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Business Model Theory Evolution: Multi-Perspective Analysis

He Ning

***Abstract*— By analyzing the current literature, it's obvious that although the management community has always struggled to reach a clear definition for the BM in theory and practice , the relationship between BM and other similar terms such as strategy management, value creation, revenue model, still remains fuzzy . Recently, there is an obvious shift from researching the BM of a single company to designing ecosystemic BM .Essentially, the ecosystem view of BM belongs to the theories of open innovation .Because the traditional approach ignores the co-evolving nature of business ecosystem, the new approach views BM as a concept for explaining the complex mechanisms of value creation inside the whole business ecosystem. For the purposes of this article, through an analysis of representative literature, the author tries to reconcile various viewpoints to explore the BM evolution process ,especially , the dynamic created by interactions between BM' s components.**

***Index Terms*— BM (Business Models) , Business Ecosystem, Open Innovation, BMC (Business Model Canvas), Business Model Evolution.**

I. INTRODUCTION

At the very beginning, BM was defined as the Internet BM, and early literatures always try to list, define or categorise the BM of those firms doing business over the Net. Although, many frameworks, taxonomies dominated the research field at that time, three of the most popularly-referenced authors are Rappa[1] , Timmers [2] and Weill & Vitale [3] .The earliest and most widely-cited definition is provided by Timmer : "An architecture for the product, service and information flows, including a description of the various business actors and their roles; and a description of the potential benefits for the various business actors; and a description of the sources of revenue"

Obviously, In BM research field, there is always a lack of a common definition, for instance, Morris [4]ever describes as follows: ' Diversity in the available definitions poses substantive challenges for delimiting the nature and components of model and determining what constitutes a good model. It also leads to confusion in terminology, as BM, strategy, business concept, revenue model, and economic model are often used interchangeably. More-over, the BM has been referred to as architecture, design, pattern, plan, method, assumption, and statement.'

Nowadays, many new approaches view BM as a concept for explaining the complex mechanisms of value creation inside the whole business ecosystem. Through an analysis of representative literature ,the author tries to reconcile various viewpoints to analyze the BM theory evolution process ,especially , the dynamic created by interactions between BM components. This paper is organized in three parts: the earlier traditional perspective of BM; Ecosyetematic perspective of BM;

Dynamic perspective of BM. Table 1 gives a general overview of the three theoretical perspectives of BM.

Table 1: Three Theoretical Perspectives of BM.

Traditional perspective of BM	Ecosyetematic perspective of BM	Dynamic perspective of BM
1 A strategy brings competitive advantage 2 An architecture contains a set of related elements 3 A mechanism of value creation 4 A revenue model	1Business ecosystem 2Open innovations 3CAS perspective	1 Emergent evolution of BM 2 Permanent disequilibrium 3 Dynamic consistency

II. TRADITIONAL PERSPECTIVE OF BM

Clearly, the following initial work explored the BM concept as a basis for future research, and paved the way for much research work to be undertaken on the subject. Among those different perspectives of BM, the definition of Amit and Zott[5] are the most popular description. ''A BM depicts the content, structure, and governance of transactions designed so as to create value through the exploitation of business opportunities.''. Table 2 are the traditional research focus on BM, the table shows the earlier lenses towards BM .

Table 2: Traditional Perspective of BM

Traditional perspectives of BM	Typical Authors/year	BM Descriptions
A strategy brings competitive advantage	1: Michael Porter(2012) 2: Joan Magretta(2012) 3:Casadesus-Masanell and Ricart (2010)	"The BM is the most basic step in thinking about the viability of a company. If you' re satisfied with just being viable, stop there. If you want to achieve superior profitability, then strategy will take you to the next level." ----- (Michael Porter)

He Ning, lecture of School of Economics and management, Xi'an University of Post & Telecoms, Shanxi province, China,

		[6]
An architecture contains a set of related elements	1:Timmers (1998) 2:Osterwalder 5)	"A BM is a conceptual tool that contains a set of elements and their relationships and allows expressing the business logic of a specific firm''. ----- (Osterwalder) [7]
A mechanism of value creation	1:Richardson (2008) 2:Teece(2010) 3:Casadesus-MasanellandRicart (2010)	"BM refers to the logic of the firm, the way it operates and how it creates value for its Stakeholders" ------（Casadesus-Masanell and Ricart) [8]
A revenue model	1:Ballon(2007) 2:George and Bock(2011) 3:Amit and Zott(2001) 4:Ibrahim(2006)	"The specific mode in which a BM enables the generation of revenue, a revenue model describes the revenue sources, their volume and distribution"------ (Ibrahim) [9]

Although BM exact definition is still vaguely explained from these earlier management literature, these traditional researching results still have some very significant meanings for us.

A. Different roles: the business model and strategy are complements, not substitutes

Every company has it's unique BM, and the BM will change as the firm grows or responds to changes in the environment. Until now , many people blur the distinction between BM and strategies, but they are different, and their relationship is complicated. For example, The BM Canvas, as a good tool, can help firms describing, estimating, analyzing the current BM, or help managers to make decisions whether it needs to be modified or replaced. But the BMC has limitations: it can not help firms develop a competitive advantage, and outperform its competition. Instead, strategies can play those roles. Obviously, BM and strategies are equally important for organization development. Many scholars provide their ideas, the following content are some typical viewpoints:

- BM tells who your customers are and how you plan to make money by providing them with value; strategy teach you how to beat competitors by being different. BM are stories that explain how enterprises work. A good BM answers Peter Drucker's age old questions: Who is the customer? And what does the customer value? It also answers the fundamental questions every manager must ask: How do we make money in this business? What is the underlying economic logic that explains how we can deliver value to customers at an appropriate cost? [10] (Magretta, 2002).
- Every organization has some BM and not every organization has a strategy [8] (Casadesus-Masanell and Ricart, 2010)
- The BM is the most basic step in thinking about the viability of a company. If you're satisfied with just being viable, stop there. If you want to achieve superior profitability, then strategy – as I define it – will take you to the next level. taking the BM in isolation from the company's strategy may hinder the firm most important advantages. Without a clear strategy ready to modify the existing BM, the competitive advantage may soon be offset. [6] (Michael Porter,2012)
- How do the firm's BM and product market strategy interact to influence the company's performance? (1) BM that emphasize novelty and are coupled with either differentiation or cost leadership can have a positive impact on the firm's performance and (2) novelty-centered business models together with early entry into a market have a positive effect on performance. [11] (Zott et al., 2008)

In conclusion, strategies, as a long-term plan , can build dynamic capabilities which includes several BM. These BM are short-term plan to respond to different contingencies. Essentially, they are playing different roles for firm's development and grow, they are complements, not substitutes.

B. Contingency nature of BM

Lots of literature of BM indicates that context is a crucial factor when designing a firm's BM. For example, firms that satisfy the same customer need and pursue similar strategies can have different BM . The following descriptions are typical viewpoints towards contingency nature of BM.

- The context of firm's strategy affects the choice of BM. A BM, explicit or implicit ,always focuses on how to create, deliver and capture value —rooted in a specific context . [12] (Baden-Fuller & Morgan, 2010).
- In stable competitive environments, strategy and BM may be closely related, making differentiating between them problematic . When dynamic external factors force the choice of a new BM, however, the two concepts can clearly be seen to differ (Casadesus-Masanell & Ricart, 2010)
- Management actions and environmental trends are in permanent disequilibrium and a firm needs the capability to "sustain its performance while changing its BM " at the same time[13] (Demil & Lecocq, 2010)
- Entrepreneurial firms may pay more attention to their BM than mature firms because they must deal with coordination problems with external stakeholders in a world of novelty and systemic change. Their survival is therefore often largely dependent on boundary-spanning organizational activities. [14] (Zott et al., 2007)

C. Systemic nature of BM innovation

Many scholars regard BM as a recipe, a role model, a scale model, Baden-Fuller & Morgan(2010), [12]instead, disagreed with these opinions. They believe BM, as models, have a multivalent character. A firm does not necessarily confine to a single business model but can have many business models. Besides, BM can play different roles for different firms and for different purposes. Moreover, when

designing BM, a firm can implement several of different design themes at the same time. For a company, several business models can complement and be combined with each other, instead of operating separately. Usually, the more they share major critical assets in common, the more they generates shared capabilities and resources.(Baden-Fuller & Morgan,2010)

In terms of the relationship of BM innovation and technology innovation, Baden-Fuller and Hae fliger[15] (2013) explained that business model innovation does not necessarily require a technology innovation, new technologies often act as a catalyst for business model innovation.

According to Velu and Stiles[16] (2013), BM innovation is also different with product innovation, process innovation, and so on. BM innovation is more systemic in nature. The success of BM relies on the perfect alignment of how value is created and captured. Therefore, it is not surprise that an incremental product or process innovation results in a radical business model innovation.

In conclusion, BM innovation often spans a wider range of external partners, and access complementary resources than do traditional product or process innovations. As a result, BM innovations are often less predictable, and there are more coordination challenges than before.

D. BM can be designed effectively

Amit and Zott propose four themes that design the value creation logic of BM: (1) novelty-centered BM design theme (2) efficiency-centered BM design theme (3) the lock-in-centered design theme, which builds on network and transaction cost theory (4) the complementarities-centered design theme, which is based on the resource-based theory.

Although , many research work has been done in the fields of BM, it still remains hard to express the nature in a comprehensible and repeatable way. In order to systematically describe BM, BM Canvas (BMC), a modelling technique is a good solution. The BMC is a table-style model developed by Osterwalder : "A shared language for describing, visualizing, assessing and changing business models" .

Obviously, the theory of both Amit &Zott and Osterwalder all belongs to the static approach. Their views regards BM can be identified, designed, planed deliberately by managers of firms. In fact, having a deliberate view implies that a firm's BM is the result of its management's purposeful and specific design decisions. However, In reality, BM innovation often have antecedents and consequences , therefore ,BM evolution usually is more emergent and surprising, and is more rely on environment or happenstance than on deliberate management choices.

Admittedly, the static approach enables company to describe, estimate, compare, and examine the performance effects of particular BM more conveniently. However both theories of Amit &Zott and Osterwalder loses sight of the problem how BM change, what is the interactions of BM components. On the other hands, lots of scholars pay more attentions to the transformational view on BM, just like the following sentences:'The advantage of an ex ante specification of core elements is that changes in these elements can be measured consistently across firms. The disadvantage of this approach is that it assumes that the same elements are equally central or core in all the firms' . .

III. THE ECOSYSTEMIC VIEWS OF BM

With the development and evolution of BM theory, the researching focus has shifted from BM of a single firm to the ecosystemic views .The ecosystem view of BM supports the principles of open innovation , looking BM as a constantly evolving, coupled structure. There are several articles that discuss the business ecosystem with different aspects . Classical research were carried on by the early works of Moore , Iansiti and Levien, the more recent work includes Pagie and Peltoniemi , Hearn and Pace, Chesbrough, Van der Borgh et al, and so on .

A Ecological metaphor of business ecosystem

At the very first beginning, Moore (1996) [17]used an ecological metaphor to describe the business world as a business ecosystem . Similarly to biological ecosystems, business ecosystems are characterized by high complexity, interdependence, co-operation, competition and co evolution .The most significant contribution in this field focus on ecosystem stages; business ecosystem health measures ; types of ecosystem coevolution .

- Moore (1996) defined four ecosystem stages: 1) Pioneering; 2) Expansion; 3) Establishment 4) Renewal or Death. For companies, Understanding the stage of the ecosystem evolution let them to determine what is the key challenges currently, and allows them to select the most effective business strategies to deploy.
- Considering the health measures of a business ecosystem. Iansiti and Levien [18] (2004) pointed out there are three measures: productivity, robustness and niche creation. Besides , Hearn and Pace [19] (2013)further explained that the success of the ecosystem is determined by robustness. That is to say, even if an individual firms fail, a robust ecosystem can recover and persist as fast as it can. Such adaptability and flexibility is significant especially in a complex and turbulent environment .Many management cases show that lots of innovative ideas come from large corporations , but often they are pushed forward or realized by entrepreneurs, or spin-off companies.(Hearn and Pace ,2013). Many of the seeds of innovation die young, but are revitalised at some later date when the fertile ground is available . In addition, in order to reinforce the ecosystem's BM survival, sometimes, it is necessarily to deliberately facilitate exit routes for firms to leave the system. [20] (Van der Borgh, Clood, and Romme ,2008)
- Many scholars discussed different types of ecosystem coevolution, for instance: competitive coevolution, mutualistic coevolution, and exploitative coevolution. Competitive coevolution means that companies compete for the same pool of resources. The whole system can realize evolution because of more efficient utilization of resources. Mutualistic coevolution emphasize that tighter integration, parallel change, better compatibility and complementary capability of all the participants will promote the coevolution of the

whole system .In case of exploitative coevolution, on the other hand, a more powerful firm pushes the evolution in a certain direction[21] (Pagie, 1999).

B Open innovations and boundary-spanning activities

Many researchers have utilized the business ecology perspectives to analyze the BM evolution. Among them ,the most popular author is Chesbrough ,he published lots of articles to articulate his viewpoints. Chesbrough[22] (2007) differentiates between closed and open BM. According to his research, Firms implementing closed BM focus primarily on internal value creation and value capture, they rarely coordinate with external partners, they only maintain simple buyer-seller relationships with the outside world. In contrast, open BM pay more attention to external resources, firms regards others players resources and abilities as key contributors to there value creation and value capture process. Through close partner collaboration and more boundary-spanning activities, firms with an open BM attitude always can acquire improved access to new markets , knowledge, as well as resources and capabilities.(Chesbrough ,2007)

Besides Chesbrough , other authors (Myllykoski&amp and Ahokangas) [23]also analyze BM innovations from the perspective of ecosystem. They describes the business ecosystem as a bundle of interlinked BM. The interconnected processes of value cocreation, cocapture among various actor within a business ecosystem is more important than before. In the networked context , two equally important aspects are the ability of value cocreation and value cocapture. Moreover, a new concept appears :"co-opetition". This term refers to the coexistence of competition and cooperation within the ecosystem. Essentially, it is natural that with the increased complexity of the current business environment, companies compete and cooperate with each other simultaneously.

C CAS perspective of BM

The CAS perspective of BM is based on the industrial ecosystem thinking, and the important method is modularity analysis. This is a significant contribution to the discussion of boundary-spanning and open BM by increasing cooperation among the business actors for the whole system benefits. There are plenty of articles illustrates how the application of such a modular approach affects the business model based on industrial ecosystem thinking. Especially, modularity becomes a new tools for making BM comparisons in variation. It is clear that the drivers behind modularity are the reduction of system complexity, creation of variety , utilization of similarities, and the requirement for balancing customisation and standardization. Obviously, the modularity analysis has expanded from product modularisation to BM innovations .

Early in 1962, Simon's[24] research has pointed out that the Industrial ecosystems can be perceived as complex systems, since they are "made up of a large number of parts that interact in an on simple way" , as a complex adaptive system, the whole system of BM is more than the sum of the components in a pragmatic sense . BM can be viewed as modules and an industrial ecosystem because they are already viable by themselves. Such modules are formed by different elements, and can be replaced by other modules with the same function. The functions of the modules are reflection of the aggregative properties, which constitute the context of an industrial ecosystem, and which help to describe the interactions among the modules.

Another author, Schilling (2000) [25]also explained modularity as a general systems concept, which describes "the degree to which system's components can be separated and recombined". Modularisation implies decomposition of complex systems into building blocks with specified interfaces.

Admittedly, BM research, which based on CAS thinking, brings challenges and opportunities simultaneously. On the one hand, the opportunity comes from the possibility to generate new features, which are unavailable for single business actor on their own . On the other hand, the challenge lies in the tight connection among business partners, because it is crucial for the firms to have the capabilities to manage its complexity and take advantage of it.

IV. Dynamic perspective of BM

A The idea of "permanent disequilibrium"

Nowadays, Penrosian's[26] ideas still have strong strength in explaining the firm's growth, although writing more than half a century ago. Actually, the idea of 'permanent disequilibrium' is always at the heart of Penrosian research. According to his opinion, resources are never utilized optimally and inefficiencies always persist, in order to get growth, firms never stops pursuing for opportunities for new value propositions and better exploitation of resources.

Penrose perceived that all kinds of service provided by firms depend on its management's capacity to extract value from resources, and to create more innovative combinations. In his research, Penrose pointed out that there are two important abilities to a firm's further growth: the operational capacities and entrepreneurial capacities of management. Firstly, the operational capability involves how to improve the exploitation of firm's resources. And secondly, the entrepreneurial capacities of management are responsible to create opportunities for using the resources to envisage new products or services into its markets. In conclusion, the role of entrepreneurial capacities is to build new value propositions according to customer's needs, while the duty of operational capacities is to implement these entrepreneurial ideas and proposals effectively. Just like Penrose's words: 'in most circumstances one would expect new managerial services to be created in the process of expansion and to remain available to the firm' . Obviously, if the firm can Increase efficiency in physical resources use or human resources use, the extra resources could be freed up efficiently, and this is very helpful for the firm to develop innovative products or services. Therefore, it is very significant to fully take advantage of the excess resources in order to get sustainable growth of the company. In addition, it is a key driver to increase returns to resources, and to use excess capacities, especially for those companies implementing diversification strategy.

Although, there are many different perspectives of BM research, a common opinion is that BM is composed of three components: value propositions, value delivery, and value realization. As a complex system, the process of BM innovation and BM evolution must be dynamic and continually changing. As mentioned before, Penrose's theory focused on explaining the growth of the firm, and his research

is very suitable to BM dynamic analysis and BM evolution research, which is based on the interaction between distinct core components. In his research works, specially, Penrose emphasized important roles of interaction. The interaction may come from different resources, the firm's structures, core components of BM and so on. More concretely, the resources accumulated over the firm's long history will be continually reacting with each other, and also with other constituent parts of the firm's structure in unique combinations that will make the firm's unique capabilities. That interactions of core components also means there are synergies emerging from complementary resources, and from related knowledge about the use of resources. Moreover, all the resources have the typical feature of independent path. That is to say, factors like: network externalities, accumulation of reputation, experience accumulated by employees, bureaucratization of structure , economies of scale related to products will influence the interaction process and even the BM evolution greatly.

B BM evolution: not only the result of purposeful design

While there is a vast and rich literature on BM innovations, early perspectives all regard BM innovations can be designed and planned effectively by managers. Recently, new researching method emerges frequently. Especially, many scholars perceive BM evolution as a dynamic process, which are not the result of purposeful designing. The following authors are some typical representatives of these groups.

Early in 1978, Mintzberg[27] pointed out that the source of dynamics in the process of BM evolution comes from not only the intended choices by the managers, but also from some emergent decision makings in the changeable market. Of course, the intended choices are a first and important source of the dynamics, as each choice entails further changes to other component. But in the dynamic market, emergent situation happens frequently, which require the firm to respond as fast as it can. Therefore, relying excessively on intentional drivers in BM evolution ignores other sources of evolution. Although, in many literature , it is believed that these well-designed choices are sources of radical BM innovation, however , the BM innovation could be a rather progressive process instead.

In addition to Mintzberg , Winter and Szulanski [28]are two famous scholars ,who use evolution perspectives to analyze BM innovation process. According to their ideas: a successful BM is rarely found immediately, but requires progressive refinements to create internal consistency in order to adapt to the market. Therefore, BM evolution has an interdependent routine that is discovered, adjusted, and fine-tuned by 'doing'.

Besides, some published articles by Sosna M, et.al [29]also support the dynamic evolution principles to BM innovations. For the first time, Sosna M, et.al ground BM development in the organizational learning perspective. There research's value lies in the combination of BM evolution and learning organizations together. According to their analysis, BM evolution should consider not only the externalities and environmental contingencies, but also the entrepreneur's psychological and emotional character, and previous repositories of learning . Similar with Winter and Szulanskis , Sosna M, et.al's also contributes to the dynamic perspective study that regards BM development as an initial experiment followed by constant fine tuning based on trial-and-error.

C The label of 'dynamic consistency' to BM

In terms of the dynamic analysis on BM evolution, a widely-cited article was written by Demil and Lecocq .They build a RCOV framework on the basis of theories of Penrose, Mintzberg, Winter and Szulanski. In their article, they emphasized the crucial role of interactions between its BM's components, and admitted that BM evolution is a fine tuning process involving anticipating and reacting to voluntary and emerging changes in the market. According to their views, until now, there are two widely-used methods when carrying on research to BM and BM innovations. The first is the static approach, and Osterwarder BMC is a representative analysis. Successfully, BMC makes a blueprint for the coherence between core BM components, and it has plenty of advantages as we mentioned before. Admittedly, this static perspective loses sight of the problems how BM change and evolution. In order to overcome the weakness of the static perspective approach, Demil and Lecocq proposed the second method, and they named it transformational approach. This approach has become a useful tool to research on the dynamic created by the interactions between BM building blocks.

Based on Penrose' perspectives, they developed Penrose's view to a further step. Demil and Lecocq admitted that the BM's ongoing dynamics come from the interactions between and within the BM core components. The interactions come from numerous reciprocally-acting relationships between the BM core components. In fact, strong interactions means core components are strongly coupled when the resources are fully exploited and well incorporated within the firm's structure. Such a strong coupling can create positive feedback and synergies between core components. However, a tightly coupling system may be difficult to maintain when environmental changes. In these circumstances, in order to restore performance, the firm has to change its BM radically, instead of just modifying BM components incrementally. In conclusion, it is these interactions between core components that creates and sustains firm performance. Therefore , the analysis of a BM should focus on the relationships more than on some isolated attributes, for example: element list in core components, and characteristics of high-performing BM. That is to say a tightly coupling system is more successful than a loosely coupling system for BM evolution.

From the perspective of transformational approach, BM consistency is an important indicator. And BM consistency can be realized when a tightly coupling BM system lead to a sustainable performance, therefore, profit is the indicator for BM consistency. Demil and Lecocq used the label 'dynamic consistency'to show the coupling level between BM core components. Essentially, dynamic consistency is the capability to implement incremental or radical changes to current BM in order to maintain performance for the firm.

In conclusion, an emerging dynamic perspective perceives BM evolution as an experiment followed by constant revision, adaptation and fine tuning based on trial-and-error learning.

V. CONCLUSION

This paper aims to introduce bundles of scholars, who has long been engaged in research on BM, enjoyed a high reputation in the relevant fields, and put forward important theories or opinions. Some of them build classic model structure, others describes the logic of BM. These scholars

comes from different research fields: e-business, strategic management, technology management, innovation management , and are distributed in different places of the world. They published numerous BM articles in academic journals which has great influences in the management fields: The Harvard Business Review, the Journal Of strategic management, long Range Planning

Although Huge amounts of literature enriches people's understanding of BM, Overall, the BM is still in the exploratory stage, does not form a unified system of generally accepted theory. The author of this paper tries to comb the representative literature , so as to find the BM concept of evolution and tendency of BM innovation path.

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