



Research on the Innovation Mechanism of Enterprise Business Model in the Internet Environment

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Abstract. With the influence of the Internet, business model innovation has become one of the effective ways to ensure the normal development of enterprises when enterprises response to complex market environments and individualized needs of customers. However, under the new phenomenon of enterprises in the Internet era, the theory of traditional business model innovation still has shortcomings, which is difficult to support the business model change of enterprises. How to successfully carry out business model innovation? This article will take MI enterprises as the research object to explore the main driving factors of enterprise business model innovation under the Internet environment. And we refine the dynamic innovation model of business model based on the value logic, which could complement the theoretical research of business model innovation. The research conclusion shows that the driving factor for business model innovation is the market change brought by the Internet. Through the evolution and reorganization of value logic, companies form new business models, and finally realize business model innovation.

Keywords: Internet environment · Business model innovation · Value logic

1 Introduction

As the theory of management in the 21st century, the business model has just emerged internationally, which represents the core business philosophy of the company. With the development of the Internet, information technology has revolutionized. The barriers to information communication between enterprises and consumers have been broken, which has led to changes in the business philosophy of enterprises, which has made the original business model rigid and difficult to adapt to fierce market competition. In the end, the original business model of the enterprise becomes rigid and it is difficult to adapt to the fierce market competition. In response to the complex market environment, business model innovation is regarded as one of the important core capabilities for the survival and development of enterprises in the 21st century [1]. However, how does the business model innovate? Or what is the internal mechanism of business model innovation? This is one of the problems that the current academic community and enterprises need to deal with.

Although the words of the Internet and business model innovation frequently appear in various authoritative media such as corporate project reports, news reports, and so on. Academics still lack corresponding research results. This is in contrast to the innovative practices of Chinese companies.

Existing literature research still has the following two short-comings: First, in the Internet environment, traditional theories face a new phenomenon of enterprises in the Internet era, which lacks research on the formation mechanism of business models and the development process mechanism; Second, there is a lack of research on the relationship between Internet factors and the innovation process of business models. From a dynamic perspective, there is still a “black box” in the process of enterprise business model innovation in the Internet era. Therefore, it is of great theoretical and practical significance to study the innovation of business models in the Internet environment.

In order to further explore the process of researching business model innovation, this study selected MI enterprises that focus on Internet products and have a unique business model as the main case study object. And study analysis the business model innovation process from the value logic level based on the dynamic perspective, to explore the complete mechanism of business model construction. This paper selects the value logic theory based on the dynamic perspective for the following reasons: (1) The business model of the enterprise is constantly changing with the development of the enterprise, and its evolution is a dynamic development process. (2) The essence of business model innovation lies in the transformation and restructuring of value logic [2]. The development of the Internet is the main driving force to change value logic. Therefore, the structure of this paper is as follows: Firstly, the article discusses the theoretical background of the model framework and illustrates the process of data collection and analysis. Secondly, taking MI enterprise as an example, it analyzes the process of business model innovation. Finally, it discusses the theoretical and practical significance of the research results.

2 Theoretical Background

2.1 Business Model Theory

With the rapid development of e-commerce in the 20th century, the concept of business model has begun to be well known by enterprises, and the development of business models has attracted the attention of many academic researchers. Due to its importance and uniqueness, the business model has gradually become the subject of extensive dissemination and research in academia. Foreign scholars have defined business models from different perspectives. Based on the existing theoretical results, the definition of business model in the academic community is mainly divided into the following three viewpoints:

First, the business model from the perspective of strategy. Business model is the specific performance or implementation of corporate strategy. Scholars who hold this view believe that the business model is the feedback that enterprises make in response to the complex market environment and is the epitome of the company’s future development strategy. Through business models, companies could accurately identify the market and choose the right operating model to create and profit [3].

Second, the business model from the perspective of governance. Scholars who hold this view believe that the design of the business model will affect the configuration of the internal organization from the side, thus conforming to the core business philosophy of the enterprise. In Hawkins' [4] study on corporate performance, business models are viewed by firms as an effective management approach that can rationally allocate resources for market competition; while researchers such as Morris [5] believes that business models are a design method that helps organizations in the enterprise achieve organic integration, which can ensure a virtuous cycle and normal operation of the business, and ultimately help the company to obtain a continuous profit flow.

Finally, the business model from the perspective of value logic. Scholars who hold this view believe that the competitiveness of the business model is mainly reflected in its value logic, namely value proposition, creation and acquisition [6]. In the existing literature, there are many researches on business model theory from the perspective of value creation, which has the greatest impact [7]. Because by researching value creation, it is possible to dynamically and systematically understand the meaning of business models [8].

With the deepening of the research on the value theory of business models, practical experience has found that the success of business models depends not only on value creation [1], but also the value acquisition of enterprises is one of the important determinants [9]. With the improvement of the business model theory, scholars gradually merged the three values logic concepts on the basis of the original research. They emphasize that the core of the business model lies in the value proposition, which is the foundation. And focusing on the target customer, enterprises choose the right value creation and value acquisition method [10], which is the core value logic of the business model.

2.2 The Business Model in the Internet Environment

The maturity of Internet technology has promoted the deep integration of emerging technologies represented by the Internet with other fields, which has greatly changed the innovative mode of society and business. Krishnakumar [11] found that the Internet can bring about an increase in the value of hardware and software innovation. J Dong [12] analyzed the business model of MI and pointed out that with the help of Internet technology, enterprises form a new business model in which users participate in product design. The market environment faced by enterprises in the Internet era has undergone tremendous changes. The rapid development of information technology has broken the regional restrictions on market transactions. The original business model of enterprises has gradually become rigid and lost the vitality of market competition [13]. Berman [14] believes that the traditional business model works like a pipeline, and under the impetus of the development of the Internet, the new business model is represented by the platform operation. Putzc [15] believes that the application of business models under the influence of the Internet can effectively promote the transformation and upgrading of traditional enterprises towards the new economic model, thus achieving sustainable development. Therefore, in order to cope with the complex market competition environment under the Internet situation, for enterprises business model innovation is one of the indispensable and important capabilities.

Based on the existing business model literature, the current research on business models has the following shortcomings: First, the previous business model literature focused on its microscopic and macroscopic attribute characteristics [16], lacking research on the mechanism of its formation and evolution. Secondly, the current research on the changes of business models in the Internet context is mostly based on Internet information technology as an external tool that affects the business model of the enterprise, which does not match the current development of the business model of the enterprise. Because the Internet has been deeply embedded in the business model of the enterprise and has become an important internal factor affecting the business model of the enterprise. Finally, with the rapid development of time and the resource constraints caused by the rapid changes in the social environment, in order to ensure the sustainability of development, the innovation of business model is one of the effective ways for enterprises to solve the pressure of market competition.

In summary, the research on the dynamic innovation mechanism of enterprise business model under the Internet context has important reference significance and academic research value for the future market development of enterprises. Although the existing theoretical research of business models has laid a solid theoretical foundation for this paper, there are still some shortcomings in the literature on the study of business model innovation from a dynamic perspective. Due to the lack of process research, the academic community still has debates about business models. Therefore, this paper studies the evolution of enterprise-related value logic in business model innovation from a dynamic perspective, and reveals the important issue of how to conduct business model innovation in the context of the Internet. The specific research framework of the article is shown in Fig. 1:

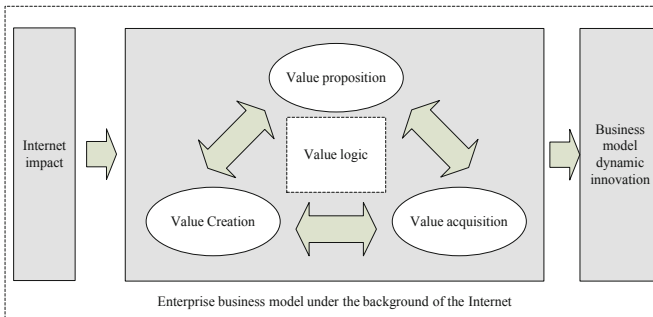


Fig. 1. The framework of research

3 Research methods

3.1 Method and Case Selection

In order to achieve the research goal of the thesis, this paper adopts the standard research method (SPS) based on single case study, and combines theory with case to carry out

problem research. The reasons are as follows: First, the purpose of this paper is researching on the dynamic process of how the business model evolves during the development process, so the use of single case exploration research and the research objectives of this paper are mutually compatible. Second, the literature on the study of business model innovation in academia is relatively inadequate. Compared with business model practice, research focusing on dynamic innovation of business models is rare, and exploratory case studies are applicable to analysis of existing research shortages [17].

Based on the following two standards, this paper selects MI enterprises as the research object: (1) The choice of case objects takes into account the principle of importance and representation. As an Internet manufacturing company, MI focuses on the innovative research and development of high-tech products and is one of the typical representatives of China's high-tech industry. At the same time, it constantly improved the business model in the development process to match the development goals of the company. As a case study object, this Company is in line with the theme of the dynamic evolution of the business model of this paper. (2) Take into account the principle of consistency between theoretical goals and corporate best practices. The success of company is largely due to its innovative business model. How does MI face challenges and innovate business models, which is consistent with the research goal of building an enterprise business model based on corporate development goals.

3.2 Data Collection

This study follows the case study process of "Defining Research Questions → Theoretical Review → Case Study Draft Design → Data Collection → Data Analysis". Through theoretical and data cycle analysis, repeated focusing, we could find theoretical innovations [17, 18].

- (1) Refining research questions based on key data. The research question originated from the rapid success of MI under the influence of the Internet. Throughout its history, MI has continuously changed its business model to overcome the resource constraints brought about by changes in the market environment. However, in the context of the Internet, why do some companies gain the ability to sustain development by changing their business models, while others cannot or have no obvious performance? The reason is the key to how companies can innovate in business models.
- (2) Focus on business model theory and value logic theory. In the process of researching millet enterprises, the article focuses on business model innovation and value logic changes. This paper assumes that the business model innovation reason of the enterprise is closely related to the change of its value logic. Through in-depth study of relevant literature on business model innovation, we combine the case materials to derive the main theoretical analysis framework of this paper.
- (3) Case data collection. The main data collection methods of MI enterprises are combined with formal research interviews and informal surveys, and the data collected and collected are repeatedly compared to ensure the true validity of the research data. First, the research team interviewed several core management personnel of enterprises, and obtained a large amount of data. Second, the results of the project

papers produced by participating in the Beijing High-tech Enterprise Innovation Research Project can effectively supplement the case data; Third, the article collects case information through second-hand information such as corporate official website and books. (Refer to Table 1 for details).¹

Table 1. Data collection and analysis

Data Collection	<p><i>Preliminary Data Collection</i></p> <ul style="list-style-type: none"> ◇ Searched secondary data from multiple sources ◇ Gathered internal archival data 	<p><i>Onsite Data Collection</i></p> <ul style="list-style-type: none"> ◇ Interviewed departments and business units ◇ Group discussions with other researchers were conducted
	<p><i>Preliminary Data Analysis</i></p> <ul style="list-style-type: none"> ◇ Summarize the timeline of the evolution of business models ◇ Review a large body of literature on business model innovation 	<p><i>Offsite Data Collection</i></p> <ul style="list-style-type: none"> ◇ Search and select data that supports business model innovation theory construction and processes ◇ Ensure consistency of data theory models through discussion
	Mechanisms to establish reliability	Mechanisms to establish validity
	<ul style="list-style-type: none"> ◇ Prepared semi-structured interview guides with open ended and relevant questions ◇ Collected data from multiple sources to enable triangulation and cross validation ◇ All of the interviews were taped and transcribed to ensure the accuracy and completeness of data ^[17] 	<ul style="list-style-type: none"> ◇ Set up an interview panel of five researchers to enable the validation of interpretations and observations ^[17] ◇ Theoretical constructs were repeatedly confirmed with informants to ensure data model alignment ^[18] ◇ Ensured emergent process models and final conclusions were supported by literature

¹ Supported by key project of Beijing Social Science Foundation(No.18GLA008): Study on the path and Strategy of Beijing-Tianjing-Hebei Innovation-Driven Development.

- (4) Case data analysis process. The case study is based on the collected first-hand and second-hand case data, and combined with the existing literature data. Finally, paper derives the theoretical model of the business model. Firstly, we summarize the collected case data, and learn more about the business situation of the case enterprise. Then, team compare, filter and classify the data to establish a preliminary case database. Secondly, comparing the case data with the literature and finding out the matching theoretical concepts. We classify and rearrange the data according to the theory to form a theoretical database. Finally, the team extracts some important theoretical research-related theoretical constructs from the theoretical data, then compares the case phenomena and theoretical data with the theoretical data. These theories are fused to form a model. After experiencing data processing, the case data is gradually changed from disorder to order.

4 Case study

4.1 Case Description

In order to ensure the true integrity of the case data, this paper collects first-hand information about the development of business model. Combined with the existing literature, the development is roughly divided into the following stages (As shown in Fig. 2):

- (1) Single product development stage: 2011–2013
At the beginning of development, most of the employees in the company were engaged in the software industry. They lacked experience in the hardware manufacturing of smart phones. Therefore, they did not immediately develop new smart phones, but concentrated their corporate resources on smart phones. The system has been improved to accommodate users in the domestic market. Out of this concept, MI Company gave up the tradition of hardware-focused products of most smart phone companies and proposed a new unique business model of “Hardware + Software + Internet”, in which “hardware” refers to smart phones and “software” refers to smart phones. The operating system MIUI, while the Internet is building value-added services outside the MIUI system and smart phones.
- (2) Product expansion stage: 2014–2016
As time goes on, MI attracts a large number of market users by integrating into the Internet and minimizing the overall cost of sales. It uses the mobile phone as the entrance to the traffic, and builds the communication platform to ensure the user’s brand loyalty, thus introducing users into their own fan base. Based on the original products, it has continuously expanded its product boundaries, from smart phones to smart TVs and smart routers, from mobile phone MIUI systems to tablet operating systems and computer operating systems, which have brought the distance between enterprise and consumers closer. Through this development strategy, MI has obtained opportunities for rapid development and expansion, and also cultivated and accumulated a wide range of potential consumer groups, and the company has achieved rapid and stable development.

(3) Product Ecology Stage: 2017–2018

With the business model innovation of “Hardware + Software + Internet”, MI’s main business has achieved rapid development. As many powerful technology companies gradually entered the field of smart phones, many weak aspects began to appear. In addition, Huawei and ZTE also brought considerable development pressure. In order to solve the above problems, it upgraded the triathlon business model, from the original “Internet + software + hardware” three sections to “Internet + hardware + new retail.” In the context of the new retail era, MI vigorously began to cooperate with third-party enterprises to develop offline experience stores, expand offline sales channels, and successfully achieve online and offline linkages, which greatly promoted the reversal.

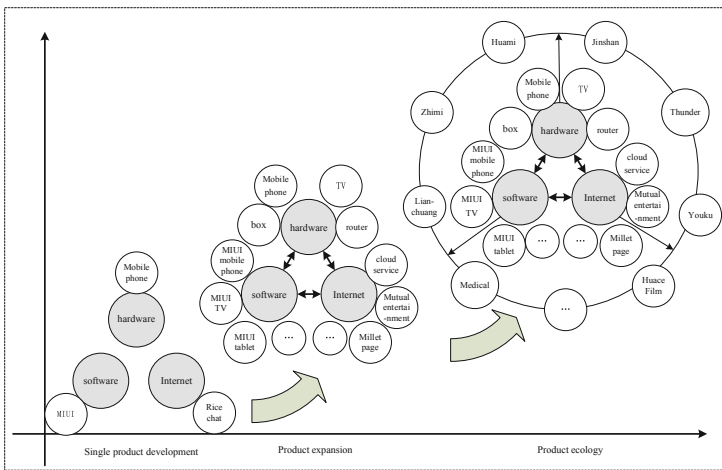


Fig. 2. Concept hierarchy

4.2 Dynamic Evolution of Value Proposition

With the development of digital technology brought about by the Internet, while enterprises are close to the distance of communication with consumers, the competition and resource constraints brought about by the rapid change of market environment have also caused huge impact on the original business model of the enterprise.

In order to adapt to the relevant impacts brought by market changes, the business focus of the company has gradually evolved from “profit-oriented” to “customer-centered”. For MI enterprises, in order to adapt to the market opportunities and competitive pressure brought by the rapid development of Internet technology, it constantly changes the value proposition to assist enterprises in business model innovation. The changes in the value proposition at different stages are as follows:

- (1) Single product development stage. Unlike other smart phone manufacturers that started out from the production of mobile phone accessories, MI set the focus of research and development on the improvement of intelligent operating systems, followed by the production of smart phones. This is due to the newly established company, the internal core staff did not have experience in the mobile phone industry. "In the senior management team, there is a Dr. Zhou who came from Motorola, and the rest have not done mobile phones. They are all software and management." It can be seen that in the environment of the Internet, enterprises are not only affected by the market environment demand, but also the constraints of internal resources have greatly restricted their development. Therefore, the value proposition of the enterprises at the beginning of the establishment is mainly: using the current limited resources to realize the innovation of the mobile phone system.
- (2) Product expansion stage. With the popularity of domestic smart phones, consumers are not only limited to the price and operation difficulty of smart phones, but also begin to pursue the demand for mobile phones to meet various individual needs. Therefore, how to meet the new individualized needs of market consumers has become an important factor in the competition of the enterprise market. Therefore, the development at this stage mainly focuses on product optimization and customer satisfaction. "For MI, quality is the top priority, user satisfaction is the top priority, and user reputation is the top priority." Therefore, in the product expansion stage, the value proposition of the enterprise is mainly to optimize the product and meet the individual needs of the users.
- (3) Product ecological stage. As Internet technology increasingly matures, market competition begins to diversify. In order to enhance competitiveness, a single company gradually turned to seeking third-party partners to acquire more environmental resources to enhance the market competitiveness of enterprises. For MI, after six years of continuous development, it has huge market resources. "Being born with fever" has become a popular term for many fans in the Internet age. In order to protect the stable development of the company in the future, it expands the enterprise's influence field by constructing an ecological chain and continuously expanding the investment field of the enterprise, further narrowing the distance between enterprises and consumers. Therefore, in the product ecological stage, the value proposition of the enterprise is mainly: investing in third-party enterprises and building a product ecosystem.

4.3 Dynamic Evolution of Value Creation

With the constant changes in the external environment and internal resources, MI constantly changes the value proposition to confirm the correct market development direction of the company. In order to match different value propositions, companies need to select appropriate value creation logic to assist the stable development of the company. Under the background of the Internet, the value creation methods of different stages of the enterprise are as follows:

- (1) Single product development stage. Due to the immature Internet technology and the lack of relevant core resources, MI's research focuses on the innovative design of smart phone operations. First of all, it invested all the resources to system innovation and launched the MIUI system, which successfully filled the gap in the domestic smart phone system market. Secondly, for the manufacture of smart phones, due to the lack of hardware experience, it abandoned the traditional mobile phone manufacturing industry. It is customary to completely outsource the manufacturing process of smart phones to reduce production input costs. Therefore, in the early stage of development, it mainly relied on the launch of MIUI system and new products such as mobile phones to compete in the market, thus creating the value of the enterprise.
- (2) Product expansion stage. Enterprises make full use of the "rice fans" resources brought by mobile phones to create value. First of all, in order to meet the individual needs of consumers, MI has specially built a user communication platform to optimize products with user suggestions. Secondly, based on the original products, it has continuously expanded its product boundaries, from smart phones to smart TVs and smart routers, from mobile phone MIUI systems to tablet operating systems and computer operating systems, which have brought enterprises and consumers closer. Therefore, in the product expansion stage, in order to meet the needs of consumers, it mainly adopts a way of constructing a community communication platform to optimize and improve existing products to enhance user satisfaction, and then realize product value creation.
- (3) Product ecological stage. In response to the market competition pressure brought about by the rapid development of technologies such as Internet big data, it began to seek new models to cope with future market competition. First of all, in order to create an ecological circle, MI continues to expand the scope of its products, aiming to create a product ecosystem around consumers and fully integrate into the lives of consumers. Secondly, it continues to cooperate with third parties in the form of investment to form a derivative industry under the brand. While enhancing brand awareness, it can also ensure the balanced development of enterprises in many aspects. Finally, in order to cope with the future market development, it has invested more in cultivating the company's scientific and technological talents, and constantly carries out product improvement and innovation, such as medical, film and television products. It can be seen that at this stage, MI adjusted the structure of the original model, integrated third-party enterprises to expand the boundaries of enterprise products, and finally formed a complete product ecosystem.

4.4 Dynamic Evolution of Value Acquisition

For MI, at different stages of development, due to internal and external factors, it needs to constantly change the value proposition of the enterprise, adopt different ways to create market value for the enterprise, and obtain it in time to stabilize the existing market position of the enterprise. Therefore, for the value acquisition of the enterprise, the analysis is as follows:

- (1) Single product development stage. Through the use of Internet technology, MI launched the MIUI operating system and smart phone on the basis of existing products to compete in the market. The way to sell its products is pure online direct sales. Owing to the limitation of production resources, enterprises have to adopt the “hunger marketing” method to make products for sale by making advance reservations. Therefore, in the development stage of the single product, the main feature of the revenue model is the sales of smart phones and mobile phone systems, and the cost is mainly the previous R&D investment.
- (2) Product expansion stage. With the help of the communication platform, enterprises understand the user’s needs and improve the product’s user satisfaction and market competitiveness by recommending and perfecting the products. In terms of sales, while taking online sales, MI expanded its marketing area with good user reputation and began to enter foreign markets. Therefore, at this stage, the main business is characterized by the operation of the information platform and product sales. The cost lies in the maintenance of the platform and the optimization and upgrading of the products.
- (3) Product ecological stage. In order to ensure future market competition, MI began to use rich resources to cooperate with third-party companies through investment. In this way, it expands the scope boundaries of enterprise products to form a complete product ecosystem to reduce market risks. In addition, based on the original online sales, MI continues to increase the investment in the construction of the experience store to actively develop offline channels. Therefore, in the development stage of the ecological circle, the income of the enterprise is characterized by investing in third parties and opening up offline channels. The cost is mainly from the investment and the investment spent in building the product ecosystem.

5 Business Model Innovation Mechanism

Under the influence of the Internet, with the changes of environment and resources, the original transaction structure of the market has changed, which has led to the ablation of the original value network of the enterprise, and has a huge impact on the business model of the enterprise. In order to enhance the market competitiveness and ensure the sustainable development of enterprises, enterprises need to continuously innovate business models. Combined with the previous analysis, the essence of business model innovation lies in the transformation and reorganization of different value logic, and finally builds a new value logic chain. MI constantly carries out the evolution and restructuring of value logic at different stages to realize the innovation of business model (Fig. 3).

5.1 Theoretical and Practical Contributions

This case study highlights implications for researchers and practitioners. By combing the relevant information of the case enterprises and combining the research conclusions of business model innovation, the paper conducts discussion on the business model innovation process in the Internet environment to discover relevant regular experiences and provide reference for Chinese enterprises to carry out business model innovation. The conclusions of this paper are as follows:

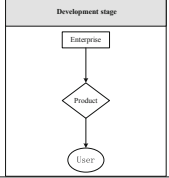
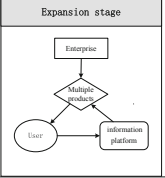
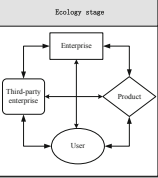
progression stage	development stage (2011-2014)	expansion stage (2014-2016)	ecology stage (2017-2018)
Value proposition	Innovative products to adapt to the market	Focus on product quality	Work together to create an ecosystem
Value Creation	<ul style="list-style-type: none"> ➢ Production of smart phones ➢ System innovation 	<ul style="list-style-type: none"> ➢ Construction of information platform ➢ Product optimization 	<ul style="list-style-type: none"> ➢ Business cooperation ➢ Derivation of products
Value acquisition	<ul style="list-style-type: none"> ➢ Mobile phone sales revenue ➢ Mobile phone system service revenue 	<ul style="list-style-type: none"> ➢ Related product sales revenue ➢ Community operating income 	<ul style="list-style-type: none"> ➢ Sales revenue ➢ Equity income
	↓	↓	↓
Business model			

Fig. 3. Innovation mechanism of business model

First of all, it opened the “black box” of enterprise business model innovation under the Internet environment, and supplemented the existing research. The essence of enterprise business model innovation lies in the change of the original value logic. In order to cope with the complex market competition environment and the individualized needs of customers in the Internet era, enterprises need to reconstruct relevant value logic to achieve business model innovation, so as to ensure the sustainable development capability of enterprises. Secondly, based on the dynamic perspective, this paper introduces value logic in the research of business model innovation. Based on the case material analysis and research, this paper extracts a business model innovation model based on value logic to help guide enterprises to build business models.

In addition, the practical significance of the research is to combine the business model innovation research with the Internet development strategy, and provide relevant ideas for promoting the business model innovation. Through the case study, the article refines innovation model based on value logic, which makes the construction of enterprise business model get rid of the management suggestion level and becomes more disciplined and operational.

5.2 Limitations

Although this article is based on the single case study method which is a “typical and legitimate endeavor” in qualitative research, it is associated with the problem of generalizability and external validity. And we acknowledge that statistical generalization is impossible from a single case, thus future research could validate propositions of this study statistically, so that the boundary conditions of our findings can be better refined.

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