Zott & Amit, 2010). It should

be noted that the traditional view holds that the above process is internal to the enterprise (Wirtz et al., 2016). However, we believe that the process may also be external. For the BMs of some platform enterprises, the provision process of products and services is not necessarily undertaken by the enterprise itself but can also be outsourced to partners.

- **Profit Model** portrays the design of a firm's "profit-making" logic under a specific BM. In short, it is a "formula" that portrays how a firm makes money while delivering the value proposition. As discussed by Johnson et al. (2008), a profit model could be divided into four basic parts (revenue model, cost structure, margin model, and resource velocity). From our point of view, a simplified and representative profit model of a BM should at least contain the following: revenue stream, revenue structure, cost structure, and margin condition. The model's revenue and cost could be transaction-dependent or independent, and direct or indirect (Wirtz et al., 2016).
- **Financial Model** describes the logic of a firm's financial plan concerning its BM. The financial model involves a series of sub-issues, for example, debt and equity structure (Petrovic et al., 2001; Wirtz, 2001), as well as indicators such as asset-liability ratio, equity ratio, current ratio, quick ratio, current asset turnover, and total asset turnover, etc. A sophisticated financial model provides substantial and sufficient resources to support the implementation of a focal BM and build a "buffer area" for possible shocks. It is important to note that while the financial model is a supporting element of the overall BM, it is often a matter of success or failure in practice. The financial model is a dynamic plan which requires higher-order knowledge to guide and adjust. Designers need to keep track of the firm's operation state and, if necessary, modify the financial model in a timely manner.
- **Supply Chain Model** depicts a firm's procurement structure which is subject to its BM. Although this part of BM is rarely mentioned in the existing literature, it is necessary to consider the supply chain since "neglecting this aspect may have far-reaching consequences for other components" (Wirtz et al., 2016, p. 42). This model is at the "upstream" of the product and service model, which is the basis of ensuring the stability, efficiency, and high quality of a firm's products and services. It helps the understanding of a BM from an "input-based" view (Hedman & Kalling, 2003; Yip, 2004).

Level 3: Integrated Business Model

At the highest level (3rd-level) of our framework, the aforementioned sub-cluster knowledge themes are integrated into a complete knowledge cluster as the ontology of a BM. The integrated BM is a higher-order knowledge; it refers to the knowledge about how to use, coordinate, and configurate diverse factors (resources, institutions, technologies, customers, partners, and markets) to achieve value capture, creation, and delivery. It could be viewed as a reflection of a firm's core strategy (Seddon et al., 2004) and an abstraction of its business-related activities.

In order to design a satisfactory BM, designers must have a holistic vision and integration ability. In addition, any change in the external environment or the development of the enterprise itself will put the original BM under the pressure of transformation. Therefore, it is necessary to explore the dynamic evolution of BM from a KBV.

Dynamics: Design, Imitation, and Diffusion of BM

Previous studies take BM dynamics as a systematic co-evolution of business-related activities (Wirtz et al., 2016), a series of interactions between and within core components (Afuah & Tucci, 2001; Casadesus-Masanell & Ricart, 2010; Demil & Lecocq, 2010), or a type-changing process (Cavalcante et al., 2011), etc. These studies generally lack the underpinning logic deeply rooted in the knowledge nature of a BM and the integrated framework based on it.

From the KBV, we argue that the dynamics of BMs could be regarded as evolutionary processes of a new knowledge cluster's creation, renewal, and diffusion beyond a firm's boundaries. To be considered as a new analysis unit, the processes of the design and reconfiguration of a new BM and an established BM's diffusion and imitation are discussed.

The Design of New Business Models

As a structured knowledge cluster, a BM is “designed” through a dynamic organizational knowledge creation process. As Nonaka (1994) remarked, it could be understood as “a process that ‘organizationally’ amplifies the knowledge created by individuals, and crystallizes it as a part of the knowledge network of organization” (1994: 17). We further theorized this process as a sequential cycle of interaction, transformation, and merging of explicit and implicit knowledge components. Drawing on the framework proposed above, we discuss new business designs in three levels.

At the first level, knowledge components, such as value propositions, practical skills, and managerial experience, emerge from the interaction between individuals. Unlike other corporate entity resources and factors, BM-related knowledge components arise from an “informal community” or a “Ba” of social interaction within a certain organizational context (Nonaka & Takeuchi, 1995; Nonaka & Konno, 1998; Nonaka et al., 2000). Implicit knowledge is first generated from individual practice and then acquired by others through “shared experience” (observation, imitation, practice) but not through codified information (Nonaka, 1994). In this way, an individual's implicit knowledge becomes “socialized,” which includes both “mental models” (Johnson-Laird, 1983) such as values, beliefs, and schemata, and technical “know-how,” like crafts and skills. Some of these knowledge components remain implicit, while others are converted into explicit components through the process of “externalization” (Nonaka, 1994; Nonaka & Takeuchi, 1995; Nonaka & Toyama, 2003; Nonaka & Peltokorpi, 2006). Through this process, each knowledge component's nature (explicit or implicit) is relatively fixed, and designers can use these “bricks” to compose knowledge sub-clusters for higher-order themes.

At the sub-cluster level, the explicit components (e.g., value proposition, product ingredient) interact with the implicit components (e.g., practical skills, managerial experience) to form higher-order business themes such as core competencies, key capabilities, value creation processes, etc. It should be noted that even at this stage, the higher-order knowledge regarding the composition and architecture of business themes can still be generated from “informal communities” (and some “informal communities” naturally span firm boundaries). For instance, a “potential” BM designer may summarize collaboration or service practices into a new business model during long-term interactions with suppliers and customers.

At the cluster level, a unique and novel architecture and accompanying implementation guidelines (Morris et al., 2005) are established. The architectural part is explicit. Although the architecture of some BMs is very complicated, as an open and codified knowledge, it is relatively easy to replicate. In contrast, implementation guidelines contain many implicit

components (e.g., strategic insights, managerial experience), which are highly situational. The replication of this element of a BM would be relatively difficult.

In summary, the design of a BM is a dynamic process of knowledge creation. It is important to note that at each analysis level, the “fixity” of a component or architecture is relative, which means any single change to them (e.g., codification of a former implicit component, optimization, or outsourcing of a process) might potentially lead to a disruption of a focal BM “archetype”(Morris et al., 2005; Zott et al., 2011).

The Imitation and Diffusion of Existing Business Models

Once a business model is created and proven to create value in a focal niche, the next important issue will be “**whether, when, and how**” it is imitated. A successful BM will create value for not only focal firms, but also their partners, customers, and other stakeholders (Massa et al., 2017). However, if a BM is easily imitated, the value it created to the above actors will be unsustainable. As Teece (2010) argued, a BM could bring competitive advantage unless it is not easily imitated. Thus, the “imitation” of BM could be a valuable issue to be investigated and the introduction of KM may bring new implications (Chen et al., 2021).

From the perspective of KM, BM’s imitation can be discussed at two levels. First, at the firm level, the new entrants’ imitation of a focal BM can be regarded as a process of organizational learning and knowledge absorption, in which the knowledge cluster of a BM (previously belonging to the incumbent) is acquired by the new entrants. Second, at the industry (or niche) level, the imitation process of a BM can be seen as the diffusion of a focal knowledge cluster, which includes both explicit and implicit components. Due to the different nature and diffusion modes of diversified types of knowledge components, the “**imitability**” and “**imitation process**” of BMs with different “**architecture**” may also be different. Therefore, although any BM can be imitated eventually (Teece, 2010; Casadesus-Masanell & Zhu, 2013), the difficulty and process of imitation are still very worthy of discussion.

As Chen et al. (2021) argue, the degree of a BM’s “imitability” depends on the proportion of its implicit knowledge component, the more implicit knowledge components a BM contains, the more obstacles it will face during imitation. Specifically, the explicit BM components such as a firm’s activity patterns (Brousseau & Penard, 2007), customer value propositions (Afuah & Tucci, 2001; Weill & Vitale, 2001; Chesbrough & Rosenbloom, 2002), and the revenue model (Cantrell & Linder, 2000; Petrovic et al., 2001) often exist in the form of “public information,” so it is easily observed, analyzed, and learned by new entrants or other competitors. For implicit components such as mental maps and schemas (Leonard & Sensiper, 1998), emerging meanings (Strombach, 1986), and sense-making processes (Malhotra, 2000), it is not so easy to “learn” by the imitators. As mentioned above, the “transfer” of implicit knowledge requires actual interaction between individuals in a specific “community,” because these implicit components are often contained in individuals, teams, or even the whole department. To replicate an entire BM, imitators would need not only to observe, analyze, and learn the “**public parts**” but also engage in long-term communication/interaction with or simply hire those (employees, managers, or teams) who are carrying core resources (knowledge, skills, or experience). Hence, the imitation of a focal BM could be regarded as a “double channel” process as shown in Figure 20.2.

In the first channel, the explicit component of a BM can be transferred as “public information.” According to our analysis above, the transfer of this part of knowledge components is relatively easy. The “owner” of a BM cannot set up barriers based on its knowledge

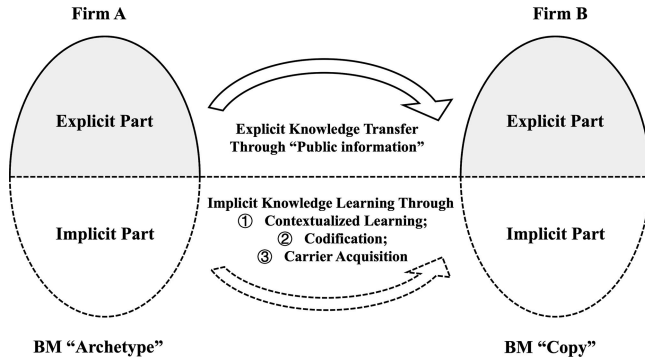


Figure 20.2 The Imitation Process of a Business Model

attributes, and it is also challenging to set legal protections similar to the “intellectual property protection (IPP)” (Teece, 2010).

In the second channel, we link the processes of implicit components of diffusion to the “SECI Model,” and identify three main paths.

Path One: Contextualized Learning. Since the diffusion of implicit knowledge needs to rely on the communication “Ba” (Nonaka & Takeuchi, 1995; Nonaka & Konno, 1998), the diffusion of the implicit part of a BM often depends on the long-term cooperation of partners and/or colleagues. Thus, path one can be named as “*contextualized learning*.” Furthermore, the “contextualized learning” path of BM can be regarded as a special type of the “*socialization*” process of the SECI model (Nonaka, 1994; Nonaka & Takeuchi, 1995; Nonaka & Konno, 1998; Nonaka et al., 2000; Nonaka & Toyama, 2003). On the one hand, for the incumbent firm (BM owner), this part of knowledge has completed the “socialization” and formed internal shared knowledge. On the other hand, the new entrants (firm) may learn this part of implicit knowledge by participating in the above interaction. Therefore, we often see the replication of a BM as a result of the outflow of employees from the “archetype” firm or based on the division of an original company. In the broader field, BMs rely on the diffusion of such paths to expand the shared scope of the previously socialized implicit components (in a small scope) and form a wider range of “socialization.”

Path Two: Codification. The reason some implicit knowledge remains “un-coded” may not be because it is “uncodified,” but because it is artificially chosen to keep “*tacit*” for the considerations of business interests. In some cases, this knowledge can be encoded for the strategic development of the enterprise or other purposes. For example, in some Chinese restaurants, the cooking skills of chefs are an essential part of a firm’s core competencies. In order to maintain this advantage in the long term, some restaurants encourage a form of “mentoring” to transfer this implicit knowledge. This choice not only helps maintain the competitive advantage, but also limits the expansion of enterprise scale. In order to obtain scale advantage, some enterprises code it into a “standardized process” to create new BMs, thus forming a Chinese restaurant chain.

From the perspective of KM and the *SECI* model, Path Two could be viewed as a dynamic process of “*externalization* and *combination*.” In this process, implicit knowledge is converted to explicit through the mechanisms of “*articulation* and *translation*” and then aggregated into a knowledge cluster by means of “*integrating, transferring, diffusion* and *editing*” (Nonaka & Toyama, 2015).

Path Three: Carrier Acquisition. From the KM perspective, the “*carrier*” of implicit knowledge is either the individual or the organization. So one of the most effective ways for imitators to gain access to the implicit part of another BM could be named “*carrier acquisition*.” According to the main level (see the framework proposed in ‘Architecture: A Multi-level Framework of BM’) which the implicit knowledge exist for different BMs, new entrants may need to “buy” the incumbent firm’s employees, teams, or even a whole department to “learn” the implicit part of a focal BM.

The “*carrier acquisition*” path is actually a “quasi-learning” process of the implicit knowledge components of a BM. In this path, new entrants may “directly acquire” the individuals, teams, and even a whole department who share the focal implicit knowledge from the incumbent enterprises. From the individual level, the focal implicit knowledge components are not “*really learned*” by the new firm synchronously when the employees move, but flow “*with*” the acquired individuals or teams. They (the implicit knowledge components) are still kept in the original “*carrier*.” That is the reason why it is called “*Quasi*” learning. Of course, new entrants can try to “*absorb*” these implicit knowledge components by incorporating the merged team into their organization, thus truly learning these components through “*contextual learning*” or “*codification*.”

Discussions and Conclusions

The findings of this chapter may help broaden the research boundary of KM by conceptualizing the definition, architecture, and dynamics of a BM from a KBV. This chapter took off by systematically reviewing the dominant conceptualization literature on BM and pointing out the limitation of existing research on BM’s ontology. Then, the chapter reconceptualized BM from KBV and proposed a hierarchical framework to depict its architecture and dynamics (design, imitation, and diffusion).

The BM was conventionally defined from an explicit and activity-based perspective, which ignored its implicit part and led to the misunderstanding of its ontology in academia. There is no doubt that the manifestation of a BM is a series of firm activities. However, the ontology of a BM should be the designer’s understanding of how a firm conducts business. Thus, it could be seen as an abstraction of a pile of “know-how” and “know-why.” In this chapter, BM is defined as a structured knowledge cluster of how a firm conducts business; it depicts how a firm combines business-related components to form business themes and how it coordinates these themes to create and deliver value.

Based on KBV, the architecture of a BM is proposed as a three-level hierarchical framework. Level 1 includes the basic business-related components such as internal/external resources, core assets, input factors, value propositions, market opportunities, institutional conditions, partners, competitors, customers, products, and services, etc. Level 2 represents some business themes, including core strategy, core competencies, value-related meanings, sense-making processes, and representative sub-models. From KBV, these business themes can be viewed as sub-cluster knowledge. At Level 3, the sub-cluster knowledge (business themes) is integrated into a complete knowledge cluster as a BM.

Using the proposed framework, the dynamics (design, imitation, and diffusion) of BM are explored. As a structured knowledge cluster, a BM is “designed” through a dynamic organizational knowledge creation process. In this process, the explicit and implicit parts of knowledge interact with each other at the three levels to realize the evolution of the whole knowledge cluster (BM). Moreover, the imitation of BM is regarded as a “double channel”

process, in which a focal BM can be imitated through three paths: *contextualized learning*, *codification*, and *carrier acquisition*.

Theoretical Contributions

This chapter broadens the research boundary of KM by redefining the BM concept and exploring its architecture and dynamics. The introduction of the KBV brings new insights into the BM research and helps us focus on the importance of the implicit part of the BM. The theoretical contributions are as follows:

All in all, it reveals the underpinning nature of a BM. The definition based on the “knowledge ontology” facilitates the convergence of existing diversified concepts to a simple core scope. It has the potential to help scholars develop a deeper consensus on the definition of BMs.

Besides, with the proposed framework, a three-level BM architecture is established, which implies a third analysis dimension — “hierarchy” — while the conventional structure of a BM contains mainly two dimensions: the components and their linkages. Different levels of knowledge in BMs can be located, and the nature of components and higher-order knowledge can be analyzed using this framework.

Finally, the “cross-border” dynamics of a BM can be preliminarily analyzed. Though the “boundary-spanning” nature of the BM has been acknowledged (Amit & Zott, 2001; Zott & Amit, 2010), current researches are still “firm-centric” (Zott et al., 2011). From a KBV, the “informal community” in which a new BM is cultivated, and the diffusion of a focal BM are naturally “boundary-spanning.” Hence, research on BM dynamics (design and diffusion) can be conducted with a “business model-centric” paradigm, and it is expected to “truly” realize the research paradigm shifts (Malhotra, 2000) with the BM as the new analysis unit.

Limitations and Future Research

In this chapter, we theorized a BM from a KBV and proposed a three-level hierarchical framework to explore the architecture and dynamics of the BM. Although the pioneering research of Chen et al. (2021) has proved that the structure (the ratio of explicit knowledge to tacit knowledge) of a business model can affect the sustainability of enterprises’ competitive advantage, the more detailed BM framework and mechanisms proposed in this chapter and the propositions derived from the analytical framework are not supported by empirical evidence. This will limit the reliability of the conclusions in this study. In the future, both quantitative and qualitative method may need to be used to support the new findings. Among them, the design of BM can be explored by case study, while the imitation and diffusion of the BM can be analyzed through quantitative data.

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