

Chapter 10

Reflecting on Industrial Business Models: A History of Tradition, Challenges, and Potential Innovations



George Leal Jamil, Antonio Juan Briñones-Peñalver
and Domingo García-Perez de Lema

Abstract This chapter aims to contribute to evaluate market options for business models to be adopted by industrial agents. To achieve this object, a methodological approach for a critical observation was pursued. First, it was conducted a theoretical review, regarding the business model (BM) concept and related definitions, as its relationship with strategy, tactical, and operational level of a generic company, innovation, innovation management, structure, and components, among others. Then an analysis of experiences of practical business model adoption by economy actors, typical industrial arrangements or those related to industrial actions, productive chains or practices, were studied, to produce an overlook of its classical, traditional and influential aspects. Finally, in this analysis, reflections around these findings are presented, contributing for BM practice for industrial organizations and associated value-aggregation partners, as from service sectors, which, nowadays, even pressure industries to adopt or adapt to their business models.

Keywords Industry 4.0 · Business models · Industrial business models
Innovation

G. L. Jamil (✉)

Informações em Rede Consultoria e Treinamento Ltda, Belo Horizonte, Brazil
e-mail: gljamil@gmail.com

A. J. Briñones-Peñalver

Department of Economy and Business, Universidad Politecnica de Cartagena,
Cartagena, Spain
e-mail: aj.briones@upct.es

D. García-Perez de Lema

Financial Economics and Accounting, Universidad Politécnica de Cartagena,
Cartagena, Spain
e-mail: Domingo.garcia@upct.es

© Springer Nature Switzerland AG 2019

J. L. García Alcaraz et al. (eds.), *Best Practices in Manufacturing Processes*,
https://doi.org/10.1007/978-3-319-99190-0_10

10.1 Introduction

It is possible to understand the industrial sector as the most relevant proponent of business fundamentals along economic markets development history. Just considering the period of Industrial Revolution, 1760 to, at most, 1840 (Guile 1987), it is possible to understand a remarkable change not only in emergent productive theories, but also in influences in mankind's way of life. The structural changes posed by the transformation, when manual production, sometimes improvised and without rules was changed—by many ways—to new systems, seeking basic planning control and forecasts, issuing an expressive fact on how the conception of business models impacted lives this way. This was one event which, through the comprehension of BMs influences, can define a valid context for this discussion.

The development of industrial chains, their political and strategical influences were some of the undeniable factors to decide critical historical happenings, such as last phases of colonial era (the end of the cycle, started in the fifteenth century in the West), world wars, national association in blocks and conflicts, emerging of commercial and industrial powerful associations, among several other implications which delimited and influenced organizational positioning and effective works from centuries. These productive chains reached, sometimes, a level in which they become as powerful as some governments, producing influences for market and regulatory decisions.

Ranging from pre-Industrial revolution era, with manual handling, imprecise, unplanned and geographically restricted competition to modern complexes, where massive automation, new wave of robotization, application of emerging technologies, such as internet of things and its relation to data and knowledge management (KM), result in a multifaceted opportune context for research (Schumpeter 1942; Venkatraman 1989; Utterback 1996; Cano 2012).

Thinking as a provocation, present phenomena still pressure industrial connections to adopt and propose new solutions (Zalewska-Kurek et al. 2016; Wirtz and Daiser 2017) in business models. Sometimes, these demands are simply presented to industries, calling for a fast change in a traditional, value-set chain. In alternative events, industries must face options do strategically align to service-oriented designs which constitute platform BM that will attempt to answer massive “scalable” needs, like some startups propositions (Mullins 2014; Nielsen and Lund 2018).

Conceptually, business models (BM) are difficult definitions to restrict, observing the actual competitive context. This conceptualization intends to relate to various processes, methods, analysis and strategic to tactical positionings proposed during a larger period, a conceptual life cycle. This way, this concept needs to compose a base where it refers on how they produce their plans and, effectively, how it competes or offer its final value to customers or agents. This concept will be approached, from several points of view, in the theoretical background developed in the following, but it is initially taken as the design of organizational relations which states or report its ways of thinking and planning its action towards its customers

and market actions, referring to intermediate-level and operational works, providing a whole comprehension on how one company plans and performs its proposed actions, resulting in a contextual alignment (Magretta 2002; Casadesus-Masanell and Ricart 2007, 2010; Osterwalder and Pigneur 2010; George and Bock 2011).

From modern cases, it is possible to identify that businessmen and investors, sponsors, and proponents must pay attention to their planning capabilities and resources spent for their firm success, specially composing and updating their business models. This happens when it is observed the apparent definition of some new standards, as the SaaS (platform) models, marketplace (“Uber-like”) models, signature, metamodels and various market conceptions—(Mullins 2014; Ovans 2015)—which are facing the true competition for less than a decade, still in their conceptual “youth”. These models, however, have an estimated huge number of applications and alternate practical instances, even reaching the possible level of becoming a standard proposition, or conceptual paradigms in near future (Massa and Tucci 2014).

While this dynamic competition emerges, supported by various other almost uncontrollable phenomena, such as globalization, world economy fast development and changes and, more noteworthy, impressive surge of new technologies, such as those from data analysis, information and knowledge processing and internet of things, business models became harder to define, plan and implement, leading them to become a more strategic component of sectors and derived strategies. In an apparent paradox, a more challenging paradigm turns to be a potential differentiation, unfolding in a source of competitive advantage (Porter 2008).

The industrial sector has shown an impressive path for the Economy, as it supported events of the human historical evolution, from the urban formation, national competition, towards today’s technology application arena. This chapter aimed an analysis of BM influence, contribution and development in this scenario, aiming to reach their importance for actual competitive arrangements. Among the results of this exploratory, initial and superficial research, business models perceived in an informal market observation were detailed, from an analysis model, consolidated from the literature review. This allowed to consider these alternatives, some of them still risky positionings, being tested by entrepreneurs and practitioners, from a more structured point of view, producing the first level of outcomes in this study.

For this purpose, we started with the theoretical background approach, where basic concepts were discussed, exploring also their relationships. This initial development aimed to define a common understanding of their dynamic interactions with many concepts. In the conclusion of this part, together with an integrative, relational study for BM concept along with strategy and further business-oriented framework concepts, a basic analytical definition, that proposed a view of components was reached, was to be applied in an exploratory exam of practical cases. Finally, these discussions permit to formulate basic reflections around proposition and its practice, allowing to the development of further studies, taking this chapter as a basic, initial and contributive base.

10.2 Theoretical Background

This section aims to discuss some of main concepts, being business model the essential, and produce a demanded view of its relationships towards a practical understanding. Based on this development, it is possible to observe, along with the criteria adopted for the contextual focus, or an exploratory analytical model, to be applied in the real cases analysis, at the ending remarks.

10.2.1 Business Models

The discussion around business models (BM) definition is endless and, usually, tends to follow cultural and sectorial delimitations. Magretta (2002) presented an attempt for conceptual study and definition, in a period which strategy and strategic planning were regarded by several authors and managers as old structures for organizational thinking, related to exhausted competitive arenas. At that time, in a controversial approach, some stated that corporative conception should reside in “well designed business models for the Internet age”.

As that market trend proved, dramatically, with disastrous commercial, financial and strategic outcomes, business models, taken as a structural ordering, are essential, although not infallible, way to project and plan aligned processes. Analyzing cases, observing it from critical points of view and referring to authors, Magretta stated that business models relate, basically, on how a company makes money, understanding and fulfilling customer’s expectations.

This way, she divided her understanding about BMs in two main aspects: (1) How companies produce something and (2) How they offer what they produce. Interestingly, this author also perceives how the introduction of information technology and its associated resources enabled strict guidance of alignment, resulting in potential optimization, but also posing excessive control and bureaucracy. Joan Magretta also pointed out the importance of BMs as “stories that explain how companies work”. This remark leads us to demands on comprehend what was proposed, what was done and what was the consequence of the whole interaction on the market, a dynamic and concise functioning that will require strategic thinking (Porter 2008; Porter and Magretta 2014).

Johnson et al. (2008) defined an observation about components that oriented various studies and experiments throughout following years, regarding the topic itself and its relationships with innovation and its management processes. For these authors, main components for business models conceptions are: (a) Customer value propositions—consolidating future customer-oriented strategic positioning; (b) Profit formulas—which set potential directives and controls for financial administration, and (c) Key resources and processes—as a dynamic and systemic approach to analyze and value resources and processes that can be strategically positioned, through deliberated and/or reactive actions. This last item is to propose

a correspondence with Penrose (1959) studies that relate resources, examined through a Resource-Based View (RBV) analysis, to a potential sustainable competitive advantage definition and practice.

For Casadesus-Masanell and Ricart (2010), business models are the reference to the “logic” of the firm, how it operates towards value creation for customers. Authors introduce business model as a consolidating thought produced at the strategic thinking phase, which will enlighten how corresponding tactics and operational efforts will be planned, serving both as an orientation and contextual definition for effective strategy implementation and monitoring. These authors, adopting a simple analogy of different models of car conceptions, production and operation, exemplified how the same type of organization can perform what was expected by its final customers, when (a) Components were known; (b) Context of application was known; (c) An overall coordination existed—which can be considered the corporative strategy.

As an additional, opportune reflection, they also sought to separate strategy from business models (although, as it was pointed out by them, it is difficult). Strategy, for them, “is a contingent plan of action as to what business model to use”, developing an understanding that BM composition and the related choices on their adoption (“changing the car parts”) are details from strategic decisions.

Almost all authors presented so far report to Peter Drucker’s former work (Drucker 1993a, b), where this researcher, without referring specifically to BM concept, affirmed that a design should be composed to answer basic corporative questions, related to customer knowledge, their perception of offered value, value’s relation to resources and, finally, correspondent costs. His definition for BMs, as “stories that explain how organizations work”, can be broadly explored, for example, to understand graphic tools (for example, the Business model canvas, proposed by Alex Osterwalder and his research team) as means of building histories, materializing decisions and corresponding alternatives taken, among several other outcomes.

It can also be related to knowledge management principles, when we observe how they correspond to companies’ evolution, like innovation alternatives (Nonaka and Takeuchi 1995). Opportunely, these points are to be addressed in the following development, because they are targets of several emerging technological applications, change, by this way of thinking, some fundamentals of concept reasoning (Grönlund et al. 2010; Edgett 2015; Christensen et al. 2016; Gatautis 2017).

Usually, works and researches try to produce an understanding of the concept, searching the relation of factors, such as: Customer behavior comprehension; Market segmentation; Value and Costs to offer; Decision-making and Market monitoring (Henderson and Clark 1990; Deshler and Smith 2011; Kim and Mauborgne 2015; Ovans 2015; Anunciação and Peñalver 2017). Attempts vary from diagrams propositions, textual definition for processes, relationship maps—specially to strategic planning processes—among alternative choices. The comprehension of a model, however, leads to a conceptual issue, defined by Silva (2011), when he argues about the real role for a model in the development of systems and implementable solutions. A model, for this author, is a conceptual,

high-level outcome which must be, thereafter, adopted as a base for the real application, serving as the conceptual base, a wider theoretical reference, which can provide the contextual delimitation for real solution proposition. His thoughts can be validated, when we assess Duin et al. (2013) and Singleton-Green (2014), in which authors state that a business model is a “simplified version of the reality”. It is an assumption that can be considered for this conceptual production, as BMs are far from a consensual convergence, especially when addressing industrial evolution.

One of these successful tools was the “canvas” diagnosis and hypothesis proposition stated by Osterwalder and Pigneur (2010)—the business model canvas—which synthesized nine main aspects for one effective model. The application of this easy-to-use method for planning cycles is a significant perception of the “model concept”, defined in the previous discussion. It is an important supporting tool to adjust competitive alignment through further work, building its plans and related processes towards its coordinated and monitorable operation. Confirming this assumption, Ovans (2015) calls attention to the role of the BM canvas as a “hypothesis generator” for firms proposition and actions.

For Casadesus-Masanell and Ricart (2010), we have that business models’ components are divided in two major sets: “(1) The concrete choices made by administration about how the organization will operate and, (2) The consequences of these choices”. Again, one initially naïve affirmation can lead to understand and explore several interactions among critical fundamentals like corporative structure, strategic planning resources availability, technological learning and application, culture, social relationships, knowledge management, among others. These definitions enlighten the complexity and power of business models, to be applied not only in corporative conceptions but, complementarily, as strategic alternatives that can propose competitive advantage (Ries 2011; Mullins 2014).

Structuring these conceptions into a concise definition, essential points can be determined for the business model conceptualization that will be used for the remaining of this chapter:

- Value proposition is to be negotiated with the market. This element, frequently, overshadows the remaining ones, deserving special attention on its analysis and delimitation. It has a potential relationship which covers from strategic decisions and plans to tactical definitions, such as strategic marketing planning or financial project validation, from many others.
- It is a description of practical ideas to achieve strategy fundamentals: structure, intangible (financial, informational, patents and licensing, etc.) and tangible (buildings, vehicles, laboratories, and information technology computer platforms) resources mapping and associated classification.
- Internal processes, methods, and aspects definition are likely to be derived from the strategic planning process, taken as the critical and fundamental assessment, that will identify methods and techniques adopted by the organization for customer perception of its performance. (These two last points can be combined, eventually, in one aspect focusing the internal environment projection).

- Basic mapping of external competitive environment, pointing and classifying competitors, market regulators and agents, customers, potential partnerships, among other.
- Key indicators (KI) classification, hierarchy and definition, which enable basic controlling and monitoring of each strategic goal and action executed to achieve that goal.

Dynamics of business models exercise in the market arise from Teece (2009) and Teece and Linden (2017), in an approach that permits a historical review, as David Teece, a remarkable author, evolved his appreciation around this topic. As it was previously stated, BMs were defined to produce a view of operational work and its integration, aligned to value offer, in a coherent development from the thoughts of Peter Drucker. In an updated study, both authors approached the hypothesis related to value creation, retention, share and protection, advancing conceptions to detail both for customer-related knowledge and operational market actions in the new scenario of emerging technologies, and their implication to new strategic marketing actions.

Two significant research and practice trends come from the conceptual application: (1) Study its application for sectors, markets, regions and national systems; (2) Understand the intended “business model innovation” context, somewhat derived from important and disseminated studies, such as the “Blue Ocean strategy” definition, remarkably composed, proposed and studied by Kim and Mauborgne (2015). These will be addressed in the following sections, as some concepts must be evaluated before, composing an intended situation for its improved discussion.

10.2.2 Strategy, Strategic Planning, Alignment and Business Models

Strategy can be considered as the basic formulation for corporative future, designed with the help of systems, researches and accumulated knowledge, providing conditions for offer positioning to final customers with the goal of competitive survival and development (Penrose 1959; Porter 2008; Porter and Magretta 2014).

Strategy can be understood as materialized through plans or orientation that explicit goals to be achieved in one determined period, together with the coordination for its corporative branch tactics and operations. It will, in a more traditional way of thinking, be formulated, developed, projected, implemented and modeled through the process of strategic planning, associating it to the specifications and coordination for organizational middle-level detail and its final alignment to the operational tasks (Mintzberg et al. 2008; Porter 2008; Hitt et al. 2011). Modern views also approach the continuous learning and emerging market signals as ways to adjust, promote, change, and update strategies dynamically (Mintzberg et al. 2008), contextualizing strategy in several levels, and analyzing how it can be detailed in planning actions, in a more flexible, fast, and adaptive way.

The relationship between strategy and business models has been theme of several researches. For Casadesus-Masanell and Ricart (2007, 2010), in two remarkable and related works, business models evolved in the last years, being expressively influenced by information technology, although not restricted to its usage to be developed and implemented. As cited in their work, pressures, as the adoption of “e-business”, identified as services based on internet infrastructures and interfaces, and the wave of “it must be innovative—an innovation”, took several firms to an imprecise path of strategic—tactical—operational alignment. This fact led to implementation of new rules, processes, methods, and connections to partners, suppliers, and customers, developing unstable alternatives to compete in their markets. The development from strategy already shows a potential bi-directional motivation, where BMs are taken into consideration as planning resources to develop and execute strategic movements and configuration, but are also strategic resources by itself (Chesbrough 2010).

A competitive, differential model can be a strategic item to be positioned, searching for a position when it will achieve a competitive advantage in the market. The cyclic dynamism of a business model and strategy can be verified when these authors comment about the “aggregation” as a method to understand a “group of strategic choices” to relate to one “consequence”, aligning with the following approach of “decomposability” criteria, addressing (strategically, indeed) components for competitive advantage positioning, in a typical relationship between these two important topics. This observation is completely confirmed by the “virtuous cycle” concept, practiced by these authors on analyzing market cases, such as Ryanair, presented in the same study, considering the dynamics of strategic planning process.

These findings can also be found in the works built around resource-based view of firms, when authors such as Penrose (1959) and Wernerfelt (1984) sought to discuss, study, and define relations to evaluate corporative resources through metrics which could identify their potential usage to build a sustainable competitive advantage. As pointed out by Barney (1991), a criterion named VRIN was proposed to identify the Value, Rarity, Inimitability and “Non-substitutive” grades of each corporative resource, aiming to value it for a potential sustainable competitive advantage positioning.

Business model components, like human resources management, abilities on developing and implementing information systems and processes (not restricted to HR policies, but also relating to IS methods and analysis itself), knowledge generation processes, specialized machinery, communication, are always cited in their original studies and in the extensive post-publication thread. This discussion generated a productive approach regarding strategic planning process, its focus on resources and its market statement and, finally, dynamics regarding the continuous cycle of monitoring and executing strategies through levels alignment.

Interestingly, HBSP (2006) also validated this way of thinking, identifying basic business model components such as (a) Revenue resources; (b) Cost drivers; (c) Investment size and (d) Critical success factors. Except for the last one, considered too wide and complex, the remaining can be regarded as points of

strategically aligned operation, executed according to corporative strategy. This affirmation can be also found when authors declare organizational strategy as the complete analysis for planning and operation in a specific market, explaining their view for this alignment.

From this starting point, it is opportune to recall Johnson et al. (2008) study, when these authors propose a definition previously discussed for business models, typically adopting strategic elements: (a) Value positioning (Customer value proposition)—which can be considered, for example, one essential component of a possible “Blue Ocean” strategy definition; (b) Profit formulas—like the tactic-to-operation definition of financial control and implementation, taken as a fundamental quantitative report; (c) Key resources mapping—resources identification (for example, the application of VRIN criterion, presented above) and, finally, (d) Key processes definition and implementation—which involves structuration, coordination, and operation methods and goals setting disciplines. This strategy—business model evaluation confirms, details, and validates this relationship.

Eyring et al. (2011) analyzed the opportunity to address and develop a BM for middle markets, presenting a typical and generic strategic decision to define and negotiate with the focus for a well-defined segment. In this work, authors also approach its update, studying the demand to expose a competitive and dynamic strategic value and, finally, compose items, such corporative structure (redefined), that enables this company to jump from one choice to another, for example, in a reaction to the competitor’s movement. This is a contribution that leads to the trend “Business model innovation” to be discussed in the following section.

In what can be considered a closing scenario for this objective development, Sachsenhofer (2016) described a context where business models represent the coherent design of various components, that can be addressed strategically. He approached, from works like Chesbrough (2010) and Zott et al. (2011), the constitution of a business model and how these components can be managed strategically. It was analyzed how various of these elements, cited in the above development can be integrated and corresponding, forming the desired business model.

Among these studied components are: technology, funding sources, knowledge management, value-offer techniques, administrative methods (Marketing strategies, for example), profit sources, customers negotiation instances—market channels, for instance (Lee and Ho 2010; Anunciação and Peñalver 2017).

Nielsen and Lund (2018) analyzed how BMs can constitute into a scalable factor. This study observes the modern competitive era, when they can be implemented, changed (“pivoted”) from managerial and technological constituents, also integrating corporative networks. Factors announced by authors, relating distribution channels, improving abilities around scarce resources, sharing investments requirements and operative tasks and, finally, the adoption of the “platform” concept—which is one of the promises about innovative integration, propelled by information technology—show how intricated, appealing and motivating this theme is considered today.

Clearly, industrial complexes, with its huge economic and social importance, compose a significant part on this arena, demanding review of its strategic fundamentals, to understand how corporative arrays, networking, production and commercial efforts sharing and several trends are to be applied and implemented with the dynamics with business models (Castells 1996; Slávik and Hanák 2017).

10.2.3 *Innovation and Business Model Innovation*

Innovation became one organizational image for almost all competitive companies in any market that try to keep a modern characteristic for its customers and agents. However, increasingly, it left the advertising trend to become one strong strategic factor for competitive survival. To understand its propositions and possible types, it is opportune to assess the seminal works from Joseph Schumpeter—Schumpeter (1942)—and James Utterback—Utterback (1971)—which can be considered consolidated in the conceptualization proposed by OECD (2005).

In this valuable, historical path, the theoretical background around innovation concept resulted, first, in a practical differentiation from inventions. Inventions are unstable, unfinished, incomplete versions or propositions of a socioeconomic market solution, which was originally designed to answer one final-customer problem (Henderson and Clark 1990). Innovations, on the other hand, are practical solutions that propose, through a service and/or product project, to solve one practical problem, with the insertion of newness. It happens, at least, with a starting version which presents this initial new offer, called by Ries (2011) the “minimum viable product” (MVP).

From those references cited, six types of innovations can be defined:

- *Product*: new or updated technological device or implement, a physical, tangible asset.
- *Process*: new or updated method to do something, to conduct or make a service possible, a new way to propose, plan, and implement the execution of a practical task.
- New supply or material to be applied to assemble, produce, or support an assembly.
- New market to be created or defined by one innovative position.
- New structure, when a company changes its way of serving and negotiating with external agents and customers and
- New strategic positioning, from market competitive pressures, which demand, sometimes, continuous innovative depiction, as it occurs in sectors which are strictly or predominantly based on technology.

These types of innovation are to be considered along with a classification around their degree, referring to the sources cited, analyzing how two fundamental dimensions—business model and technology—were proposed to be modified. This way, it is possible to define:

- *Incremental innovations*: for those which implement small modifications and/or technology in a new offer from the original proposition.
- *Semi-radical innovations*: when an expressive change in one of these two dimensions is provided, compared to the other. This way, one new positioning of a service which changes expressively its associated BM with few or no changes in technology is to be considered a semi-radical of business model. Alternatively, one new product which results in a new device, format, conception, among tangible characteristics (not exclusively), can be considered an innovation semi-radical of technology.
- *Radical*: when it is possible to identify that both dimensions were expressively changed in a new offer, compared to the older provision.

With these refinements in the innovation concept—basic definitions, types, and degrees—it is possible to advance on initial analysis of roles for innovative efforts and how innovation of BM is one of the most attractive actual topics in this sector’s literature and for practitioners, investors, and economy agents.

Business models, by itself, are source of one perceived dimension of innovation (Bashir and Verma 2017). When a new way to produce, distribute, share, store, commercialize, negotiate, and keep one offer in one market, it is possible to understand BM function for innovation (Bereznoi 2014; Khanaga et al. 2014). For example, when films entertainment options are available through catalog-supported streaming services, such as Netflix and others, we understand that a new one, practiced with customer association methods (capture, retention, etc.) and information technology support, a new set of choices emerged and is adopted for one’s lifestyle. This is a change for movies and TV shows, series watching, a remarkable market case.

From this conceptual base, it is also possible to understand how components of business models, discussed in the previous subsection, can become factors for different types of innovation. A new method to be approached by one company, in its relationship with its chain, can become a process-like innovation (Kavadias et al. 2016). Changes in a product or service, which can be an offer to new customers and markets, can potentialize innovation of market, even creating new segments and profiles to be analyzed by strategic marketing studies and implementations. Process and market innovation, by themselves, are a potential change for a design, which, finally, is one innovation based on its planning conception and practice. As it is possible to understand these concepts as unrestricted, not exclusive basics, this intricacy can lead to observe definition types as complementary and even cooperative.

Christensen et al. (2016) studied the evolution of BMs in “stages” that constitute a matter of learning and, unfortunately, a factor that poses difficulties to change over time. These authors, after a reflection based on methodological analysis, understood that “Business models, by their nature, are not to change, and they become less flexible and more resistant as they develop over time”. These findings were compared with the “stages” model, in the same reference are composed by following elements: (a) Value creation; (b) Conceptual fundamentals; (c) Sustainability and, finally, (d) Efficiency.

This set of elements reinforces some of the findings for business model concept, innovation and its relation, pursuing a way where managerial maturity play a remarkable role. Interestingly, this approach recalls findings from Mintzberg et al. (2008), when they considered the composition of deliberated and emerging strategies, as one organization must comprehend its strategic coordination process not like a behavior, but a continuous process of high-level analysis learning, motivating to relate the managerial maturity to innovation abilities and capacities comprehension and overall coordination.

In the conclusions of their work, Christensen et al. (2016) report about conditions to define business models that address competitively new market opportunities: real opportunity analysis (analytical knowledge), conceptual independence of the new to the previous one and effective partnerships or networks. From Pfeifer et al. (2017), it is possible to understand how new markets and alternatives provided by new propositions show these evidences, also enabling to understand a persistent factor when assessing BMs, strategy and innovation demands.

Wirtz and Daiser (2017) argued about the potentials of the association between business model innovation and strategic planning, although observing the lack of sufficient theoretical formulation regarding this important base, offering an integrative framework for its future exploration in practical conception processes which can constitute a strategic asset for managers. Their integrative framework is based on: (a) macro (external) factors; (b) micro (internal) factors and (c) areas definitions with its possible KM processes. Analyzing these three components, it is possible to perceive one way where an applied, practiced business model can be changed, eventually producing an innovative arena, as a competitive BM innovation.

These studies illustrate, over various years, trends and thoughts from different points of view—emerging technologies adopted by final customers, market-pull and technology-push innovations, demanded strategic changes, external and internal causes and resources management aspects, etc—produced a pressured context, which eventually became a strong pressure for BM innovation.

From the sources analyzed above, two important evidences must be added for this study:

- Strategic relationship and importance (Chesbrough 2003; McAfee and Brynjolfsson 2012; Khanaga et al. 2014; Kavadias et al. 2016; Wirtz and Daiser 2017). This approach relates how innovation can be positioned strategically, producing a two-way strategy—business model.
- How the contextual interaction between innovation and business models structure and pressures for changes in components and its consolidation into an effective model occur at the strategic level (Davila et al. 2006; Deshler and Smith 2011; Diaconu 2011; El-Bashir et al. 2011; Kavadias et al. 2016; Gatautis 2017; Wirtz and Daiser 2017).

Reaching this level of understanding, it is opportune to evaluate the technological factor on new pressures and propositions, aiming to discuss its integration to result in the “Industry 4.0” market trend, that will be studied in the following subsection.

10.2.4 Emerging Technology Trends and Industry 4.0 Concept

This subsection does not intend to promote a deep debate of emerging technologies, otherwise permitting enough support to define a level of perception regarding Industry 4.0 perspective, a strong sectorial tendency. Obviously, as it happens with any market trend, the endless debate promoted now is controversial and even sometimes conflicting, when authors, researchers and practitioners still argue about Industry 4.0 real evolution, conceptual distortion pressured by commercial competition, innovation potential, social and economic implications, among many influences.

A brief overlook of industrial evolution shows that technology development and its related adoption are fundamental factors for remarkable historical events. As industrial complexes still hold a significant part of world’s economy as integrators and final producers of end-user solutions, its development reaches levels of social, demographic and economic impacts for societies (Drucker 1993a, b).

Nowadays, with the usual evolution of tangible and intangible assets, it is expected that several ways of consecutive and accumulative scientific knowledge, usually in a random fashion applied in devices, software and market-oriented solutions, reach people’s lives, an amazing succession of new products and services. As illustrated in the previous subsection, this is a situation where innovations can be announced, keeping the unstable and challenging relation with corporative strategies, in which business models play an expressive role on implementing controls, methods, processes, and structures for organizations to keep their competitive presence in markets. With the definitions studied so far, it is possible to understand that BMs serve as strategic partners to address strategies coherently to operational and implementation levels. Some of these trends are to be addressed in the following, aiming to promote a basic level of understanding around technological potential application for Industry 4.0 conceptualization, which is the convergent point for this subsection.

Data generation became one of the most massive processes in human living (McAfee and Brynjolfsson 2012; Kavadias et al. 2016; Pfeifer et al. 2017). With this expressive content continuously generated, it is comprehensible that some companies successfully start to offer analysis and additional informational products and tools for final customers, including companies which apply these analyses for strategic and corresponding tactical planning (Yonce et al. 2017). In this arena, two efforts affirmed in the last years: Big data and Analytics.

Big data is understood, basically, as the potential on producing knowledge from structured data and associated unstructured sources, aiming to compose scenarios and simulations that is an advanced comprehension regarding real phenomena and its combined implications (Chen et al. 2012; Mahrt and Scharkow 2013; El-Gayar and Timsina 2014). Its potential is shown by fast adaptations in their customer-oriented sale, applying, for example, automated internet interfaces, new design and final presentation, among others. These offers are taking into consideration factors like instantaneous competition, comprehensive changes of customer commercial interests (“humors” and “behaviors”), bringing a somewhat chaotic dynamic on final transactions with clients (Kartik et al. 2017), when market negotiations change rapidly. Data production is regarded as an elementary process for knowledge management efforts, improving conditions for innovation successful positioning (Jamil and Magalhães 2015; Jamil and Silva 2016).

Additionally, “Analytics” are related to the application of specific algorithms to generate knowledge from information, strictly applied to online transactions—such as productive systems monitoring, electronic commerce retailing or internet search engines usage—for fast understanding about customer reactions (Chen et al. 2012; SAS 2017; Yonce et al. 2017; Jamil et al. 2018). Analytics services are, sometimes, offered as open, easy-to-use services, reaching to complex, deep sense-formulation that can be applied for strategic and tactical immediate decisions, typically describing and pointing potential end-user reactions to mobile and web-based interactions (SAS 2017; Yonce et al. 2017). It results in a turbulent, challenging and fast-changing situation to propose innovations, both in the business model or in products and services.

One of the most referential emerging technologies that can produce immediate effect on industrial capabilities, resources, and systems is “Internet of things” (IoT). As presented by Chui et al. (2010), this technological composition integrates devices and its integrated services through Internet addresses, provided by Internet protocol connections. With this simple approach, a new availability of apparatus, platforms and a level of scheduling, intelligent and autonomous operation and, moreover, inter-device communication with programmable level of decision, arose in the last years, leading to market solutions which are now definitely being absorbed by customers. Clearly, it is possible to include, in this customer base, all industrial complexes that can apply IoT to implement robots, auto-driven vehicles, machines with adaptation techniques (“decision capabilities”) and inter-communication.

IoT is a new context where projects can be implemented, producing different production schemes, where human operators can be replaced by machines, in a new wave of operational tasks substitution, incorporated with a level of inter-relationship still to be effectively understood by managers and implementors (Gatautis 2017; Jamil et al. 2018). It is possible to argue that basic business model components, related to operational efficiency, alternatives, and tactical integration are immediately affected by the introduction of IoT, signaling a potential change that will propose an alternative for industrial arrangements and complexes. Concluding this brief overlook regarding IoT, it is opportune to affirm that its costs

of implementation fell, in a period of few years, to small amounts of its original values, enabling not only its standalone usage, but also its implementation in domestic devices, such as TV sets, air conditioning devices and smartphones.

At this point, oriented mainly by market efforts and facts, a new version of automated industrial integration, called “Industry 4.0” emerged, announced as the implementation of automated machinery, Internet of things, consistent flow with external and internal corporative decision contexts (promoted by the usage of analytics and big data), association with distributed processing and infrastructural and supporting elements. In the focus of this chapter, the specific attention is not to promote a deep comprehension on how these solutions are composed.

Otherwise, potential changes in the business models and the emerging new ones, which can be elaborated, designed and implemented are facts that will deserve better attention (Turban et al. 2002; Teece and Linden 2017). This theoretical background discussion was initially promoted to appreciate how these technological context and economy demands motivate the real implementation and their potential innovation. Along with strong market movements, sectorial leadership definitions and competitive actions, there is a remarkable market pressure to innovate and business models are, as developed above, tools and ways to promote this expected level of innovation.

This way, it is the final proposition of this theoretical review, to understand that BMs have a straight and dynamic relationship with organizational strategy and they can also be favored by the introduction of actual advances, producing, potentially, conditions to innovate. It is not a stable, definite level of conceptual base, as it can offer to managers and designers new contextual perspectives in which they have conditions to propose new business models, which, by their way, produce strategic alternatives for value positioning.

10.2.5 Supporting Concepts

This subsection closes the planned theoretical review, presenting a base of additional, supporting concepts that will enable better comprehension on aspects of business model elements and their application.

Organizational structure, according to George and Bock (2011) and Jamil and Magalhães (2015), are formal or intuitive perceptions, describing personal and functional delegations. From previous studies, it is possible to perceive the continuous presence of hierarchical structure, describing controlling and commanding levels, also defining instances for communications and decision-making. It is possible also to understand characteristics of new propositions, like the matrix or process-oriented details, usually driven by external factors—like customer behavior changes, market opportunities, functional redistribution, regulatory pressures—orient their alignment to optimize all its internal processes and interventions, aiming to maximize the performance and customization levels.

Another remarkable influence over structure details is originated by project management works and researches, which proposed a definition that can be comprehended as a fusion of hierarchical and process-oriented configurations, called “projectized” structure. Centered in the personal figure of the project manager— institutionalized by the efforts of Project Management Institute PMBoK (2013)— this structure is based on his professional interventions in project planning, execution and coordination, structuring his leadership among groups, combining a hierarchy and matrix-oriented works.

Information and knowledge governing are conceptualized as processes designed to allow the potential evolutive knowledge generation from data (Tuomi 2000; Jamil and Magalhães 2015; Jamil and Silva 2016). In the context of this study, information and knowledge processes can be defined as resources used to propose new business models, supply market and corporative knowledge to build new value-offer positionings. Among these cases, it is possible to identify innovation conception in the core of a possible BM, as those adopted by companies which deal with “data analysis” and “data science” markets, with great evidence nowadays in sectors like market research, entertainment, informational services and communication (Akbar 2003; Setia et al. 2013).

Finally, the strategic alignment can be understood as the contextual fit, from the highest conceptual level of one specification, to its operational services and production, on how a strategy is conceived, planned, executed and followed, enabling actions like optimization, risk management, fast and consistent market movements (Chesbrough 2003; Porter 2008; Casadesus-Masanell and Ricart 2010; Massa and Tucci 2014; Christensen et al. 2016).

This review aimed to detail a fair level of coherence among a complex network of concepts and aspects that will allow the intended analysis for business models strategic planning and performance, to be developed in the remaining, to the intended context of reflections.

10.3 Examining Business Model Propositions for Industries

An initial attempt to evaluate the immense availability of approach from literature unavoidably led to works that observe what and how they were planned and what are the outcome, from one basic focus point, taken, for example, from defined BM components (Osterwalder and Pigneur 2010; Eisenmann 2014; Ali Mahdi et al. 2015).

This way, the orientation followed by this study is to develop an analysis, which will attain on components, as defined in the previous theoretical background, and, in this section, examine classical, innovative (theoretical), and implemented business models studied, inherited (as cultural traditional influences) and practiced by industry leaders and competitors. In the following section, trends or perspectives for each model are analyzed, proposing a development that can unfold in various themes for future theoretical and empirical studies.

BM components adopted for this study, from the conceptualization worked before, are, basically:

- *Value Proposition (VP)*: The context to be negotiated, offered to final customers and its perception.
- *Internal structure proposition (IS)*: The definition of elements, managed with high degree of independence by a company, from their managerial decisions.
- *External structure configuration (ES)*: Description of channels, distributors, partners, networked cooperative elements and other agents who help planning and positioning implementations.
- *Key indicators (KI)*: Factors, predominantly quantitative (costs, operational numbers, times measured, etc.) or that result in scales or relative measurement (customer satisfaction, quality) which can be collected, checked and verified to be compared, a comprehension on how goals and planned checkpoints are to be reached.

Some typical occurrences for each one of these components are (based on the sources already presented in this literature review):

- *VP*: Customer-oriented processes; Product and services lines and its supervision (i.e., How it is possible to keep your offer valued by customers); value-support channels (distribution, storage, logistics, etc.) planning; information technology (“digital” or “digital transformation”) support for customer optimal negotiations; high-level processes of identifying and classifying customers and oriented processes; innovation handling principles and some others.
- *IS*: organizational structure; personnel profile details; human resources management capabilities; decision-making processes; tangible infrastructure (buildings, accesses, laboratories, workspaces, communication systems, conventional machinery; automated or robotic infrastructure, etc.), linked with internal intangible support, as motivational activities, satisfaction level of employees and working personnel, for example.
- *ES*: integrated distribution systems, like logistics planning techniques along with information technology support; transportation and storage systems, relationship with suppliers, distributors and commercialization channels; components of a distributed or shared processing system (as integrated automatized industrial plants which can be dynamically coordinated and managed with human or automated intervention), etc.
- *KI*: costs of production (partial and final activities), offer, transportation, storage, moving, ordering, placement, negotiation, volumes of supply and factors sampled for costs calculation; productivity forecast and compared final values; time-related variables—physical processes times, intervals, operational, transportation; values of negotiation; customer satisfaction/rejection levels; channel performances, costs and productivity, as examples.

Recalling that this chapter is proposed for reflections around the main subjects and with an exploratory approach, these definitions stated for a starting analytical

approach, can help identify and classify business model experiences and cases, to be discussed in the following. Both, this briefly defined base and its analysis can justify and provide demands for further studies which can validate, review, detail, apply for further detail.

10.4 An Overview of Practical Business Models: Cases and Analysis

From the categorization defined above, it is possible to produce the intended reflections of some business models, collected from the literature (see Table 10.1) and from practical cases, observing it as the design proposed, adopted or, simply, intuitively implemented by some industrial agents—factories, complexes, supporting facilities, associations and other members or components of these chain arrangements. For each case listed in the following, those VP, IS, ES, and KI aspects are to be elaborated to reach those intended reflections around business models.

It is important to recall from studies that observed how BM concept was approached in the literature, reported views regarding the original focus, methodological approach aid considerations regarding the objectives and results of these

Table 10.1 Collected cases from the literature review

Case	Literature source
Disney Studios	Magretta (2002)
Apple and Tata Motors	Johnson et al. (2008)
Dell, E-Bay, Amazon	Osterwalder and Pigneur (2010)
Ryanair	Casadesus-Masanell and Ricart (2010)
TDC and Telmore	Casadesus-Masanell and Ricart (2010)
Chunghwa Telec. Company	Lee and Ho (2010)
Godrej and Boyce	Eyring et al. (2011)
Tata Motors	Sako (2012)
Nespresso	Matzler et al. (2013)
ICBC (Intl. Commerce Bank of China) and South Africa Standard Bank	Deloitte and Huawei (2015)
BMW (car and parts manufacturing)	Sachsenhofer (2016)
Boeing	Christensen et al. (2016)
Spain and Portugal tourism initiatives	Anuniação and Peñalver (2017)
Intuit	Colvin (2017)
Uber	Casumano (2018)

studies, reaching definitions considered for this base for reflections. Taking Osterwalder et al. (2005) as a valid parameter, from this analysis, it is possible to fit this text as a combination of their second type of research—authors describe abstractions of BMs relating it to firms' common characteristics—and the third, also—authors present a conceptualization from real-world implementations.

Along with a literature review, visits were conducted in industrial complexes and associated services. These cases included an automated top-level plant of an automotive industry, a food processing industrial complex, some startup supporting co-working installations (which promote public and private incubator/accelerator programs), taken as an opportune, dependent and guided sample, where that initial level of perception for components was applied and studied, producing the following panorama and corresponding reflections.

As a starting point for analysis, it is opportune to define one additional question around industrial business models: who was the “author” or “source of demand” to define what business model was adopted by one organization? It is possible to understand that, some centuries or decades ago, market leadership could allow industries to define and position their business models, formatting productive chains and even imposing some conditions for customers, as they faced restricted offers and competition, because of technologic, geographical and market conditions. This way, industries could project or even improvise market arrangements because, mainly, their control of competitive advantage negotiated.

Nowadays, with the emerging services markets, increase in competition, globalization, economy dynamics, necessity of fast reconfiguration of design, among other factors, industries had, sometimes, to accept internal and external pressures when considering their choices, losing the comfortable condition of an isolated and controlling leadership that characterized some markets and sectors. This question presents one basic aspect to be added, not as a conceptual definition for BM adoption itself, but as one external pressure or position factor for industrial complexes, considering the competitive dynamics throughout time, composed in the following study.

A traditional, *hierarchical model* for industrial complexes can be found when companies consider their functional actions with a higher priority level, instead of customer or market needs, for example. For hierarchical, function-oriented business models, command and control from “outside the factory” define structures that will be implemented “inside the factory”. Typically, sectorial standards are adopted and implemented, in a classical homogeneity effect. VP is usually obtained from operational efficiency, leading to immediate objective of costs reduction, higher performance levels and consequent resources positioning. IS element is characterized by classical specifications for manufacturing and continuous processes structures.

As we observe the productive chain, a rigid, structured plan, with low-degree of flexibility, is usually found, in which times and volumes are set and sought by all components. A “continuous line” (a predominance of a rigid structure that conducts the operational level) can be identified and provide overall coordination for sub-tasks and processes instances. ES is almost a reproduction of the internal

structure, as the leading organization defines and controls operative adjustments, serving as the main reference. Centralization is another factor that will probably emerge, for example, when information and knowledge management are conceived and held with this controlling/coordination fashion also. As expected, KI will focus on rigorous quantitative data measurements, serving for immediate control over production levels and end-customers negotiation. Although related to typically old-fashioned industrial sector, this conception has a strong cultural contribution, still with expressive influence in situations of new implementation reaching services sectors, unexpected risky situations, market uncertainty, pressured associations from merge and acquisition processes, etc.

As thinking from a historical, traditional point of view, it is undisputable to cite the business model *process-oriented*, like the solution remarkably developed by organizations which aimed to dynamically realign its operational design towards answering processes demands. Historically, the automotive industrial complex Toyota is one of the main references, as some companies and economy actors, ranging from services-oriented (like some e-commerce retailers, as parts of Amazon, E-bay, among many others) to NGOs, attempted to adapt these principles (Liker 2004; Deloitte and Huawei 2015). It is a competitive context where some companies started to face competitive advantage factor, also observing some risky conditions never experienced before. This alternative, which defines a fast-answer pressure for industrial players, requires a thorough preparation, as financial control implementations, human resources preparation and management, automation, overall control, goal-seeking culture.

Analyzing the conceptual components: VP is the main objective, as the complete arrangement is made in function of customer, end-process perception. It demands high-level of value perception by industrial managers and strategic control of the remaining components, as to provide the fast alignment of them to promote a productive process orientation towards maximum value answer. Pressures over IS elements are severe, when fast reorientation of groups and teams structure, application of operational and tactical knowledge towards optimal production limits, efficiency, etc., and their associated control, provided by integrated information systems and contributive information technology applications, must be implemented to allow the intended dynamism.

It is possible to understand this alternative for a business model like the first type in which ES elements can eventually format the IS arrangement, when it happens with the service-oriented models, to be approached in the end of these reflections. Here, the market strength, competitive facts, regulatory phenomena, technological advances and changes and, clearly, customer behavior changes, require adaptations, producing a correspondence between ES components and IS elements, illustrating how industrial strategies are affected by new competitive implementations. KI expand those cited in the previous case to encompass quantitative signals, from the value-aggregation chains, admitting to complete control arrangement performance, dynamically set goals (in terms of production levels, costs optimization, profitability, products acceptance, etc.).

It is important to recall, when to seek for industrial best practices, about the presence of external forces, originated from business model adoption, such this one, that imposes some conditions, parameters, and strategic demands for industries, leading to a situation where the industrial sector is a component of the process-oriented complex, somewhat in an unfavorable condition of being led by other sectors.

Another opportune trend which provoke business model conception and implementation is the reorganization towards project management disciplines, the *projectized* BM. Efforts of the PMI, documented by the referential Project Management Body of Knowledge publication (PMBok 2013), defined an interesting level of understanding about projects specification and managerial efforts, works and communications, reaching structures, factors such as performance administration and, mainly, human resources definition. This solid conceptual framework defined stances where several companies that relate strictly to industrial complexes were proposed. These players act in sectors like civil construction, traffic coordination, capital goods supplying, implemented their specifications considering “project” as the focus element and fundamental concept.

The following analysis for components does not have the objective on approaching project coordination itself. Otherwise, it attempts, like the previous analysis, to reflect about components when thinking about projects and project governing principles. VP is highly related to the project consequences, relating its definition processes—such scheduling, costs forecast, human resources performances supervision—to the levels obtained.

Perception of values being reached, answering the quality levels of maturity (Prado and Archibald 2009) and producing the expected results for final users, constitute main compositions for value positioning. Specifications for project demanded resources map, almost completely, the internal structure, IS. Along the definitions of “knowledge areas” and “project management processes”, defined by PMBoK (2013), it is possible to understand several elements of IS definitions, which may be detailed in the organization’s business model, aligning it to this conceptual understanding. Almost the same occurs with the ES elements, added by the disruptive context of innovative technologies to be applied, such as Internet of Things (Chui et al. 2010), studied before. Finally, KI component is expressively defined by the main framework conceptualization and remaining conceptual and practical compositions, which implement project coordination activity.

Considering quality as one of the main objectives in these tasks, precise measurement of all quantitative items of a project conception, planning, execution and final monitoring (for example, the usage of a construction, delivered for its normal operation) are among the quantitative indicators that must be addressed in its design. This reflection also shows how a business model is affected and pressured by external conditions and processes, when it happened with the process-oriented type and is observed for the next cases.

An interesting alternative, with intense discussion is a general model which can be identified as *platforms*. This alternative can be considered from fundamentals of some different areas, as industrial management, production engineering and

information technology. It generally describes a basic assembly context where components and parts are dynamically mounted, installed or logically configured, aiming to differ the final goal. It can be considered, taking the managerial principal outcome, as a business model derived from the process-oriented, but with the addition of component change, adaptation of parts of the business model, which is a dynamic associated with fast-moving industries and its partners of the productive and value-aggregation chain.

Gatautis (2017) showed how the concept platform evolved in the last years, mainly affected by the perspectives of digital transformation, which are found in information technology-based platforms, offered by companies like Google, Amazon, Microsoft, Apple, among many others. In this approach, those platforms are considered as one opportune type, but it is proposed an advance towards an industrial integration (and perspectives of componentization) where its components—machinery, administration, controls, etc—are to be changed in a way similar to “Lego” components, with objective to dynamize processes and actions oriented to market opportunities.

Analyzing the BM components: VP analysis shows the connection of external scenario comprehension (potentially provided by information and knowledge management support from information systems—Nonaka and Takeuchi (1995) and Jamil and Silva (2016)—producing knowledge-based conditions) to business modularity expertise as the most attractive aspect to obtain the desired value positioning adaptability. This must be intensively related to ES, when the value-aggregation chain must show the desired transparency, effective connection, knowledge and information capabilities to admit such fast-moving plans and actions.

For IS elements, it is important that “Lego” oriented connections must prevail, as process input/output specifications, with predicted figures, data collection, and deliveries, permitting one specific planning component to be changed with complete support of management view. Indicators context, KI, shall inform precisely changing-time-related impacts, results and allow the follow-up about the new chain configuration. Platforms, although a well-known alternative, are gaining consistency as networks can now be scheduled, connected, and changed with technology support and cultural acceptance, becoming more accepted.

Finally, the *service-oriented* trend is transforming in a real pressure over industrial complexes, as the productive chain, sometimes, is gaining a different, competitive aspect that shows services leading these network relations. It is important to note that some decades ago, services were complementary strategic value increment options, when, for example, commercial organizations usually were driven by industrial manufacturers to offer value for final customers, in cases such automotive or electrical apparatus.

For example, marketplaces business models, or the “Uber-like” configurations are driving some plans and actions of automotive industries, not only the car manufacturing, but also with important strategic services, like maintenance, product line update and redesign, among several others. Is important to mention, to reinforce this notion, investments done by leading automotive manufacturers on buying

or controlling car-sharing services—like the BMW investment in DriveNow and Daimler in Car2Go, which are now merging the operation and value positioning at customer-level (Bloomberg 2018). These signals are reinforced by the worries, in some countries, of “des-industrialization”, in which national economies are more influenced by services sectors (Bresser-Pereira 2008; Oreiro and Feijó 2010; Cano 2012). Interestingly, business models like *marketplaces*, *signature-frequent demand*, *pay as you serve or use*, *scarcity consumption*, *pay in advance and service-to-product* (this last one being a strong evidence of service dominance)—Mullins (2014)—are, nowadays, becoming increasingly adopted by final customers for their usual needs, as buying food, transportation (even international), finance negotiations, goods purchasing, among many others.

The analysis of business model components is, at this moment, too superficial, as strategic and market movements are still turbulent, leading to a situation where reached analytical method reached through literature review must be applied in following studies, even to understand its sufficiency on really addressing the evidences from these remarkable and huge actions.

Business model alternatives continue to be proposed, associated and practiced by market agents. With the Economy advances, flexibility and dynamics, faced recently, analytical methods for research, planning, and coherent implementation of business models become the most critical tool for professionals involved in decisions towards BM real implementations.

10.5 Conclusions

This chapter proposition was to approach an opportune topic which demands severe thinking about industrial organizations nowadays: Business models. For these initial studies, some reflections, supported by an analytical support developed from theoretical review was conducted, observing some of the most typical market alternatives adopted so far. As competition evolves, in one undeniable signal of economy development, business models are still on study, planning, adaptations, turbulent implementations showing a requisite for market actions, substantially affected by strategic results that must be comprehended by any scholar and practitioner.

For this purpose, the proposition was stated, followed by a literature review around the main topic—business models—and its associated analysis to essential related concepts—with specific approach of strategic and tactical implications—and supporting contextual items, that provide structures and tools to implement business model in real cases. Following, an analytical proposition, constituted by four main aspects or elements—Value Proposition (VP), External structures (ES), Internal structures (IS) and Key indicators (KI)—was discussed and superficially applied on some market-adopted choices, to produce the desired level of reflexive thoughts, motivating a basic comprehension on BM planning and application.

It is possible to understand business model importance in nowadays competitive scenarios and industrial complexes face another tough front of strategic pressures, even reaching a fast-changing picture where services sectors are forcing reviews for industrial alternatives. This chapter intended to bring some light to these researches and discussions, proposing an initial theoretical framework which allows to develop analytical methods to support further conceptions and practices.

For further studies, among several perspectives, detailed case study analysis (although already explored in the literature, follow-ups always can provide more detail on business model practical implementations), key success factors on business models adoptions, exploration around VP, ES, IS, and KI internal aspects to evaluate their details and relate it to results from practical BM applications are among important alternatives.

This chapter has the potential on contributing to these and studies to approach business model real importance for strategic decision-making for industries and their related value-aggregation partners.

References

- Akbar H (2003) Knowledge levels and their transformation: towards the integration of knowledge creation and individual learning. *J Manag Stud* 40(8):1997–2021
- Ali Mahdi HA, Abbas M, Mazar TI, George S (2015) Comparative analysis of strategies and business models of Nike, Inc. and Adidas Group with special reference to competitive advantage in the context of a dynamic and competitive environment. *Int J Bus Manag Econ Res* 6(3):167–177
- Anuniação PF, Peñalver AJB (2017) Information urbanistic perspective in the context of Blue economy: analysis of Setubal and Cartagena tourism offer. *Int J Sociotechnol Knowl Dev* 9(3): 65–83
- Barney J (1991) Firms resources and sustained competitive advantage. *J Manag* 17(1):99–120
- Bashir M, Verma R (2017) Why business model innovation is the new competitive advantage. *IUP J Bus Strategy* 14(1):7–17
- Bereznoi A (2014) Business model innovation in corporate competitive strategy. *Probl Econ Transit* 57(8):14–33. <https://doi.org/10.1080/10611991.2014.1042313>
- Bloomberg (2018) Daimler, BMW reach a deal to merge car-sharing units. Available at <https://www.bloomberg.com/news/articles/2018-03-28/daimler-bmw-are-said-to-reach-deal-to-merge-car-sharing-units>. Accessed on Mar 2018
- Bresser-Pereira LC (2008) The Dutch disease and its neutralization: a Ricardian approach. *Rev Econ Polít* 28(1):47–71
- Cano W (2012) A desindustrialização no Brasil. *Econ Soc* 21:831–851
- Casadesus-Masanell R, Ricart JE (2007) Competing through business models. IESE Business School Working Paper No. 713. Available at SSRN: <https://ssrn.com/abstract=1115201> or <http://dx.doi.org/10.2139/ssrn.1115201>
- Casadesus-Masanell R, Ricart JE (2010) From strategy to business models and to tactics. *Long Range Plan* 43(2–3):195–215, April–June. <https://doi.org/10.1016/j.lrp.2010.01.004>
- Castells M (1996) *The rise of the network society, the information age: economy, society and culture*, vol I. Blackwell, Oxford, United Kingdom
- Casumano MA (2018) The sharing economy meets reality. *Commun ACM* 81(1):26–28
- Chen H, Chiang RHL, Storey VC (2012) Business intelligence and analytics: from big data to big impact. *MIS Q* 36(4):165–1188

- Chesbrough HW (2003) *Open innovation. The new imperative for creating and profiting from new technology*. Harvard Business School Press, Cambridge, USA
- Chesbrough HW (2010) Business model innovation: opportunities and barriers. *Long Range Plan* 43(2):354–363
- Christensen CM, Bartman T, van Bever D (2016) The hard truth about business model innovation. *Manag Rev* 58(1):21–40
- Chui M, Loffler M, Roberts R (2010) *The Internet of Things*. McKinsey Q. Available at https://www.mckinseyquarterly.com/ghost.aspx?ID=/The_Internet_of_T. Accessed on May 2016
- Colvin G (2017) How Intuit reinvents itself. *Fortune Magazine*, November 2017, pp 77–83
- Davila T, Epstein MJ, Shelton R (2006) *Making innovation work: how to manage it, measure it and profit from it*. Pearson Education Inc, New York, USA
- Deloitte, Huawei (2015) Transformation and reconstruction of Banks in the digital era. Deloitte Touche Tohmatsu Limited and Huawei Technologies. Available at http://e.huawei.com/en/publications/global/ict_insights/201512291113/analyst/201512301703. Accessed on Feb 2017
- Deshler R, Smith K (2011) Making business model innovation stick. *People Strategy* 34(4):18–23
- Diaconu M (2011) Technological innovations: concepts, process, typology and implications in economy. *Theor Appl Econ* 10(563):127–144
- Drucker PF (1993a) *Post-capitalist society*. HarperCollins, New York, USA
- Drucker PF (1993b) *Innovation and entrepreneurship*. HarperCollins, New York, USA
- Duin PAV, Ort JR, Aarts WTM (2013) Contextual innovation management using a stage-gate platform: the case of Philips shaving and beauty. *J Prod Innov Manag* 31(3):489–500
- Edgett SJ (2015) Idea-to-launch (Stage-gate® model): an overview. Available from http://www.stage-gate.com/resources_stage-gate_wp10.php. Accessed on Feb 2017
- Eisenmann T (2014) Business model analysis for entrepreneurs. Harvard Business School Background Note 812-096, Original on Dec 2011, Revised Oct 2014. Available at <https://www.hbs.edu/faculty/Pages/item.aspx?num=41268>
- El-Bashir MZ, Collier P, Sutton SG (2011) The role of organizational absorptive capacity in strategic use of business intelligence to support integrated management control systems. *Acc Rev* 86(1):155–184. <https://doi.org/10.2308/accr.00000010>
- El-Gayar O, Timsina P (2014) Opportunities for business intelligence and big data analytics in evidence based medicine. In: *Annals of 47th Hawaii international conference on system science*, IEEE. <https://doi.org/10.1109/hicss.2014.100>
- Eyring MJ, Johnson MW, Nair H (2011) New business models for emerging markets. *Spotlight on business model innovation*. Harvard Business Review, Jan–Feb, pp 1–9
- Gatautis R (2017) The rise of platforms: business models innovation perspectives. *Inz Ekon-Eng Econ* 28(5):585–591. <https://doi.org/10.5755/j01.ee.28.5.19579>
- George G, Bock AJ (2011) The business model in practice and its implications for entrepreneurship research. *Entrep Theory Pract* 35(1):83–111. <https://doi.org/10.1111/j.1540-6520.2010.00424.x>
- Grönlund J, Sjödin DR, Frishamar J (2010) Open innovation and stage-gate process: a revised model for new product development. *Calif Manag Rev* 52(3):106–131
- Guile BR (1987) *Technology and global industry*. National Academy Press, Washington DC, USA
- HBSP—Harvard Business School Publishing Corporation (2006) *Building a business model and strategy: how they work together in entrepreneur’s toolkit: tools and techniques to launch and grow your new business*, chapter 4. Cambridge, Massachusetts, USA, pp 47–62
- Henderson RM, Clark KB (1990) Architectural innovation: the reconfiguration of existing product technologies and the failure of established. *Adm Sci Q* 35(1):9–30
- Hitt MA, Ireland RD, Hoskisson RE (2011) *Strategic management concepts: competitiveness and globalization*, 10th edn. Cengage Learning, New York, USA
- Jamil GL, Magalhães LFC (2015) Perspectives for big data analysis for knowledge generation in project management contexts. In: Jamil GL, Lopes SM, Silva AM, Ribeiro F (eds) *Handbook of research on effective project management research through the integration of knowledge and innovation*. IGI Global, Hershey, USA, pp 1–18. <https://doi.org/10.4018/978-1-4666-7536-0.ch001>

- Jamil GL, Silva AM (2016) *Inteligência de mercado como um processo de gestão do conhecimento*. Editora Media XXI, Porto, Portugal
- Jamil LC, Vieira AAP, Xavier AJD (2018) Reflecting on analytics impacts on information architecture contexts as a source of business modelling for healthcare services. In: Jamil GL (ed) *Handbook of research on expanding business opportunities with information systems and analytics*. IGI Global, Hershey, USA. <https://doi.org/10.4018/978-1-5225-6225-2>
- Johnson MJ, Christensen C, Kagermann H (2008) Reinventing your business models. *Harvard Business Review*, Dec 2008, pp 2–11
- Kartik K, Tarun K, Tracey AS (2017) The differential impact of new product development “make/buy” choices on immediate and future product quality: insights from the automobile industry. *J Mark* 81(6):1–23. <https://doi.org/10.1509/jm.14.0305>
- Kavadias S, Ladas K, Loch C (2016) The transformational business model. *Harvard Business Review*, Dec, pp 91–98
- Khanaga S, Volberda H, Oshi I (2014) Business model renewal and ambidexterity: structural alteration and strategy formation process during transition to a Cloud business model. *R&D Manag* 44(3):322–340
- Kim WC, Mauborgne R (2015) *Blue ocean strategy: expanded edition*. Harvard Business Review Press, Cambridge, USA
- Lee CS, Ho JC (2010) A framework for analyzing business model innovation in mobile commerce. *J Int Technol Inf Manag* 19(4):37–60
- Liker J (2004) *The Toyota way: fourteen manufacturing principles from the world’s greatest manufacturer*. McGraw Hill, New York, USA
- Magretta J (2002) Why business models matter. *Harvard Bus Rev* 80(5):86–92
- Mahrt M, Scharnow M (2013) The value of big data in digital media research. *J Broadcast Electron Media* 57(1):20–33. <https://doi.org/10.1080/08838151.2012.761700>
- Massa L, Tucci (2014) Business model innovation. In: Dogdson M, Gann D, Nelson P (eds) *The Oxford handbook of innovation management*. Oxford University Press, Oxford, United Kingdom, pp 420–441
- Matzler K, Bailom F, Von den Eichen SF, Kohler T (2013) Business model innovation: coffee triumphs for Nespresso. *J Bus Strategy* 34(2):30–37. <https://doi.org/10.1108/02756661311310431>
- McAfee A, Brynjolfsson E (2012) Big data: the management revolution 90(10):60–68. *Harvard Business Review*, Cambridge, USA
- Mintzberg H, Ahlstrand B, Lampel J (2008) *Strategy safari*. Pearson Education, New York, USA
- Mullins J (2014) *Customer-funded business: start, finance or grow your company with customer’s cash*. Wiley, Hoboken, USA
- Nielsen C, Lund M (2018) Building scalable business models. *Sloan MIT Manag Rev* 59(2):65–79
- Nonaka I, Takeuchi H (1995) *The knowledge-creating company*. Oxford Press, Oxford, United Kingdom
- OECD—Organization for Economic Cooperation and Development (2005) *Oslo manual*. Available at <https://www.oecd.org/sti/inno/2367580.pdf>. Accessed on Mar 2017
- Oreiro JL, Feijó CA (2010) Desindustrialização: conceituação, causas, efeitos e o caso brasileiro. *Rev Econ Polít* 30(2):219–232. <https://doi.org/10.1590/S0101-31572010000200003>
- Osterwalder A, Pigneur Y (2010) *Business model generator: a handbook for visionaries, game changers and challengers*. Wiley, Hoboken, USA
- Osterwalder A, Pigneur Y, Tucci CL (2005) Clarifying business models: past, present and future of the concept. *Commun Assoc Inf Syst* 15(1):1–25
- Ovans A (2015) What is a business model? *Harvard Business Review blog*. Available at <https://hbr.org/2015/01/what-is-a-business-model>. Accessed on May 2017
- Penrose ET (1959) *The theory of the growth of the firm*. Wiley, New York, USA
- Pfeifer S, Peterka SO, Stanić M (2017) Business models of micro business: empirical evidences from creative industries. *J Contemp Manag Issues* 22(Special issue):1–19
- PMBok (2013) *Project Management Body of Knowledge, 5th edn*. Project Management Institute
- Porter M (2008) *On competition*. Harvard Business School Press, Cambridge, USA

- Porter M, Magretta J (2014) *Strategy and competition: the Porter collection*. Harvard Business Press Review, Boston, USA
- Prado D, Archibald R (2009) *Gerenciamento de Projetos para Executivos*. INDG Tecnologia e Serviços Ltda, Nova Lima, Brazil
- Ries E (2011) *The lean startup: how today's entrepreneurs use continuous innovation to create radically successful businesses*. Crown Business, New York, USA
- Sachsenhofer W (2016) Leveraging business model components as drivers of business model portfolios. *J Bus Models* 4(3):37–47
- Sako M (2012) Business models for strategy and innovation. *Commun ACM* 55(7):22–24
- SAS (2017) What is analytics? Available at https://www.sas.com/en_us/insights/analytics/what-is-analytics.html. Accessed on Nov 2017
- Schumpeter JA (1942) *Capitalism, socialism and democracy*. Harper-Collins, New York, USA
- Setia P, Venkatesh V, Joglekar S (2013) Leveraging digital technologies: how information quality leads to localized capabilities and customer service performance. *MIS Q* 37(2):565–590
- Silva AMB (2011) Modelos e Modelizações em Ciência da Informação: O Modelo eLit.pt e a investigação em literacia informacional. *J PRISMA.COM* 13(1):1–56
- Singleton-Green B (2014) Should financial reporting reflect firms' business models? What accounting can learn from the economic theory of the firm. *J Manage Governance* 18(3):697–706. <https://doi.org/10.1007/s10997-012-9240-7>
- Slávik Š, Hanák R (2017) Identification of relation between business model and business strategy and measurements of its tightness. *Probl Manag 21st Century* 12(1):54–68
- Teece DJ (2009) *Dynamic capabilities and strategic management: organizing for innovation and growth*. Oxford Press, Oxford, United Kingdom
- Teece DJ, Linden G (2017) Business models, value capture and digital enterprise. *J Organ Des* 6(8):2–14. <https://doi.org/10.1186/s41469-017-0018-x>
- Tuomi I (2000) Data is more than knowledge: implications of the reversed knowledge hierarchy for knowledge management and organizational memory. *J Manag Syst* 16(3):103–117
- Turban E, Mc Lean E, Wetherbee J (2002) *Information technology for management: transforming business in the digital economy*, 3rd edn. John Wiley and Sons, Hoboken, USA
- Utterback JM (1971) The process of technological innovation of the firm. *Acad Manag J* 14(1):75–88
- Utterback JM (1996) *Mastering the dynamics of innovation*, 2nd edn. Harvard Business Press Review, Cambridge, USA
- Venkatraman N (1989) Strategic orientation of business enterprises: the construct, dimensionality and measurement. *Manage Sci* 35(8):942–962
- Wernerfelt B (1984) A resource-based view of a firm. *Strateg Manag J* 5(1):171–180
- Wirtz BW, Daiser P (2017) Business model innovation: an integrative conceptual framework. *J Bus Models* 5(1):14–34
- Yonce C, Taylor J, Kelly N, Gnau S (2017) BI Experts' perspective: are you ready for what's coming in analytics. *Bus Intell J* 22(3):36–42
- Zaleswska-Kurek K, Kandemir S, Englis BG, Englis PD (2016) Development of market-driven business models in the IT industry. How firms experiment with their business models? *J Bus Models* 4(3):48–67
- Zott C, Amit R, Massa L (2011) The business model: recent developments and future research. *J Manag* 37(4):1019–1042