

Digital Force-Driven: Breakthrough and Reconstruction of Business Models for Small, Medium and Micro Enterprises

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ABSTRACT

Under the wave of digital economy, small, medium and micro enterprises (SMMEs) are facing unprecedented development opportunities and challenges. From the core perspective of digital force, this paper systematically analyzes the internal and external influencing factors of business model innovation of SMMEs, and proposes a three-stage innovation path of "technology empowerment—organizational change—ecological collaboration". The study finds that digital force effectively breaks the resource constraint dilemma of SMMEs by optimizing supply chain structure, improving operation efficiency and expanding market channels. Combined with industry cases such as wooden furniture manufacturing, this paper proposes that digital transformation needs to construct a progressive development framework of "basic digitalization—process reconstruction—model innovation", so as to provide practical guidance for SMMEs to realize business model reconstruction.

KEYWORDS

Digital force; Small, Medium and micro enterprises; Business model innovation; Digital transformation; Supply chain resilience

1 Introduction

As an important part of the national economy, small, medium and micro enterprises play a key role in promoting employment and innovation. However, against the background of intensified global competition and increasing uncertainty in the market environment, the traditional business model is facing severe challenges. Data from 2024 shows that 61.5% of small and medium-sized enterprises in China have carried out online-offline integrated operation, but only 7.7% of employees have advanced digital skills, showing a "superficial" characteristic in digital transformation. This unbalanced transformation makes it difficult for enterprises to cope with risks such as supply chain disruptions and demand fluctuations, highlighting the urgency of improving digital force for business model innovation. Digital force refers to the ability of enterprises to use digital technology to obtain, process, analyze data and transform it into commercial value, and its core components include technology application capability, data insight capability and organizational collaboration capability. Studies have shown that enterprises with strong digital force perform particularly well in supply chain resilience. For example, enterprises adopting ERP and MES systems in the wooden furniture industry have increased their order response speed by more than 30% and inventory accuracy to more than 95%^[6]. This resilience advantage is the key for SMMEs to break through the growth bottleneck and realize business model reconstruction. Based on the supply chain resilience theory and digital economy research results, combined with relevant industry cases included in CNKI, this paper constructs a theoretical framework for digital force cultivation and business model innovation of SMMEs, and provides an operable implementation path for enterprise digital transformation.

2 Analysis of Influencing Factors on Business Model Innovation of SMMEs

2.1 Internal Key Factors

2.1.1 Basic Digital Capability

The perfection of digital infrastructure directly determines the possibility of business model innovation. Practices in the wooden furniture manufacturing industry show that the deep integration of ERP system and MES system can realize the whole-process data connectivity from raw material procurement to production and delivery, significantly improving the visibility of the supply chain^[6]. For SMMEs, the popularization of SaaS mode lowers the digital threshold, and a basic data platform can be built through lightweight cloud services, laying a technical foundation for business model innovation.

2.1.2 Organizational Management Model

The traditional hierarchical structure is difficult to adapt to the rapid iteration needs of the digital era. Successful cases show that enterprises adopting the "core team + flexible collaboration" organization model respond to market changes 2-3 times faster than those with traditional structures. This organizational change requires a supporting talent training mechanism, and the widespread shortage of high-level digital skilled talents in SMMEs (only 76.5% of that of large

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enterprises) has become a key bottleneck restricting model innovation.

2.1.3 Resource Integration Capability

Limited by capital and scale, resource integration capability is particularly important for SMMEs. Referring to the "core factory + regional OEM" model of wooden furniture enterprises, the dynamic allocation of production resources can be realized by integrating dispersed production capacity through a digital platform, effectively reducing the risk of single production capacity concentration^[4]. This asset-light operation model is a typical embodiment of digital force empowering resource integration.

2.2 External Key Factors

2.2.1 Digital Ecological Environment

As the core carrier of digital ecology, the industrial Internet platform provides an important channel for technical empowerment for SMMEs. However, surveys show that platform services face a two-way dilemma of "end users do not want to use or cannot use, and suppliers do not want to provide or cannot provide", restricting the effective flow of digital resources^[2]. Building an open and shared digital ecology is the key to breaking this dilemma.

2.2.2 Policy and Regulation Guidance

Policy support provides institutional guarantee for digital transformation. Just as the wooden furniture industry benefits from the diversified development of the supply chain brought about by the "bamboo instead of wood" policy, SMMEs can rely on local government policies such as digital subsidies and tax incentives to reduce transformation costs^[8]. The "digital depression effect" formed by policy guidance can significantly improve the group transformation willingness of enterprises in the region.

2.2.3 Changes in Market Demand

Consumers' personalized demand forces business model innovation. With the development of cross-border e-commerce and new retail, market response speed has become the core of competition, and the traditional large-scale production model is unsustainable. This is consistent with the growing trend of customized demand in the wooden furniture industry, requiring enterprises to realize the organic combination of flexible production and precision marketing through digital means^[1].

3 Path Construction of Digital Force-Driven Business Model Innovation (Figure 1)



Figure 1 Schematic diagram of path construction of digital force driven business model innovation

3.1 Basic Level: Digital Capacity Building

3.1.1 Lightweight Transformation Strategy

In view of the limited resources of SMMEs, priority should be given to deploying digital tools with high cost-effectiveness. It can learn from the collaborative experience of WMS system and AGV equipment of wooden furniture enterprises, starting from core links such as warehousing and logistics, and achieving rapid results through "small steps and fast runs" investment^[6]. SaaS-based tools such as CRM and ERP can realize digital transformation of customer management and production processes at a low cost.

3.1.2 Data Asset Accumulation

Establishing a basic data collection system is a prerequisite for value mining. Real-time monitoring of production equipment, inventory status, etc. through Internet of Things technology to form original data assets. Data shows that

enterprises that realize production data visualization have an average increase of more than 15% in equipment utilization and a 20% reduction in supply chain disruptions caused by quality problems ^[6]. This "data-driven decision-making" model can effectively improve operational efficiency.

3.1.3 Diversified Training Mechanisms for Addressing Talent Shortcomings

It can refer to the "government-school-enterprise" cooperation model, carry out targeted training in conjunction with local universities, and focus on improving employees' practical skills such as data analysis and system operation. In view of the shortage of high-level talents, external intellectual support can be obtained through shared employment, remote collaboration and other ways to break through geographical and scale restrictions.

3.2 Intermediate Level: Business Process Reconstruction

3.2.1 Flexible Transformation of Supply Chain

Build a diversified supply network to reduce risk concentration. Just as wooden furniture enterprises adopt a combined procurement strategy of domestic fast-growing forests and imported hardwood, SMMEs can use the industrial Internet platform to integrate supplier resources from many places and establish a dynamic alternative library ^[4]. The supplier evaluation system supported by digital tools can realize accurate profiling and risk early warning of partners.

3.2.2 Production Model Innovation

Digital technology empowers flexible production. Drawing on the distributed production network concept of "central factory + regional satellite factory", dynamic allocation of production capacity is realized through the industrial Internet, which not only maintains scale effect but also improves risk resistance ^[5]. The application of 3D printing technology can significantly shorten the new product R&D cycle and quickly respond to changes in market demand.

3.2.3 Marketing Channel Expansion

Integrate online and offline to build an omni-channel system. Use big data to analyze consumer behavior and realize precision marketing and personalized recommendation. Just as wooden furniture enterprises expand markets through e-commerce platforms, SMMEs can use new channels such as live-streaming e-commerce and social marketing to reduce customer acquisition costs and improve user stickiness ^[1].

3.3 Strategic Level: Business Model Reconstruction

3.3.1 Value Proposition Innovation

Shift from product-oriented to service-oriented. Realize product life cycle management through digital tools and expand value-added service space. For example, traditional manufacturing enterprises can transform into "product + service" providers, and create a continuous income stream through services such as installation, commissioning and maintenance, so as to improve customer lifetime value.

3.3.2 Profit Model Transformation

Develop new profit points based on data assets. On the basis of core business, provide value-added services through user behavior data analysis, such as opening data insight reports to upstream and downstream enterprises in the industrial chain. This "data as asset" model can break through the growth bottleneck of traditional business and form new profit sources.

3.3.3 Ecological Collaborative Development

Build a win-win digital ecology for all parties. Referring to the supply chain collaboration theory, realize the seamless connection of suppliers, manufacturers and distributors through digital platforms, and form a cooperation mechanism of risk sharing and benefit sharing. By joining the industrial Internet ecosystem, SMMEs can make up for their disadvantages of insufficient resources and achieve cluster development.

4 Case Analysis: Practical Exploration of Digital Transformation

4.1 Manufacturing Case: Flexible Transformation of Furniture Enterprises

A small and medium-sized wooden furniture enterprise in Guangdong has realized business model upgrading through digital transformation. The enterprise introduced an intelligent production scheduling system and dynamically adjusted production plans combined with market demand data, shortening the response time of urgent orders by 40%; by building a diversified network including 5 core suppliers and 12 alternative suppliers, the stability of raw material supply has increased by 25% ^[6]. On the marketing side, the enterprise uses AR technology to realize virtual placement, and the proportion of online orders has increased from 15% to 35%, successfully transforming from a traditional manufacturer to a "customized solution provider".

4.2 Service Industry Case: Ecological Development of E-Commerce Enterprises

A regional e-commerce platform has reconstructed its business model through digital capacity building. The platform has developed a SaaS-based tool kit to empower small and micro enterprises upstream and downstream, providing full-process support from inventory management to customer analysis; established a "merchant-platform-logistics" data sharing mechanism, which improved regional delivery efficiency by 30% and reduced return rate by 18%. This "platform + ecology" model has transformed the enterprise from a simple transaction intermediary to a regional business digital service provider, with service income accounting for 42% of the revenue structure.

5 Conclusion

This study reveals the internal mechanism of digital force driving business model innovation of SMMEs, and the proposed three-stage path framework provides systematic guidance for transformation practice. The study finds that digital force effectively breaks the traditional development dilemma of SMMEs by enhancing supply chain resilience, optimizing resource allocation and innovating value creation methods. Practices in industries such as wooden furniture manufacturing show that digital transformation is not a simple superposition of technologies, but a systematic project requiring technical empowerment, organizational change and ecological collaboration.

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