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Research Article

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Motivation Analysis and Mode Selection for Service Innovation of China's Manufacturing Enterprise

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ABSTRACT

The manufacturer is essential to development of the national economy, but in the current circumstances，China's manufacturing enterprises existed problems such as severe product homogeneity, low technology content, and lack of innovation, which led to low efficiency of manufacturing companies. By summarizing the service innovation theory, combined with China's actual situation, we made the comprehensive analysis on driving force of manufacturers' service innovation, and proposed mode selection and development path of service innovation, which had the important practical significance on enhancing international competitiveness of China's manufacturing enterprises.

Key words: Manufacturing enterprises ; service innovation ; motivation ; innovation model

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INTRODUCTION

With the rapid advance of science and technology, the consumer demand pattern has changed dramatically, experience economy and creative economy have had a sharp rise, and service innovation has become an important development trend of manufacturing enterprises in today's world. Since the 1990s, promoted by globalization and information wave, global industrial structure is shifting from the industrial economy to service economy , as for global service industry, the ratio of its adding values on global GDP, has risen from 40% in 1960 to more than 70% in 2012, which embodies the typical characteristics of full service economy[1]. For this reason, as a powerful tool to promote the service economy, service innovation has got more and more attention in academia and industry at home and abroad.

STATUS OF SERVICE INNOVATION FOR CHINA'S MANUFACTURING ENTERPRISES

For a long time, China's major manufacturing companies mainly took short-term price competition strategy to deal with the homogenized products market, rather than relying on the improving service quality of products to achieve differentiated competition. This competitive strategy is extremely detrimental for development of manufacturing enterprise itself, in case not changing the original traditional competitive strategy, it not only will affect the transformation and upgrading of national industrial system, even will hinder the sustainable development of

economic society[2].In recent years，some well-known companies in China, such as Haier and Lenovo, they have launched the electronic settlement platform and online services platform, these measures have passed a strong innovative services information to consumers. But compared with companies in developed countries, there still exists a big gap in service awareness and service concept in China's manufacturing enterprises. According to relevant data, the proportion of service innovation projects in European manufacturing companies is around 6%, while is less than 1% of China's manufacturing industry, which shows that service innovation development space for China's manufacturing enterprises is still very large.

Service innovation in domestic manufacturing is in its infancy. In China, some manufacturers have realized the importance of service innovation transformation. For example, Shanxi Blower Co., Ltd. by the integration of information technology with traditional industries, developed and applied rotating machinery remote monitoring and fault diagnosis system, which could fully predict plant operation trends, thus could develop personalized solutions to meet customer service needs. Information department in Bao-steel, in the form of professional service firm, formed Bao Steel manufacturing service company, to perform financial, logistics and other social services. In many regions with rapid economic development, they are changing advance ideas, and trying to promote service innovation in manufacturing.

But compared with the West, service innovation in China's manufacturing industry is not at a high level. From service innovation perspective, the reason was, development of China's manufacturing industry were mainly resource investment and consumption, manufacturing enterprises' demands for services was insufficient[3].China 's manufacturing enterprises was mostly in processing and assembling process, the product located in low-end chain, which made the production service needs mainly stay in wholesale and retail, transportation and warehousing, and other low-end services, whereas lack of high-end service needs, such as research and design, brand management and other aspects, with products obtaining lower profits, as shown in Fig. 1.

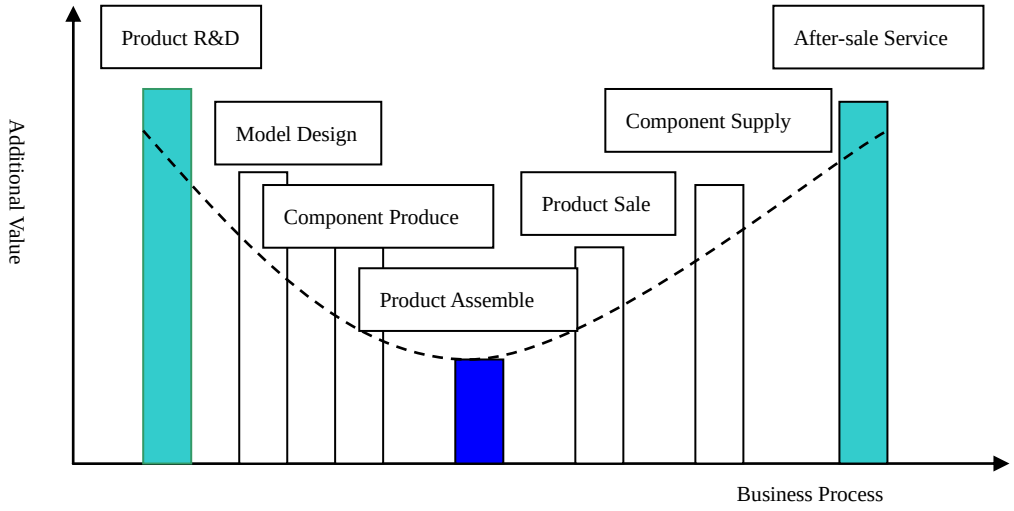

Fig. 1: manufacturing enterprise value curve

From the perspective of output service innovation, only by accumulating wealth knowledge assets, can manufacture enterprises good at innovation provide better products and services from sale service, maintenance, financial leasing and insurance, etc., so as to achieve service innovation transformation. But most of China's manufacturing enterprises do not have sufficient transformation capacity, so the main factors hindering the transition are deficiency in expertise, organizational technology, customer relationships, and career skills.

MOTIVATION ANALYSIS OF SERVICE INNOVATION FOR MANUFACTURING ENTERPRISE

Connotation of service innovation for manufacturing enterprise

Schumpeter was the first scholar to use economical methods and concepts to analyze innovation, but the focus of their innovation theory is product innovation and process innovation. Service innovation means that all types of business organizations (departments) continue to provide intangible services, tangible products or a combination of both, in order to create greater value and utility, and enhance customer satisfaction and loyalty[4]. To modern manufacturing industry, service innovation means the improvement of all customer-facing activities, including not only the content of narrow service innovation, but also offering special service with products as carriers, which aims to exploit potential benefits of existing products and new ones, and through the appropriate information, technical support and consulting services, form the dynamic and interactive partnership with customers in product quality and service side.

Whether service innovation is in manufacturing or service industry, customer being the core has always been the fundamental principles of innovation. With the advent of global economic integration, increase of competition, increasing competition, changes in consumer demand patterns and the continuous development of technology, which have reduced the decrease of transaction costs, service innovation has become one trend of manufacturing industry in today's world.

We believe that, the so-called service innovation of manufacturing enterprise means the dynamic process, being oriented by better meeting customer demands, aiming to achieve business value and competitive advantage as the ultimate goal, and transforming the value chain from manufacturing-centric to service-centric[5]. Its essence is an innovative organizational capabilities and processes, that is, making the resources, technology and capacity owned by manufacturing companies, converted through value activities organization and service value process recycling, to support elements of customer value.

Driving force analysis of service innovation for manufacturing enterprise

From the perspective of promoting industrial development, consumer demand, business demand, the external environment and national policy are the driving factors for manufacturing enterprises to implement service innovation, their impacts on service innovation are as shown below :

Driving factors of consumer demands. Service innovation for manufacturing enterprise is largely caused by customers' needs, owing to the big difference in consumers' demands. The customers will encourage enterprises to improve products according to their needs. Enterprises get new information on market demands, thus launch new products after improving the products, and achieve company's service innovation.

Driving factors of external environment. Development of manufacturing enterprise is inseparable from the overall social environment, with the continuous upgrading of products, socio-technical requirements has been significantly improved. The rapid advance of information technology has changed the way people live, has emerged new forms of service, such as the knowledge-intensive integrative service. Besides this, manufacturers must make routine maintenance and periodic inspections on products after the sale of goods, to ensure product usability and security. Therefore, these characteristics of the products, have had high demands on the service level of enterprises[6].

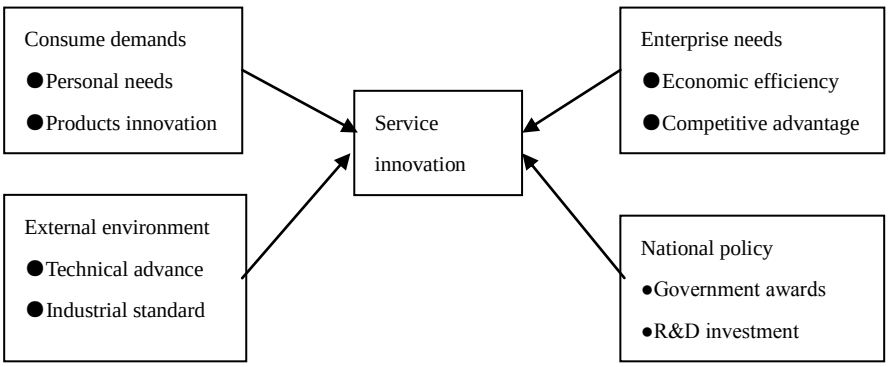

Fig. 2: Relation diagram between service innovation and driving factors

Driving factors of enterprise demand. As to the majority of manufacturing enterprises, improving economic efficiency and achieving sustained development are their goal. Oliva and Kallenberg (2003) believed that, the economic reasons for manufacturing companies to integrate the service into its core products were: quite a lot of revenues of companies were from customers base in the product life cycle. Services typically had higher margins than items. For example, machinery and other products, due to the longer product life cycle, the revenues generated from service throughout the life cycle are much higher than the operating incomes from the product itself.

Driving factors of national policy. Government driving force means the important impacts of government to service innovation, government policy is often the vane of national economic development, through R & D subsidies can directly contribute to enhancing their innovation capability. The State Council has issued the Opinions on accelerating the development of services , it comments that: to develop production-oriented services , to promote the organic integration and interactive development of modern manufacturing and services, to encourage manufacturing companies transform existing business processes, to advance business outsourcing, to strengthen core competitiveness, to accelerate extends from production and process to independent research and development, brand marketing and other services sectors, to reduce resource consumption, and to improve added values of products.

Value-added model of service innovation for manufacturing business

Value-added services innovation for manufacturing business performance in two aspects: ①Values of service innovation to enterprise. Such benefits can be tangible, such as the increase in turnover, profitability improvement, profits increase, etc. , they may also be intangible, such as the increased satisfaction of staff to enterprise, so that employees are more effective in customer service, or an increase of customer satisfaction and loyalty to enterprises, which improve the reputation of the corporate brand. ②Value of service to customers. Such as reduced cost of customer to buy the product, or more values of similar products to customers[4].

Enterprises through service innovation have improved market competitiveness, increased corporate profits or brought benefits to the enterprise, it can be said that service innovation brings added value to the enterprise. If the business through service innovation has brought benefits to the customer, then you can say that the customer service innovation brings consumer value. Of course, after the increase in service value, it will benefit stakeholders, such as to bring more benefits to shareholders, etc., but this article concerns the source of service innovation driving force, to research added value brought directly by services innovation to their own and customers (including corporate internal staff) , not covering other stakeholders[5]. In the context of globalization and knowledge economy, more

and more intense competition in the manufacturing sector, resulted in more and more businesses to increase the value of their core products through the provision of services, and to increase market competitiveness of products. Meanwhile, some manufacturing companies do not sell the goods but to sell services or functions, being transforming into a sense of service companies, and products serving has become one of the trends of today's manufacturing industry.

Manufacturing enterprises achieve added values through service innovation, the specific operation mechanism is as shown below:

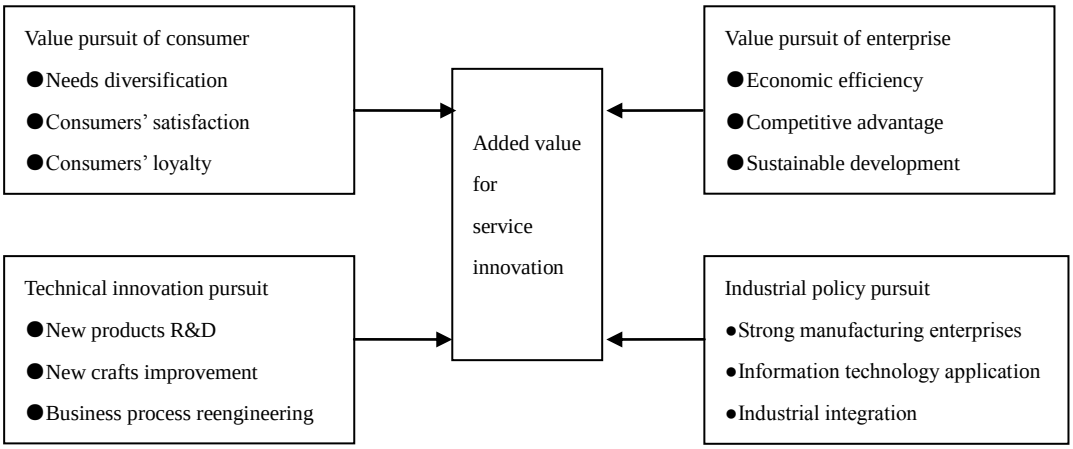

Fig. 3: Value-added services innovation mechanism for manufacturing business

MODE SELECTION OF SERVICE INNOVATION FOR MANUFACTURING ENTERPRISE

At present, understanding of China's manufacturing enterprises for manufacturing service is still in its infancy, understanding on the significance of manufacturing services transformation is insufficient. Subject to influences in ideas, economic base and other aspects, businesses are lack of confidence in the new pattern and a new model in service transformation process, and lack of courage in transformation of organizational structure, business model and development strategy in transition process. From manufacturing companies to national level, we should establish development concept of manufacturing and service integration, fully aware that the manufacturing services industry is the direction of industrial structure upgrading, and is the important task to promote deep fusion of industrialization and information. Specific to the practical operation level, there are four service models for reference. Enterprises should choose according to their own current situation and development needs.

Service model to enhance product performance

RollsRoyce achieves a high unity between manufacturing and services. Since the 1980s, the market competition in the global aviation engines started from manufacturing to services, RollsRoyce made the first attempt in manufacturing services transformation, which laid the foundation of its dominant position in the global three aerospace manufacturing companies.

Since 1995, RollsRoyce increased the discount degree in engine sales, but improved the service level and ability, and adopted a new business model to ensure the contract to supply the formula. This model is required to provide engine maintenance and online maintenance services when quoting price, which made flying hour cost airlines to pay negotiated recognition engine based on the unit. Through this mode, RollsRoyce realized online monitoring, fault diagnosis and real-time maintenance support. This model has been a huge success, RollsRoyce increased his

share in worldwide aero engine market from less than 5% in the 1970s to the current 40% or so. Rolls -Royce through innovative business model, unified manufacture and service, enhanced the core competitiveness of enterprises, and became the world leader in the field of aviation engines.

Service model of improving product transaction facilitation

The trump card of Caterpillar-building accurate supply chain system. Established in 1925, Caterpillar was the one of the world's largest construction machinery and mining equipment, gas engines and industrial gas turbines manufacturer. In the late 1980s, due to the impact of the economic crisis and the rise of Japanese construction equipment company, Caterpillar gradually fallen into a loss situation. To reverse the situation, Caterpillar promoted corporate restructuring strategy, to enhance the value of the product life chain as a starting point, and to build accurate supply chain system.

To achieve rapid precision products supply and distribution, Caterpillar established the largest global construction machinery distribution system, its agents not only sell and leased products, but also provided technical support, training in the use, maintenance and other services. Today, Caterpillar has built a worldwide multi-level parts supply network. We can say that, accurate supply chain system is the trump card of Caterpillar to maintain strong competitiveness, and to become the world's construction machinery leading manufacturer.

Service model of integrating product features

Huawei, enhancing service level of integrated communications equipment. In the past decade, the telecommunications equipment manufacturing industry has evolved into the industry with service and cost competitiveness as core elements from a technology-driven industry. While since its inception in 1988, Huawei has put service for operators as an important weight of its competition in the market. Especially in recent years, around service-oriented strategic transformation, Huawei has gradually built products service system to meet the needs of telecom operators, and the main stream market.

The service system based on full life-cycle management of communications equipment, provides a full range of integrated professional services. The services include: communications equipment base service, which covers the technical support communications equipment, engineering services and spare parts service; communications equipment systems inherited service, which is to improve the performance and efficiency of the equipment from the network level to provide end to end solutions, to enhance the product's operational capability; communications equipment management and maintenance service, that Huawei as the operator of the outsourcer to provide the agency maintenance, equipment maintenance lump sum, special duty service, Huawei and gradually establish long-term through the service with operators partnerships ; strategic management consulting service, which mainly focus on telecom operator's business operations , providing business solutions to improve their market competitiveness. In 2010, Huawei's service revenue reached 31.5 billion yuan, 20.4% of total sales revenue. High quality and professional service have become the key of Huawei to win in the market competition[6].

Service model based on market demand

IBM-shifting from production-based to service-oriented IBM. In a sense, the manufacturing enterprise services transformation is the highest stage of enterprise development strategies to achieve the transition from a product-based to service based on customer demand. IBM is gradually conforming to this trend, shifting to service-oriented development.

Since the 1990s, IBM began to service transformation, have launched a one world for solution, IBM is the service, E-commerce and demand change, wisdom of the earth and other services strategy. Among them, in 2008 IBM proposed the concept of wisdom of the Earth , since 2009 , IBM began to organize smart city forum, to promote its proven solutions in education, health care , energy, transportation and other areas, to further strengthen and highlight its integration and integration capabilities in complex systems. IBM 's service transformation created a new business model, to make professional system design based on customer needs, build a full- service integrated service system, build one integrated whole business integration services system, including" Analysis + Strategic Planning + Design + Key hardware and software product +Development projects + Implementation of outsourcing +Training ".

CONCLUSION

Shifting from manufacturing to service-oriented production is a fundamental trend in the current manufacturing industry. Manufacturing enterprises carry out service innovation not to simply shift from manufacturing to services, nor abandon manufacturing services sectors to do service sectors, but to emphasize mutual penetration and integration of manufacturing and services, through service make the manufacturing add value. In future, we need to further define the concept and content of manufacturing service innovation system, focusing on the product development and other issues for the manufacturing enterprise, to make further qualitative and quantitative research.

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