



## **Countermeasures for Transformation and Upgrading of Modern Manufacturing Industry**

**Yang Zhao and Li Li**

*Department of Mechanical and Electrical Engineering, Guangdong University of Science &  
Technology, Dongguan 523083, Guangdong, China*

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**Abstract**—Cloud computing, Internet of Things, big data and other information technologies are deeply integrated with modern manufacturing industry, which has triggered a new round of manufacturing industry changes. Nowadays, the development of modern manufacturing industry is in a critical period. In order to meet the requirements of the new economic era, we must optimize the development mode with high speed as the basic goal and pursue the transformation and upgrading of modern manufacturing industry. The birth of the Internet has created new opportunities for the transformation and upgrading of modern manufacturing industry, injected new impetus into the realization of the fundamental goal of reducing production capacity and cost of modern manufacturing industry, accelerated the transformation of new and old kinetic energy, and realized the structural change of supply side. We need to seize the opportunities brought by the Internet, conform to the trend of the times, respond to national policies, and promote the transformation and upgrading of modern manufacturing industry with the help of the Internet, so as to promote the sustainable development of manufacturing industry.

**Keywords**—modern manufacturing industry; transformation; production mode

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### **I. INTRODUCTION**

The most direct embodiment of the deep integration of the new generation of information technology and manufacturing industry is the Internet + manufacturing industry, which integrates the Internet and the value chain of the manufacturing industry and introduces the Internet innovation achievements into the manufacturing industry. All processes and links of "Internet + manufacturing" are realized by information technology as a support. Among them, industrial processing technology and intelligent decision-making technology have brought technological foundation for manufacturing production; and the introduction of Internet of Things and sensor network technology can complete real-time monitoring, optimization and adjustment of manufacturing production network; in addition, cloud computing and big data technology also provide a large number of industrial data information processing and analysis. It provides technical support.

### **II. INNOVATION OF PRODUCTION MODE IN MANUFACTURING INDUSTRY**

With the development of the Internet, a new round of information technology revolution has been launched worldwide, which has resulted in information technology such as big data, cloud computing and Internet of Things. In order to seize the opportunity of economic and technological development, many developed countries have begun to focus on the transformation, transformation and upgrading of the industry. For example, the United States will introduce the manufacturing industry to the highest level in the industrial chain, and give full play to the "Internet +" huge

technological advantages; for example, Germany, manufacturing industry is the pride of the country. After several years of development, the manufacturing industry has a deep foundation and a high level of manufacturing. In the past, China's manufacturing industry lagged behind the developed countries, especially the lack of core technology. The whole manufacturing industry is in the industrial 2.0 and 3.0 era. The advent of the industrial 4.0 era has become an important platform for China's manufacturing industry to seek development, but the core technology of the industrial 2.0 and 3.0 era is also necessary. Based on this, in order to promote the transformation, transformation and upgrading of China's manufacturing industry, consolidate the foundation of economic development, deepen the competitiveness and influence of international market, China's manufacturing industry needs to further learn and absorb the core technology of the industrial 2.0 and 3.0 era, seize the advanced development of the 4.0 era, and go parallel with the industrial 2.0, 3.0 and 4.0 era.

### **III. INNOVATION OF MARKETING METHODS IN MANUFACTURING INDUSTRY**

The object of transformation and upgrading of manufacturing industry is not only production mode, but also innovation and optimization of product quality and marketing mode. Providing superior "value experience" (spiritual and cultural consumption) for consumers can add value to products, create experience economy, and transform "experience" into a new source of value for manufacturing enterprises. In the context of "Internet +", manufacturing industry needs to adapt to and respond to the marketing environment of personalized experience economy, and promote the scientific transformation and upgrading of manufacturing industry. Introduce new information technology, such as micro-blog, forum, micro-letter and other social tools, build an open marketing innovation platform, in-depth analysis, understanding, meet the personalized needs of different customers, bring new and different experiences to customers, implement "word-of-mouth marketing" and "emotional marketing". Stepping into the Internet era, information explosion and rapid propagation speed up the market competition among enterprises. Nowadays, the main position of marketing activities should turn to the market and customers, and take it as the axis to understand and grasp the customers' ideas and wishes to buy new products in advance; from the perspective of marketing methods, the most popular is e-commerce on the internet. With the development and popularization of Internet technology and the promotion of mobile terminals, network marketing mode and e-commerce mode emerge at the historic moment, which completely subverts the marketing mode of manufacturing industry in essence. The traditional marketing channel is a single offline promotion. Now it has become an all-round and multi-level network marketing mode of "online + offline". The emergence of e-commerce mode creates a platform for two-way communication and real-time communication between enterprises and customers, and also makes market competition more open and transparent. The development of the Internet has led to the emergence of e-commerce, and e-commerce has subverted the value chain of manufacturing new information solutions. In the "Internet plus" environment, the transformation and upgrading of manufacturing industry is closely linked to the Internet. The Internet has become a new driving force for the development of manufacturing industry, so we need to understand and master the Internet service functions, such as e-commerce, mobile social networking and industrial APP.

### **IV. INNOVATION ORIENTED TO MARKET POSITION IN MANUFACTURING INDUSTRY**

Take customer demand as the center and flexible production as the core. Flexible production means that manufacturers can optimize production scale timely, flexibly and reasonably to meet customer needs according to the actual changes in market demand. Customer demand is dynamic and real-time. Whether an enterprise can win the market, innovate in time, supply and other ability to respond to the market is far more important than reducing the cost of production. Based on the flexible and agile mode of production, through the new generation of information technology such as

cloud computing, Internet of things and big data, the customer needs and manufacturing links can be effectively integrated, such as production, operation and marketing, etc. Customers' needs can be effectively met, and the innovation and development of the Internet makes enterprises. Can be combined with customer orders, market actual needs for production. "Internet +" provides a platform for enterprises to trial production and market demand through small batch orders. The new mode of "Internet + manufacturing" can enable enterprises to accurately predict the preferences of consumers in the market, and establish a dynamic replenishment ERP system between producers and sellers and e-commerce buyers through information processing technology.

## V. CONSTRUCTION OF MODERN MANUFACTURING NETWORK DIGITAL PLATFORM

Modern manufacturing network digital platform realizes modern manufacturing service business model. Based on the two modes of "product + service" mass customization with option and parameter configuration and "product + service" customization development and production driven by customer demand, product + service collaborative production planning and adjustment in different places based on digital platform are implemented. Degree and technology service mode, product remote monitoring and maintenance service mode based on Internet of Things, collaborative management and precise distribution service mode based on digital platform, and four technology service modes of product information and knowledge service based on digital platform are studied, which can form a relatively complete service model of modern manufacturing industry. This system supports customers and manufacturing enterprises to choose the modern manufacturing service mode flexibly.

The contract and mechanism of modern manufacturing services, customized development and production management of "product + service", life cycle project management, cross-integrated manufacturing service job planning and dynamic scheduling, life cycle oriented business modeling of manufacturing services, manufacturing service resources and service knowledge base, integration of Internet of Things and software engineering are studied. Eight key technologies, such as manufacturing service application model, can cover the main business activities in the field of modern manufacturing service, thus forming a relatively complete supporting system of modern manufacturing service technology.

Combining four modern manufacturing service modes and eight key technologies with the development of digital platform software based on Internet and Internet of Things, we independently develop a digital platform software toolkit to support the remote application of modern manufacturing services, so that modern manufacturing service modes and services can be quickly promoted through the digital platform. Customers with wide distribution and many users.

Service-oriented modern manufacturing industry is the trend of global manufacturing industry, and it is an effective way for manufacturing industry to transform and upgrade, gain more profit space and development potential. Therefore, the establishment and implementation of digital platform not only focuses on the realistic needs of the development of modern manufacturing services, but also tracks the advanced technology and management level of international peer manufacturing services, so as to make the manufacturing services of manufacturing enterprises adopting research technology and digital platform catch up with the international advanced level.

## VI. CONCLUSION

Based on the "Internet plus" background, the core of the transformation and upgrading of China's manufacturing industry lies in the efforts of the state, government and enterprises. The government should create a favorable environment for the transformation and upgrading of manufacturing industry, provide strong support from policies and mechanisms, deepen the network

infrastructure construction, and strengthen the supervision and management of network security. At the same time, manufacturing enterprises should also study tirelessly, devote themselves to innovation, follow the development of the market, with the help of new generation information technology such as big data and cloud computing, seize the development opportunities in time, so as to promote the transformation and upgrading of manufacturing industry in an all-round way.

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