Study on the implementation path of C2B digital intelligence customization of “new infrastructure”

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Abstract. In the context of digital transformation of manufacturing enterprises, the research method of double case comparison analysis is used to explore the implementation path of C2B digital intelligence customization of “new infrastructure”. The research found that: C2B personalized digital intelligence customization implements digital intelligence supply chain construction strategy, through supply chain digital intelligence transformation, realizes front-end and back-end collaboration, can reduce production costs, improve demand collection and production efficiency, and the implementation path is "digital intelligence supply chain construction → digital intelligence capability improvement → digital intelligence value realization". The research results can not only provide reference for decision making of new infrastructure, but also provide guidance for the path selection of digital transformation of enterprises.

1. Introduction

General Secretary Xi Jinping pointed out in the report of the 20th National Congress: accelerate the construction of a strong manufacturing country, accelerate the development of advanced manufacturing industries, and promote the deep integration of the Internet, big data, artificial intelligence and the real economy. Under the call of the Party and the government, enterprises represented by Shangpin have implemented C2B digital intelligence customization management, and Chinese manufacturing industry has made a good start in the transformation of digital intelligence. However, the traditional infrastructure construction represented by the "iron, public and machinery" lags behind the needs of digital economy development, and there are problems such as unclear development paradigm and insufficient intelligence in the field of C2B digital intelligence customization[1-2]. In this current situation, the new infrastructure construction (hereinafter referred to as "new infrastructure") represented by 5G, Internet of Things and Industrial Internet has become an important production factor to promote the development of digitalization, networking and intelligence, which is of great significance to promote the transformation and upgrading of China's C2B manufacturing digital intelligence.

However, the "new infrastructure" of C2B digital intelligence customization implementation path still needs to be explored. To explore the implementation path of C2B digital intelligence customization is to solve the problem of how to implement the "new infrastructure" in specific enterprises to promote C2B digital intelligence customization from local transformation to overall transformation. The lack of intellectual and physical capital in China's digital economy, the lack of methods, technologies and talents to support the development of C2B digital intelligence customization [1], and the lack of enterprise digital intelligence literacy. Most enterprises have not formed a systematic cognition of digital intelligence transformation, and generally lack a clear transformation roadmap[2].Therefore, it is the fundamental problem of C2B digital intelligence customization management to give the implementation path of C2B digital intelligence customization mode supported by "new infrastructure".

Based on the above discussion, this paper explores the implementation path of C2B digital intelligence customization of the "new infrastructure" through the case study of Shangpin, which promotes the clustering of innovation resources and capabilities to enterprises and realizes the transformation from local to overall digital intelligence.

2. Literature Review

The C2B digital intelligence customization implementation path establishes a bridge between the demonstration of new infrastructures to the promotion and application, and helps the manufacturing industry to realize the leap from local transformation to overall transformation. The existing research mainly explores from the aspect of number wise supply chain. Data is the source power to promote supply chain leap and upgrade, and the construction of digital smart supply chain can make the stable operation of information flow and capital flow between enterprises, upstream and downstream, and users with high efficiency and low cost[3-4]. Big data, cloud computing and other digital intelligence technologies combine processes, data and orders to release
the customization ability of manufacturing enterprises [5]. The industrial Internet platform provides ideas for the construction of digital intelligence supply chain, and the industrial Internet platform helps small and medium-sized enterprises to go to the cloud, which can realize the transformation of manufacturing enterprises from local to overall digital intelligence [6]. The above literature illustrates the reference significance of the implementation path of digital intelligence supply chain for new infrastructure, however, there is less research on the implementation path of C2B digital intelligence customization enabled by "new infrastructure", which needs to be explored more deeply.

3. Research Methodology

This study focuses on exploring the implementation path of C2B digital intelligence customization in the context of new infrastructure, and the single-case study approach was chosen to explain this type of research question for the following reasons: first, case studies are ideal for exploring the "WHY" and "HOW" questions behind the phenomenon. This study focuses on the implementation path of C2B digital intelligence customization in the context of new infrastructure, which is a process-focused case, and it is more appropriate to adopt an exploratory single-case study [7]. Second, the transformation of enterprise digital intelligence is a complex and dynamic process, and a single-case study can discover patterns from complex phenomena and fully demonstrate the case data and its internal meaning [8].

Based on the principles of representativeness, replicability and expansion, this paper selects Shangpin as the research object, which was established in 2004 and its main business is whole-house customized furniture products, ancillary furniture products and complete decoration products. The company has gone through three stages: informatization, digitalization and digital intelligence. Shangpin always takes consumers' personalized needs as the driver, creates added value by meeting consumers' needs, thus improving consumers' home quality and promoting the change and development of the industry, and becomes the pioneer of C2B personalized customization model in the home furnishing industry.

This paper mainly collects data through three ways: in-depth interviews, on-site observation and secondary data. The diversified data sources make the data complement each other, forming a triangular verification and improving the reliability and validity of the data.

4. Case Discussion

C2B personalized digital intelligence customization implementation of digital intelligence supply chain construction strategy, through the supply chain of digital intelligence transformation, to achieve front-end and back-end collaboration, to improve demand collection, production efficiency, the implementation path for "digital intelligence supply chain construction → digital intelligence capabilities to enhance → digital intelligence value realization".

Digital intelligence supply chain construction. First, industrial Internet platform construction. Shangpin home furnishing integrates design and manufacturing resources and launches HOMKOO whole installation cloud supply chain platform. The platform gathers massive big data of design, manufacturing and procurement, and the complementary ecological modules establish extensive connections with Shangpin through the whole installation cloud platform and a number of optional connections. The design, production, warehousing, distribution and after-sales service of products or services are completed in the platform-based supply chain, and the linear vertical supply chain further evolves into a complex, dynamic, virtual-real combination of digital intelligence supply chain network with the support of digital intelligence technology such as big data. Second, platform resource integration. Shangpin integrates the digital design platform "Design Island", "K20 design system", the new house network, HOMKOO whole installation cloud supply chain platform and other resources to form a platform channel. Design platform through data mining, custom demand mining and custom product digital intelligence design, the formation of customization program, the use of the platform to manufacturing platform transmission of key information, the platform back-end through the whole installation cloud platform real-time product module combination to meet the heterogeneous needs, optimize the delivery process and resource deployment, to achieve front-end design customization and back-end production synergy.

Digital intelligence capability enhancement. First, the ability of resource integration emerged. With the digitalization of the architecture platform, Shangpin realizes multiple subjects connected from building materials to decoration on the industrial Internet platform, and the complementary modules are combined with the digital intelligence technology. With the user's personalized needs as the leading, the commodity house match in the platform to release demand orders, each supplier according to the platform orders to grab orders, preparation, module resources to achieve flexible configuration and scheduling. The optimal combination of supply resources lays a solid foundation for product manufacturing and drives the emergence of resource integration capabilities. Second, the ability to customize services is enhanced. Industrial Internet platform construction to achieve the integration of design resources, the number of intelligent empowerment to enhance the level of personalized customization. The use of software, hardware, and digital intelligence tools not only provides users with customized home and whole installation services, but also integrates home products, whole installation services with intelligent products and digital applications to form intelligent product-software-service packages. The smart home system interacts with users in real time, interacts with data between various smart products, creates safer and smarter home scenarios, provides more accurate and efficient services, and drives the customization service capability to improve.
Realize the value of digital intelligence. First, complementary value. Complementary value creation focuses on obtaining the value of complementary digital resources themselves and the value obtained from the integration of complementary resources[7]. The emergence of resource integration capabilities solves the problem of cooperation barriers of each independent module resources, and based on the foundation of the Digital Intelligence platform, creates complementary values under the collaboration of multiple parties. The partners of Shangpin focus on user needs and production goals on the platform for spontaneous linkage and response, forming a mutual complement of resources, functions and values [10-12]. Second, novel value. Novel value creation focuses on knowledge capture of customers' personalized needs and value creation based on intelligent services [9]. Customized service capability enhancement breaks the value asymmetry between users and enterprises, and the demand interaction between the two sides on the digital intelligence platform creates novel value. Shangpin uses AI technology to calculate and analyze users' demand information and realize effective transformation of demand through the Digital Intelligence Platform; the smart home system is continuously iterated and upgraded in the process of serving users to achieve more accurate smart home services.

5. Conclusion

This paper summarizes the implementation path of C2B manufacturing enterprise transformation through the case study of Shangpin, and draws the following conclusions: C2B personalization implements the strategy of building a digital intelligence supply chain, realizing front-end and back-end collaboration through supply chain digital intelligence transformation, improving demand collection, production efficiency, and the implementation path is "digital intelligence supply chain construction → digital intelligence capability enhancement → digital intelligence value realization". The conclusion of this study reveals the implementation path of C2B digital intelligence customization enterprises to achieve digital intelligence transformation in the context of "new infrastructure", further clarifies the prominent role of industrial Internet platform construction for the digital intelligence transformation of manufacturing enterprises, and has important theoretical guidance significance for the digital intelligence transformation of manufacturing enterprises.

Under the background of "new infrastructure", how manufacturing enterprises can transform and develop with their own resources and advantages, and not be eliminated by the trend of the times has become a major problem for enterprises at present. This study analyzes Shangpin's transformation path of digital intelligence and distills its practice into generalized organizational principles by combining theory, which provides three insights for the transformation practice of manufacturing enterprises' digital intelligence. Enterprises should take users as the starting point to carry out production and management activities, pay attention to the positive interaction with users to obtain rich user resources, and realize enterprise value-added from the process of creating value for users. Secondly, in the era of "Internet", data is exploding, and data has become an important production factor, so data mining, analysis and processing, and access to the hidden value of data have become the key to win. Actively transform the process of digital intelligence, use data to guide the production decisions of enterprises, and use digital equipment to carry out production logistics and other activities. The construction and application of industrial Internet platform has gradually become an important direction for the transformation of manufacturing enterprises. Enterprises should pay attention to the construction of digital intelligence platform, build ecological platform with customers, build shared platform with supply chain partners, integrate internal and external resources, and give full play to the role of digital intelligence platform to promote enterprises.

References

