

Value Co-Creation Model for Sustainable Supply Chain: A Case Study of B2B Platforms Empowering SMEs

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Abstract: As the international community enters Digital Upgrade 3.0, small and medium-sized enterprises (SMEs), originally focused on offline business, are exposed to shortcomings such as insufficient capital, monolithic business models, the imbalance between supply and demand, and trust-building behaviors. To address these challenges, this study examines the role of the B2B platform model in facilitating the high-quality development of SMEs. Taking SMEs as the object of study, this study examines the role of the B2B platform model in promoting the high-quality development of enterprises. The impact of sustainable supply chain management and value co-creation theories on SMEs is analyzed by combining theoretical and practical cases. A case study of Alibaba's B2B platform 1688 reveals how the value co-creation model empowered by the platform promotes cooperation and innovation between SMEs and consumers. This study also explores the role of third-party logistics (3PL) in shaping the value co-creation model. Finally, this study provides recommendations for optimizing management models and enhancing collaboration to support the sustainable development of SMEs in the digital era.

Keywords: Small and medium-sized enterprises, value co-creation, sustainable supply chain, frugal innovation, 3PL

1. Introduction

At the stage of high-quality development, small and medium-sized enterprises (SMEs) have become a vital force in the development of the national economy and an indispensable part of the modernized real economic system. However, as the international community enters the 3.0 stage of digital upgrading, SMEs which originally focused on offline business, have been exposed to shortcomings such as insufficient operating capital, single business model, imbalance between supply and demand, and difficulty in establishing trusting behaviors. SMEs desire to break through the single offline business model. Therefore, the study of the B2B platform model not only effectively alleviates the plight of SMEs but also meets the needs of strategic development.

In this context, this study combines with the actual case and analyzes the value co-creation model of a sustainable supply chain by integrating the theory. The frugal innovation behavior of enterprises is introduced to explain the model's mechanism promoting the high-quality development of SMEs, and the study also analyses the impact of third-party logistics (3PL) on this mechanism. The research on the model clarifies the concept of a value co-creation model relying on a B2B platform, enriches

the theoretical research on the three-level e-commerce supply chain of SMEs, and fills in the solution to the imbalance of supply and demand between suppliers at the front and consumers at the end of the supply chain [1].

2. Theoretical Background

In recent years, the standards and requirements for sustainable development in the world have been increasing, and the realisation of green and sustainable supply chain is an important direction for the development of industrial supply chain. Sustainable supply chain management refers to the development strategy based on managing the mutual flow of materials, information and capital, which is tailored to customers' needs through the alignment of the cooperation chain and the integration of all sustainable development goals [2]. According to the research of Sajad Vafaei and other scholars, sustainable supply chain management has a significant relationship to sustainable competitive advantage. If the enterprise receives timely and effective customer feedback and compares it to its position in the market, it can implement the chain process management of sustainable supply [3]. Gualandris, J. concluded that innovation can be effective in finding ways to communicate with suppliers and coordinate relationships with them in supplier-related sustainable supply chain management activities [4]. However, these conclusions need to consider the theoretical combination and data integration for sustainable supply chains, which is challenging for the resources and capability of SMEs. On the one hand, SMEs have a low rate of access to and utilization of consumer feedback, making it difficult to create relevant competitive advantages through sustainable supply chain management. On the other hand, if SMEs face financial constraints or limitations, they will need help coordinating with their suppliers and more sustainable dynamics.

As the digital transformation of SMEs accelerates, the question of how to build an effective B2B platform ecosystem has become the focus of many scholars' research. In value co-creation based on supply and demand, consumers will consume and become the participants and value creators in the supply chain [5]. Consumers will participate in the whole process of product design, manufacturing, and enterprise sales, which are among the main subjects of the supply chain and contribute to the process of high-quality development of enterprises [6]. The value co-creation theory has also been introduced into the study of platform business. Gronroos C's team analyses the basic logic of value co-creation for service providers, pointing out the importance of platformisation, interaction and sharing in modern business [7]. As for the ecosystem of value co-creation, existing research mainly focuses on the construction of platform mechanisms and the realization path of platform innovation. Jiang Jihai's team discusses the operation mechanism of value co-creation between the supply and demand sides of the platform-type business with the help of specific cases. It explores the realization mechanism of value co-creation between the supply and demand sides from the perspectives of resource abundance, relationship strength and network density [8]. However, these studies still focus mainly on consumers and manufacturers or manufacturers discussing two sides, and more consideration is needed for the more complex value networks created by the contemporary expansion of platform segments, the pursuit of innovation by firms, and the growth of consumer demand.

3. Value Co-creation Model

3.1. Case Selection

The selection of cases follows the following principles: the platform has a certain degree of popularity in the market, carries out the concept of sustainable development in the development process, and has a platform ecosystem of value co-creation. As a B2B platform, 1688 is a company under Alibaba, and its main service object is SMEs. It has been successful in B-end, C-end, and cross-border B-end and holds a certain proportion of China's e-commerce market. The platform combines the "Scope 3+"

concept to achieve empowerment and emissions reductions, promote the sustainable transformation of more SMEs, and have a huge positive impact on the green transformation of the global supply chain. With consumers' growing demand for personalization, Fortune 500 industrial brands such as Schneider Electric, ABB and Siemens are looking to use the platform to bring end users and long-tail users closer together and use the platform's real-time data to drive their customized production. Based on this platform, large industrial brands and SMEs have successfully realized the value of co-creation. Thus, the case of the 1688 platform has good representativeness and typicality.

3.2. Conceptual Model

Through the platform, socialized demands and enterprise resources are transformed and matched with each other, which promotes the construction of the platform ecosystem and the formation of a group co-creation mechanism between SMEs and consumers [9]. The cutting-edge and reliability of the platform attracts different industries to join, and the types and numbers of SMEs on the platform are increasing. Meanwhile, the platform has formed effective trust behaviors between consumers and SMEs by establishing a trustworthy and convenient cooperation channel and a unified value system. The platform provides accurate user data, and information sharing between consumers and SMEs creates a dynamically changing supply and demand network, where the individual needs of customers and the interests of enterprises form a competitive and cooperative relationship.

Satisfying consumer demand and realizing the commercial core power of SMEs requires industrial brands to work with SMEs in a win-win partnership to create a new value template for small and medium-sized manufacturing enterprises. Basis of Resources Theory (BPV) was introduced into industry theory practice by C.K. Prahalad and Gary Hamel, proposing business core competence, which is judged by three criteria: providing the potential of the enterprise to enter a diversified market; contributing significantly to the perceived customer benefits of the enterprise's final product; and being difficult to be imitated by competitors [10]. Domestic and international research on the B2B model has been enriched. Araneda-Fuentes explored the B2B model in which two enterprises make a win-win capacity coordination contract and find that the supply-side capacity is higher than the buyer's demand. Then, the coordination contract will lead to both parties improving their capacity to produce bilateral benefits [11]. The platform continues to attract industrial brands by adding SMEs, business growth, and exploiting value space. Diversified participants establish cooperative relationships with each other through the platform according to their respective interests and development needs, promoting the improvement of SMEs' business capacity and realizing the construction of value modules.

Multi-body cooperation and sharing bring industrial brands and tail-end consumers closer, drive the reconstruction of the platform ecosystem through effective supply chain integration, and realize the sustainability and value co-creation of the supply chain of SMEs. Based on the platform, industrial brand suppliers, SMEs, and consumers share information promptly and directly contact each other, breaking through the single link in the traditional vertical supply chain. For example, the “reverse traceability” experiment initiated by the 1688 platform, based on the consumption trends of two other B2C platforms, customized 5,000 pairs of gloves to one small manufacturer on demand and provided it with customized services from large industrial brands that had not served SMEs. The whole process took only 22 days, realizing a supply chain of “Consumer - Taobao Tmall - 1688 - Dongya Gloves (manufacturing) - BASF (industrial raw materials)”. The management and integration of supply chain operations, information and funds effectively reduce the waste of corporate resources, achieve the three bottom lines of improving economic efficiency, protecting the environment and improving corporate social responsibility, and realizing sustainable supply chain management. In the sustainable supply chain, each value module based on the B2B platform undertakes multiple functions, which can create, consume, and assist other subjects, building an ecosystem model of value co-creation.

4. Mechanisms of Modelling for High-Quality Enterprise Development

4.1. The Model Propelling Enterprise High-Quality Development via Frugal Innovation

Research on the mechanism of B2B platform ecosystems to promote enterprise development often considers the perspective of the enterprise's services and resources while ignoring the two-way perspective of frugal innovation. Frugal innovation requires enterprises to overcome material, financial, and institutional constraints to create products that satisfy core functions at a lower cost and are affordable to consumers [12]. The value co-creation model allows SMEs to share resources with other value modules to obtain relatively low-cost and environmentally friendly raw materials, social demand information, and innovative scientific and technological knowledge through a sustainable supply chain. In the process, SMEs carry out frugal innovation based on the ideas of thrift and resource constraints and manufacture products that meet the core needs of consumers at a lower cost [13], which improves the enterprise's sustainable competitive advantage and promotes the enterprise's high-quality development. It also accumulates relevant experience and related knowledge for the platform, contributing to ecosystem management [14].

4.2. The Model Enhancing Enterprise Quality Development via 3PL Influence

Due to the diversity within SMEs, this study starts with third-party logistics (3PL) in the external market of enterprises. The decentralization of corporate logistics functions will reduce the efficiency of the logistics process, making the flow of sustainable supply chains slower and unable to ensure the accuracy and effectiveness of resources and information. It weakens the role of the platform ecosystem and leads to expanding the costs of the enterprise, which could be more conducive to the sustainable management of SMEs. As external characteristics, the service level of 3PL and the cost of services will have a relative impact on the platform's logistics strategy. When the service level of 3PL is not too low and the service cost is not too high simultaneously, enterprises will be more willing to choose shared logistics services [15]. Through the official logistics under the relevant comments, the main problems are: (1) online 3PL management patterns are different, can not carry out the free combination of orders shipped; (2) the official logistics display of information is not sufficient; (3) the type of services to choose fewer; (4) billing is not uniform enough, the price is on the high side. The above shows that the logistics service level of the 1688 platform needs to be improved urgently. To better promote the high-quality development of enterprises, the platform can establish a database of 3PL and apply targeted frameworks to evaluate and select 3PL, such as the grey PSI-LOPCOW-MACONT framework proposed for the automotive industry in Turkey [16].

5. Conclusion

Under the continuous development of information technology, SMEs tend to digitally transform experienced B2B e-commerce platforms to create a sustainable supply chain of enterprise platformisation and sharing. This study combines specific B2B platform cases and related theories to discuss the whole supply chain hierarchically and construct a value co-creation model of a sustainable supply chain for SMEs of B2B platforms. Then, it discusses the mechanism that promotes the high-quality development of enterprises. Through analysis, it is found that in the value co-creation model of a sustainable supply chain, the cooperation and sharing of multiple actors are conducive to SME's research on how to create products that can satisfy consumers' needs at a lower cost and thus achieve high-quality development of enterprises. To better promote this mechanism, 3PL needs to be optimized. The study constructs a value network of multiple actors, which enriches the research on value co-creation theory and provides a reference for constructing a platform ecosystem of value co-creation, which is conducive to the high-quality development of SMEs.

At present, the digital transformation of SMEs is in the groping stage, and it is still challenging to realize the value co-creation model of B2B platforms. The supply chain constraints of SMEs, chaotic management methods, and management's lack of cognition and insufficient sense of cooperation. The management object of the platform is complex, and the control of the supply chain is demanding. Therefore, further discussions are needed on the innovation of sustainable management models for SMEs, the efficient synergy mechanism of multiple actors on the platform, and optimizing the value co-creation ecosystem.

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