Industrial Engineering and Innovation Management (2022)
Clausius Scientific Press, Canada

DOI: 10.23977/ieim.2022.050610
ISSN 2522-6924 Vol. 5 Num. 6

Value Co-creation Mechanism of Supply Chain Ecosystem: Based on the Case Study of JD and Haier

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Keywords: Supply chain ecosystem, value co-creation, Two cases, JD and Haier

Abstract: The exploratory double case study method is adopted to study the supply chain ecological enterprises represented by JD and Haier. From the perspective of value co-creation and based on each stage of enterprise development, this paper analyzes the opportunity relationship and value interaction between each subject in the supply chain system. The process of value co-creation in supply chain ecosystem follows the development path of "value consensus - value sharing - value win-win", and there are differences and consistences in the value co-creation mechanism of supply chain ecosystem under different industry backgrounds: Consistences: The realization path of value co-creation of participants is identical, which is manifested as "opportunity identification and element interaction, opportunity sharing and benefit interaction, opportunity creation and ecological interaction"; Differences: There are differences in the factors affecting the evolution of value co- creation. In addition, the research also summarizes the value co-creation evolution process model of supply chain ecosystem, which provides reference for the subsequent value co-creation theory research and the platform and ecological development of supply chain enterprises.

1. Introduction

At present, supply chain platformization and platform industrialization have become the main development trends of supply chain enterprises. As a new business model covering material flow, information flow and energy flow, the supply chain ecosystem plays a key role in the current business competition and can help small and medium-sized enterprises achieve rapid growth. The value interaction mechanism between each subject clarifies the self-positioning and interactive relationship of each participating subject in the system, which is of great significance in guiding the supply chain ecosystem to realize the growth process from start-up to maturity, from value ownership to value win-win [1].

The supply chain ecosystem is a new type of economic complex that takes the supply chain as the core and covers business ecosystems, government agencies, investment institutions and other entities [2,3]. Value co-creation is a process in which the main body of value creation breaks the original organizational boundary, so that members of the organization can jointly create value by integrating opportunities and relationships, and at the same time, strive to meet the individual value needs of

consumers and achieve the ideal state of value co-creation [4,5]. As an important support for the development of the new economy, the supply chain ecosystem not only provides soft resource support such as customer traffic and corporate partners for the core enterprises in the system, but also brings hard resource conditions such as technology and capital to other participants in the system, so as to realize the resource utilization. Configuration and Integration. Each internal subject meets their own value needs through openness and collaboration, and realizes the multi-directional transmission of value from unilateral to multilateral and from point to face [6].

Existing research on the supply chain system mainly focuses on the problem decision-making, operation mechanism, and evolution law of the supply chain system, and rarely discusses the value co-creation relationship between the various subjects in the supply chain system. In view of this, from the perspective of value co-creation, based on the various stages of enterprise development, this paper analyzes the opportunity relationship and value interaction between the various subjects in the supply chain system.

2. The Construction Process of Value Co-Creation in the Supply Chain Ecosystem

2.1. Value Consensus Stage

2.1.1. JD (2007-2016)

2.1.1.1. Value Opportunity

A key part of the supply chain ecosystem, opportunities exist in all aspects of system operation, including opportunity identification, opportunity utilization and opportunity creation [7, 8], Opportunity identification is the first stage of value opportunity. It is an enterprise in the current environment, through analysis, judgment, screening and other links, to identify and select the conditions or opportunities that are conducive to the development of the enterprise itself [9, 10]. During this period, JD's opportunities mainly include "customer demand opportunities, enterprise development opportunities". The specific performance is as follows: identify "opportunities for customer needs", after discovering the problem of customer churn, explore the causes and propose goals to satisfy user experience; identify "opportunities for enterprise development", managers realize the problem of poor user experience. After the root, the company developed from the online mall to the offline logistics. At the same time, with the improvement of the offline logistics system, a new and independent subsidiary was established to specialize in higher-level enterprise development cooperation business.

2.1.1.2. Value Interaction

Interaction is an important way of value co-creation, which can obtain the needs and preferences of users, and promote enterprise groups and resources to achieve the set goals [11, 12]. The value interaction process is the process of exchanging information, establishing trust, and sharing resources between the two parties in the ecosystem, which specifically includes element interaction, benefit interaction and ecological interaction, and find partners suitable for both sides' development goals through various interactions [13]. Element interaction is the basic level interaction of value interaction is an activity in which each subject transfers human, material resources and other elements to each other through a shared material carrier, mainly including "demand elements, resource elements". The specific performance is as follows: after sensing the loss of consumers, JD actively communicates and understands with consumers, and aims to improve the service satisfaction of JD based on the needs of consumers; It compares the original online retail model with self-operated logistics. In order to further improve the efficiency of logistics operation, it strengthens its own logistics operation

system through the construction of warehousing centers and the development of picking technology. With the establishment of subsidiaries, macro strategies such as opening up and ecologicalization have become the consensus of the enterprise.

2.1.1.3. Value Co-Creation

In this stage, JD Logistics began to prepare for construction, and initially established a supply chain system through opportunity identification and element interaction between internal managers and a small number of entities. JD, investors, consumers and other entities play different roles in identifying "customer demand opportunities, enterprise development opportunities" and realizing the interactive relationship "demand elements, resource elements" between the entities, which constitutes the first stage of value co-creation.

2.1.2. Haier (2005 -2012)

2.1.2.1. Value Opportunity

This period mainly includes "market expansion opportunities, customer demand opportunities". The specific performance is as follows: identifying "market expansion opportunities" under the development trend of economic globalization, Haier captured the huge demand in overseas markets, began to formulate globalization strategies, and laid out the international market. Haier's further exploration of the "ecological" strategy is another main direction of market expansion; identifying "customer demand opportunities", Haier found that customers' demand for products is no longer limited to the basic functions of products, but is more personalized and customized. The evolution of first-order demand has prompted the iterative upgrade of the production mode of products, from mass production to mass customization.

2.1.2.2. Value Interaction

Haier's interaction at the element level mainly includes "market elements and demand elements". The specific performance is as follows: in the market, Haier has seized the trend of economic globalization, actively interacted with overseas international markets, and established a foundation for the establishment of an international industrial Internet platform in the later stage. In terms of demand, the upgrade of customer consumption demand drives the upgrade of Haier's production model, and the elements of demand are passed between manufacturing plants and customers, resulting in demand interaction.

2.1.2.3. Value Co-Creation

In this stage, relying on its own opportunity identification ability, Haier began to connect closely with consumers and partners, and communicate market, demand and other elements to each other. A small number of participants established an early supply chain system, which together constituted a shared the first stage of value consensus created.

Evolution process of the first-stage value co-creation mechanism of JD and Haier is shown in Figure 1.

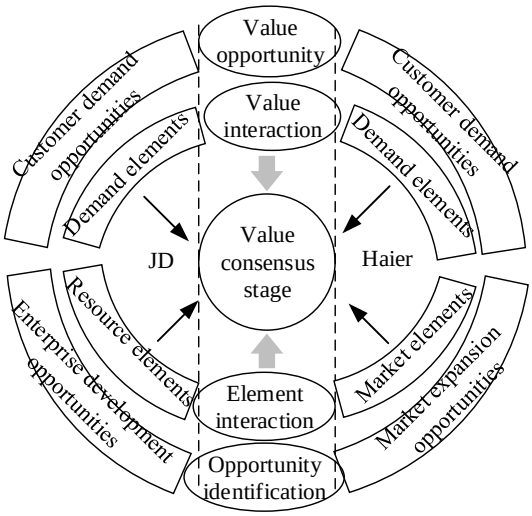

Figure 1: Mechanism analysis of value consensus stage between JD and Haier.

2.2. Value Sharing Stage

2.2.1. JD (2016 -2019)

2.2.1.1. Value Opportunity

Opportunity utilization is the second stage of value opportunity, which is the process of utilizing the opportunities identified in the first stage and generating value. At this stage, JD's opportunity utilization includes "technical expansion opportunities and functional expansion opportunities". The specific performance is as follows: taking advantage of "technological development opportunities", JD strengthens and improves the construction of supply chain infrastructure, releases a series of technical products such as "JD Cloud Warehouse" and "Logistics Cloud", and at the same time, opens its own advantageous links to the outside world , connect with SF Express "Feng Chao", exchange and share data and information between the two parties; take advantage of the "logistics expansion opportunity" to jointly build a smart city with JiaoYun Group, and expand its own logistics function to the city's transportation function.

2.2.1.2. Value Interaction

Benefit interaction is the interaction of benefit levels after each opportunity and each element is identified and utilized[14], mainly including "technological development benefit and function development benefit". The specific performance is as follows: after opening up the advantageous resources, JD and the accesses open up resource transmission channels, and achieve mutual resource assistance in multiple links in the supply chain, forming a "1+1 >2" cooperation effect; To jointly build an intelligent modern urban logistics system, improve the urban comprehensive transportation service experience to cooperate, expand the carrying capacity of JD in urban transportation and the technical capabilities of JiaoYun Group in intelligent transportation, and realize the field of urban transportation.

2.2.1.3. Value Co-Creation

In this stage, JD supply chain ecosystem was initially formed, attracting a large number of entities to enter by virtue of its own opportunity utilization ability. With the advancement of technology and the expansion of functions, the cooperation and interaction between the subjects has become more

and more close, the normalization and strategy of cooperation has become the main trend of the interaction between the subjects, and the value transfer relationship has also been upgraded from value consensus to value sharing.

2.2.2. Haier (2013 -2016)

2.2.2.1. Value Opportunity

In the process of taking advantage of opportunities, Haier mainly took advantage of "interconnected production opportunities and smart logistics opportunities". The specific performance is as follows: Taking advantage of "interconnected production opportunities", Haier has built interconnected factories covering high-tech in many regions. Data exchange between factories helps to transfer demand between factories and customers more quickly, and promotes the transformation of production mode from large to large. Scale production is upgraded to mass customization; Taking advantage of the "smart logistics opportunity", its subsidiary Ririshun Logistics cooperates with Alibaba, YunNiao Distribution, and uses the advanced exploration experience of partners in smart logistics to lay out its own smart logistics ecosystem.

2.2.2.2. Value Interaction

Haier's interaction at the benefit level includes "production benefit and logistics benefit". The specific performance is as follows: after the initial establishment of the ecosystem, the number of entities in the system has increased significantly, and the connection with customers has become more frequent and in-depth. At the same time, after the completion of the interconnected factory, customer demand information and factory plate making data can be more consistent, the individual needs of customers can be realized faster, and the production efficiency can be maximized; Ririshun Logistics cooperates with Alibaba, YunNiao Distribution in smart logistics, and uses the strong strength of both parties to improve the quality of logistics services. Create a smart logistics ecosystem and bring ecological benefits of smart logistics.

2.2.2.3. Value Co-Creation

In this stage, Haier takes advantage of the captured value opportunities to expand ecological boundaries, improve production and manufacturing capabilities, and interact with various entities in terms of logistics, production, and other benefits.

Evolution process of the second-stage value co-creation mechanism of JD and Haier is shown in Figure 2.

2.3. Value Win-Win Stage

2.3.1. JD (2020 -2021)

2.3.1.1. Value Opportunity

Opportunity creation is the final stage of the generation of value opportunities, which refers to the process in which each subject connects the integrated opportunities in a certain way to generate business formats and new ideas. At this stage, JD's opportunity creation includes "service supply chain opportunities, digital traffic opportunities". The specific performance is as follows: to create "service supply chain opportunities", JD cooperates with the three major telecom operators in smart logistics parks to establish an ecosystem centered on smart supply chains, and at the same time joins Tencent and other high-tech enterprises to establish a digital warehousing center, to provide digital

services for the whole process of the supply chain, help partners to expand online and offline customer flows while broadening their own service boundaries, transform “intangible opportunities” into tangible opportunities.

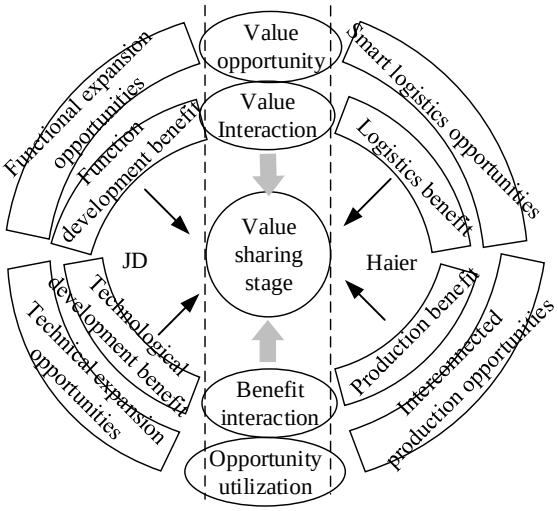

Figure 2: Mechanism analysis of value sharing stage between JD and Haier.

2.3.1.2. Value Interaction

Ecological interaction is the level-level interaction between each subject in terms of development planning and business upgrading after normalized and strategic cooperation, mainly including “service-oriented ecology, digital and intelligent ecology”. The specific performance is as follows: using the JD logistics open platform to gather various resources from suppliers to end customers, forming an ecosystem covering all links of the supply chain, and creating a service-oriented supply chain. Cooperate with the three major telecom operators to launch a pilot 5G intelligent logistics park, apply new communication technologies to develop intelligent supply chains, and carry out bilateral digital technology cooperation with Tencent on “business flow-information flow-logistics” to expand JD’s online customer flow, establish digital, intelligent supply chain ecosystem.

2.3.1.3. Value Co-Creation

In this stage, the JD supply chain ecosystem has matured, and all entities in the system can create opportunities and interact with the ecosystem. Each subject not only pays attention to its own economic development benefits, but also pays attention to the interests of partners and the comprehensive benefits of society and the environment. Value co-creation will ultimately lead to value-win.

2.3.2. Haier (2017 -2021)

2.3.2.1. Value Opportunity

In the process of creating opportunities, Haier mainly created “platform economic opportunities and IoT (internet of things) opportunities”. The specific performance is as follows: creating “platform economic opportunities”, relying on the “COSMOPlat” platform, applying new technologies such as blockchain and 5G to 6 major fields such as mass customization, intelligent manufacturing, and intelligent factories, forming an intelligent industrial ecology, various industries. The further role of ecology constitutes a platform economy; it creates “IoT opportunities”, uses IoT technology to upgrade and connect logistics activities in different scenarios in the supply chain, and at the same

time cooperates with IKEA, Yadea and other ecological resource parties. The ecosystem is built into the IoT ecosystem.

2.3.2.2. Value Interaction

Haier's interaction at the ecological level mainly includes "platform ecology and IoT ecology". The specific performance is as follows: the industrial Internet platform "COSMOPlat" has covered many fields, derived many industry ecosystems, and formed an efficient and coordinated supply chain system; The application of technology in logistics enables logistics activities to be carried out in multiple scenarios, interacts and cooperates with ecological resource parties in relevant scenarios, and expands the application field of scenarios to form an IoT ecosystem.

2.3.2.3. Value Co-Creation

In this stage, Haier's supply chain ecosystem has matured. By creating an industrial Internet platform economy and an IoT ecosystem, it has achieved ecological interaction with various industry entities. Each subject can create new opportunities and realize value transfer with partners in the interaction of elements, benefits, ecology and other levels, which constitutes the final stage of value co-creation and value win-win.

Evolution process of the third-stage value co-creation mechanism of JD and Haier is shown in Figure 3.

2.4. Value Co-Creation Mechanism Model

The study found that the external evolution path of value co-creation in the supply chain ecosystem is represented by three stages of "value consensus - value sharing - value win-win", and the internal evolution mechanism is represented by "value opportunity and value interaction is value co-creation", its complete value co-creation evolution mechanism model is shown in Figure 4. In the first stage, the core subjects and participants in the system interact with customers, investors, and the external market environment through opportunity identification to achieve value consensus; in the second stage, all subjects share opportunities such as policies, markets, logistics and distribution, and take their own development benefits as the main interaction goal to achieve value sharing; in the third stage, each subject creates new scenarios, new traffic, and new technologies according to changes in the external environment, and achieves value win-win through the ecological interaction of various industry alliances.

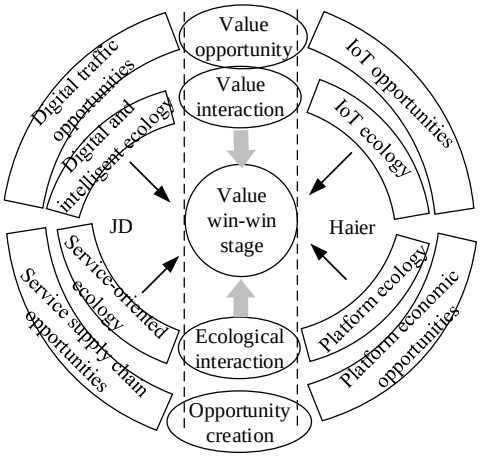

Figure 3: Mechanism analysis of the value win- win stage between JD and Haier.

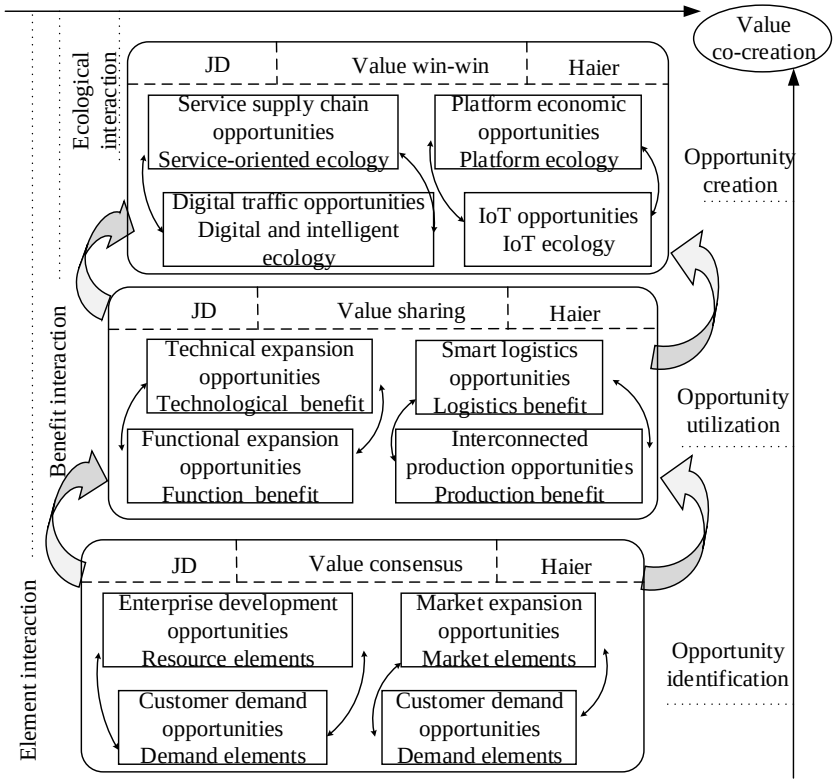

Figure 4: Evolution mechanism model of value co-creation in the supply chain ecosystem.

3. Conclusions on the Construction of Value Co-Creation in the Supply Chain Ecosystem

3.1. Main Conclusions

This paper adopts the exploratory double case study method, takes the supply chain ecosystems in the JD logistics platform and the Haier industrial Internet platform as the case study objects, explores the evolution mechanism of value co-creation in different supply chain ecosystems, and draws the following conclusions:

(1) The value co-creation of the supply chain ecosystem is affected by the dual factors of “value opportunity” and “value interaction”. Following the evolution process of “value consensus-value sharing-value win-win”, “value opportunity” is divided into “opportunity identification, opportunity sharing, opportunity creation”, “value interaction” is divided into “element interaction, benefit interaction, ecological interaction”, and each stage is iterated in turn, forming an evolution path of value co-creation.

(2) Realization path of the participants in the supply chain ecosystem is consistent. The common performance is “opportunity identification and element interaction, opportunity sharing and benefit interaction, opportunity creation and ecological interaction”. Among them, in the first stage, each subject in the supply chain ecosystem analyzes and identifies the opportunities that appear in the external system, and interacts with factors such as market and demand, so as to achieve value consensus; in the second stage, after identifying valuable opportunities, share opportunities and benefits at multiple levels with each subject, generate cooperative benefits with each other, and realize value sharing; in the third stage, the opportunities obtained by the system from the outside are close to saturation, and it is difficult to generate new opportunities, so each subject is based on the external environment. Changes and emerging technologies create opportunities, and carry out ecological

interactions with companies with the same value development goals to achieve value-win.

(3) Differences in the mechanisms that affect the evolution of value co-creation within the supply chain ecosystem. First of all, the development goals of JD and Haier are different in the initial stage. JD focuses on logistics and Haier focuses on production. Therefore, the two parties will attract different types of entities to enter; release superior resources, and create an integrated supply chain. Haier's goal is to establish a direct communication channel between consumers and manufacturers, to promote production through demand, and to form new production models such as network collaboration and personalized customization; finally, JD's value orientation is logistics service providers, aim to provide full-process services for the supply chain. Haier's value orientation is home appliance service providers, using supply chain links to provide services for production more quickly. Therefore, there are differences in the mechanisms that affect the evolution of value co-creation in different systems.

3.2. Theoretical and Practical Contributions

Theoretical significance of this research mainly includes: In-depth exploration of the value co-creation interaction between various subjects in the supply chain ecosystem, and it is believed that "value opportunity" and "value interaction" play an important role in the generation of "value co-creation"; It expands the conceptual boundary of value co-creation, applies the theory of value co-creation to the supply chain ecosystem, and proposes that value co-creation in the supply chain ecosystem follows the evolution process of "value consensus-value sharing-value win-win".

The practical significance of this research mainly includes: Accurate positioning supply chain system is in the specific stage of realizing value co-creation. The process of realizing value co-creation is divided into three stages. Supply chain enterprises can accurately locate their own value co-creation realization stage according to their own development and the cooperation and interaction between entities, and seize the opportunity to build a supply chain ecosystem, to realize the co-creation of value; Clarify the factors that affect the co-creation of value. Factors such as customer demand, logistics distribution, and smart logistics are the main factors that affect the value co-creation of the supply chain ecosystem. Supply chain enterprises can focus on deploying corresponding development resources to help themselves realize value co-creation.

References

[1] Nambisan S, Wright M, Feldman M. (2019) The Digital Transformation of Innovation and Entrepreneurship: Progress, Challenges and Key Themes. Research Policy, 8, 103773.

[2] Viswanadham N, Samvedi A. (2013) Supplier selection based on supply chain ecosystem, performance and risk criteria. International Journal of Production Research, 21-22, 6484-6498.

[3] Stolze H J, Mollenkopf D A, Flint D J. (2016) What is the Right Supply Chain for Your Shopper? Exploring the Shopper Service Ecosystem. Journal of Business Logistics, 2, 185-197.

[4] Zaborek P, Mazur J. (2019) Enabling value co-creation with consumers as a driver of business performance: A dual perspective of Polish manufacturing and service SMEs. Journal of Business Research, 1, 541-551.

[5] Grover V, Kohil R. (2012) Cocreating IT Value: New Capabilities and Metrics for Multifirm Environments. MIS Quarterly, 1, 225-232.

[6] Frow P, Mccoll-Kennedy J R, Payne A. (2016) Co-creation practices: Their role in shaping a health care ecosystem. Industrial Marketing Management, 7, 24-39.

[7] Shane S, Venkataraman S. (2000) The promise of entrepreneurship as a field of research. Academy of Management Review, 1, 217-226.

[8] Nambisan S. (2017) Digital Entrepreneurship: Toward a Digital Technology Perspective of Entrepreneurship. Entrepreneurship Theory and Practice, 6, 1029-1055.

[9] Ramoglou S, Tsang EW K. (2016) A Realist Perspective of Entrepreneurship: Opportunities as Propensities. Academy of Management Review, 3, 410-434.

[10] Lundberg H, Rehnfors A. (2018) Transnational Entrepreneurship: Opportunity identification and Venture Creation.

Journal of International Entrepreneurship, 2, 150-175.
[11] Pena AIP, Jamilena DMF, Molina MA R. (2014) Value co-creation via information and communications technology. The Service Industries Journal, 13, 1043-1059.
[12] Shaker AZ, Harry J S. (2006) Entrepreneurship and Dynamic Capabilities: A Review, Model and Research Agenda. Journal of Management Studies, 4, 917-955.
[13] Helena Y R, Erkko A, Harry J S. (2001) Social Capital, Knowledge Acquisition, and Knowledge Exploitation in Young Technology-based Firms. Strategic Management Journal, 6-7, 587-613.
[14] Kaoxun Chi. (2018) The Study on Cognitive Mechanism and Performance of New Ventures' Business Model Design. Economy & Management Publishing House.