

Research on the Innovation Path of Manufacturing Enterprises' Business Model Based on Value Network Perspective

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Abstract—In order to adapt to the tremendous changes brought about by the information age and the increasingly fierce competition environment, manufacturing enterprises need to continuously carry out business model innovation in the development to ensure the continuity and stability of the operation. Based on the relationship between value network and business model innovation, this paper proposes that manufacturing enterprises can realize business model innovation by constructing a customer-centered and enterprise-centered value network. The research finds that value network helps manufacturing enterprises achieve service goals. Through innovations in value proposition, value creation, value maintenance and value realization, manufacturing enterprises can build a new value network and realize their business model innovation.

Keywords—*Manufacturing enterprise; Business model innovation; Value network; Innovation path*

I. INTRODUCTION

At present, China's economic development has entered a new normal, showing new features of speed shifting, structural adjustment, and power shift. All kinds of difficulties force Chinese manufacturers to change their development concepts and business models urgently. And the manufacturing industry must step into an environment-friendly development track driven by innovation, from production-oriented manufacturing to service-oriented manufacturing [1]. In the early 21st century, many large foreign manufacturing enterprises have successfully completed the transformation of business model. In Apple innovatively transformed from a manufacturing company to a platform company by virtue of its highly integrated value network, realizing the occupation of the global communication market. Haier are also based on service injection in the value network, embedding services into products, forming product differentiation, realizing business model reconstruction, and winning the competitive advantage of enterprises. From the existing management experience of domestic and foreign enterprises, business model innovation based on value network is the main development direction of manufacturing business model.

The concept of business model has a long history. Hawkins starts from the perspective of corporate profit mode, believing that business model is the business relationship between enterprises and products and services, and guarantees the survival of enterprises through the construction of cost and income [2]. Amit and Zott believe that the value gained from business model innovation can exceed the value created by

business cooperation [3]. However, there are still some shortcomings in how to realize the innovation of the business model of manufacturing enterprises efficiently and cheaply. Based on the concept of value network, this paper analyzes the internal relationship between value network and business model innovation, and believes that business model innovation based on value network perspective will guide manufacturing enterprises to embark on the path of service.

II. THEORETICAL BASIS

A. Value Network Theory

The value network theory is a new strategic theory which is emerging and developing gradually in the context of informationization and modularization [4]. With the advent of the information age, the Internet economy has developed rapidly and has been continually impacting the original business models of all walks of life. The industry technology change cycle is shortened, and the frequency of technology renewal is getting faster and faster. Enterprises in different value chains continue to realize that only by integrating their respective value chains can they meet the increasingly diverse and personalized needs of customers and create more value [5]. The value network is customer-centric, breaks the boundaries of traditional value chains, and connects enterprises with different core competencies to form a diverse collection of one or more enterprises and customers as well as suppliers and strategic partners. Each subject in the value network has a common development vision, and the module structure of value generation, distribution, transfer and use formed by various stakeholders, the modules are connected with each other, and the stakeholders interact with each other. In the market environment, the value network takes the customer's demand as the main source of power, stimulating the core enterprises to use their key resources and capabilities, coordinate and drive the relevant enterprises to cooperate and complement each other, and jointly create customer value, enterprise value and social value.

B. Business model innovation

Amit and Zott [6] believe that business model is the operation mode of network architecture composed of enterprises, suppliers, partners and customers and is a decisive source of value creation. The business model innovation changes the original value creation logic of the enterprise through systematic innovation activities, so that the enterprise gains competitiveness while acquiring more value. Today's business model innovation needs to achieve a great

transformation than ever before: from product innovation to consumer-oriented innovation; from product-driven business model to service-oriented and solution-driven business model[6]. It points out that business model innovation is the process of designing a new operating system or improving an existing operating system by reorganizing its existing resources and partners. We can find that business model innovation has the following characteristics: Firstly, business model innovation follows construction logic rather than analysis logic. Enterprises should start from their own strategic intentions, find the market gap by deconstructing the external environment and analyzing customer value, gradually construct their own capabilities and resources by integrating external resources, and promote and influence the formation of new systems. Secondly, business model innovation is based on the principle of borderless expansion. Enterprises that dare to try business model innovation strive to break free from the constraints of existing property rights boundaries, and build a business ecosystem centered on themselves by expanding the community of interests. Finally, business model innovation emphasizes “competition” rather than narrow competition. Business model innovation requires a new economic system to coordinate upstream and downstream stakeholders, subvert the existing value logic, and build a partial closed-loop value logic.

C. The relationship between value networks and business model innovation

For the core manufacturing enterprises, the value network is the external environment in which the enterprise is located, and the business model is the internal logic of the enterprise to create value, and belongs to the internal operation mechanism of the enterprise. David et al. proposed in the process of expounding the concept of value network that value network is an innovative business model, which is also to meet the increasingly stringent requirements of customers, making manufacturing models low cost, high efficiency and a feature of flexibility. Today, with the rapid development of information technology, value creation activities have gradually evolved from the behavior of individual enterprises to the joint efforts of network members. Based on the above research, this paper decomposes different value modules of business model innovation, and divides it into value proposition innovation, value creation innovation, value maintenance innovation and value realization innovation, using four functional modules to be in the value network [7].

III. INNOVATION MECHANISM OF MANUFACTURING ENTERPRISE BUSINESS MODEL BASED ON VALUE NETWORK PERSPECTIVE

A. Value Network Promotes the Servitization of Manufacturing Enterprises

The network is the external environment that enterprises today must face. The enterprises that follow the value logic are most concerned about the network system based on the value perspective embedded in the enterprise itself. The increasingly complex external environment of traditional manufacturing companies is gradually disintegrating the original single value chain thinking and lifting the boundaries based on simple supply chains. In the context of the new economy, the manufacturing industry is driven by innovation, and in addition to technological innovation, it will inevitably involve business model innovation and value network integration. Among them, servitization, customization and greenization are the governance direction of the business model based on value network manufacturing enterprises in the context of digital, network and intelligent integration. Business model innovation based on the perspective of value network will promote the transformation of service enterprises into service, promote the coordinated development of product manufacturing and service supply, promote the transformation of production-oriented manufacturing to service-oriented manufacturing, and further build the product service system of manufacturing enterprises.

B. Value Network Drives Manufacturing Enterprises to Build a Service Ecosystem

The concept of value network far exceeds the linear thinking of the value chain, shifting the focus from creating the company's own profits to realizing the sharing of the entire network, and this transformation is actually a shift from value distribution to value creation. In the value network, the core enterprise must not only play a game of value distribution with stakeholders, but also strengthen cooperation with stakeholders and create higher value on the basis of achieving a win-win situation. Therefore, core manufacturing companies must build their own ecosystems as the core of the entire value network. Vargo et al. refer to this system, which includes different participants and different members through the sharing of institutional logic and creates value through service exchange, which is relatively independent and self-regulating, called the service ecosystem[8].By establishing a value proposition subsystem, a value co-creation subsystem, a value maintenance subsystem and a value realization subsystem, the system establishes a community centered on customer needs and forms an operational mechanism in which cooperation and competition are coordinated. Mutual help and mutual development, further form a community of interests, so that the entire value ecosystem produces synergies and creates more value.

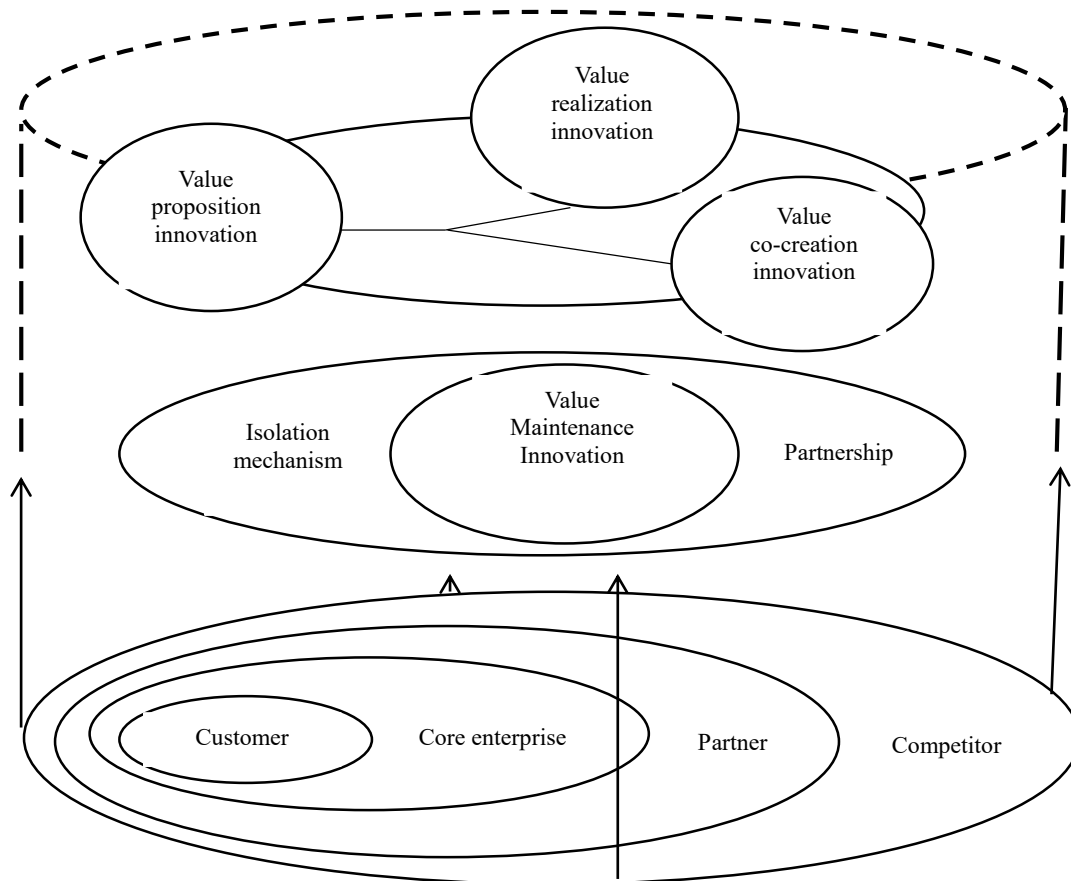


Fig. 1 Manufacturing Enterprises Service Ecosystem

IV. INNOVATION PATH OF MANUFACTURING ENTERPRISES' BUSINESS MODEL BASED ON VALUE NETWORK

A. Value proposition innovation

In the industrial era, manufacturing companies are mainly focused on improving production efficiency, reducing production costs, and pursuing as large-scale manufacturing as possible, so that products appear in a singular form. In the information age, the individualized needs of customers have been greatly stimulated, and they have gradually become niche and diversified. To shift manufacturing companies from a single product model to a service-oriented model, manufacturing companies need to adapt their value proposition to the customer's personalized value needs. Business model innovation does not stem from the technology invention itself, but from the insight into customer needs and the redefinition of value propositions[9]. Manufacturing companies can use Internet technology and advanced industrial technologies such as smart manufacturing and cloud manufacturing to actively analyze customer needs on the basis of standardized production. Value proposition innovation can timely feedback customer information to the manufacturing process, promote the value network entities to jointly develop value propositions in line with market requirements, provide user-oriented and targeted products and services, and make manufacturing enterprises turn to customer-oriented business model.

B. Value co-creation innovation

When a manufacturing enterprise designs and produces service-oriented logic, it must deal with the relationship between the enterprise and the customer. This must be reflected not only in the value proposition but also in the specific value creation level. To achieve this goal, we must carry out value co-creation. In the service ecosystem, stakeholders have operational resources. However, with the continuous development of information technology, the interaction between node enterprises and core enterprises in the original value chain of manufacturing enterprises has become increasingly frequent. In the service ecosystem, stakeholders have operational resources. They are in a many-to-many value network, complementing and integrating resources through interactions such as dialogue, resource transfer and learning. This process of information interaction and resource integration is a process of value co-creation [10]. Value creation is the network relation which develops from unary relation to dualistic relation and further to multi-subject co-creating value. The realization of value co-creation can be carried out by strengthening the vertical connection between supply and demand, the horizontal connection between supply side and the platform network.

C. Value Maintenance Innovation

In today's era, customers receive a variety of information, demand is constantly magnified, it is difficult to establish a stable consumer relationship, and customer spending tends to waver. Since manufacturing companies must develop their customers-centric business, they must ensure that the basic interests of the company can be guaranteed in an open value network. To achieve this goal, it can be achieved through value maintenance innovation. In the process of value maintenance innovation, without the strong support of partners and the establishment of market isolation mechanism, it is easy to be imitated by competitors [7], resulting in loss of value or even failure. In this regard, enterprises can start from two aspects, on the one hand, build a stable partnership, and make the value network achieve a win-win situation. On the other hand, establish a network isolation mechanism to pre-arrange the possible bad competition means and infringement, and isolate the damage of competitors.

D. Value realization innovation

The value realization of business model innovation focuses on whether companies can provide existing customers with constantly updated products or services, or attract new consumers[11]. In the traditional market transaction process, customer value realization and enterprise value realization are often equal, and customers need to pay a certain fee to the enterprise for the acquisition of products and services. However, in the new economic environment, the original trading rules have been changed. Customers can obtain products and services through free or low-cost methods to achieve value acquisition. In other words, the value relationship between manufacturing enterprises and users has become weak due to the transformation of information technology and Internet thinking. Therefore, manufacturing companies should change the lengthy and rigid sales channels, increase online sales, and flatten the marketing channels. At the same time, they should enrich marketing methods, pay attention to brand marketing, and reshape corporate image and brand preference. Through a series of means, we will increase the ability of manufacturing enterprises to respond to the changing market environment, and strive to form a mechanism that is linked to changes in market demand, so as to achieve continuous and stable operation of manufacturing enterprises.

V. CONCLUSION

At present, China's manufacturing industry is in a critical period of transformation and upgrading. In order to gain more competitive advantages, China needs to constantly pursue technological innovation. However, business model innovation is an effective way for manufacturing enterprises to realize value increment and can improve the level of service. This paper argues that manufacturing enterprises, as the leading enterprises in the original value chain, can achieve business model innovation by building self-centered value network. Manufacturing enterprises provide customers with products and services through the strategy of customer-centric value proposition, value co-creation model, value maintenance system and value realization mechanism, to realize service-oriented transformation.

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