

Literature Review of Dual-Channel Supply Chain Integration

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Abstract

At present, China is in the period of the real economy transition. Based on the Internet, the new retail mode of deep integration of online and offline provides an innovative breakthrough for economic transformation and became the future development tendency of China's retail industry. This paper summarizes the relevant reviews of supply chain integration, integration synergy and integration decision-making mechanism at home and abroad, in order to further explore the research direction of dual channel supply chain integration and provide a theoretical basis for dual channel integration decision-making.

Keywords

Supply Chain; Dual Channels; Integration; Synergistic Effect.

1. Introduction

Channel integration is one of the core issues in the research of enterprise strategy theory. Only when the supply chain is coordinated and the channels are operated in coordination, can the enterprises in the supply chain develop healthily and sustainably. So far, research on channel integration of foreign scholars has mainly focused on multi-channel integration. However, there are relatively few online and offline integration studies in countries such as China, which are in the rapid development of e-commerce, and more researchers are based on the integration of downstream channels.

2. Supply chain integration

The section headings Many domestic and foreign researchers have conducted researchers on the relationship between supply chain integration and integration performance. Supply chain integration can be explained from different dimensions. Internal integration and external integration are the most common classification [1-3], of which external integration includes supplier integration and customer integration. That is, supply chain integration is to measure the degree of strategic cooperation and internal organization coordination between manufacturing enterprises and supply chain partners from the three dimensions of supplier integration, internal integration and customer integration [4]. The integration of the supply chain can be elaborated from the four dimensions of intensity, scope, duration and depth. There is a close relationship between the four dimensions, and they play an important role in the planning and implementation of the project [5]. Summarizing the existing supply chain integration models from a global perspective can be divided into four types: high equilibrium mode, medium equilibrium mode, low equilibrium mode and externally oriented mode [6]. In the process of studying supply chain integration, existing research has incorporated many theoretical methods. For example, the theoretical framework of business process reengineering is applied to the aviation maintenance and repair supply chain [7, 8]. The progressive approximation method and mixed integer nonlinear mathematics are used in the supply chain network design to solve the assembly line balance problem about location and capacity decisions [9].

The integration of the supply chain has a significant relationship with the operating performance of the supply chain and the participating companies. Supply chain design can positively affect supply chain integration and supply chain performance [10, 11]. In the process of supply chain integration, improving the performance of customer service can improve financial performance [12]. The costs, benefits, excess profits and potential losses in the supply chain integration process have an impact on the dynamic evolution of the innovation strategy of supply chain integration [13]. Supply chain relational capital plays an important role in supply chain integration strategy. For example, in the food processing industry, trust, commitment, and socialization can assist in supply chain integration [14]. Some factors in the operation of an enterprise will have a negative impact on the integration of the supply chain. The uncertainty of the supply chain inhibits the integration of the supply chain [15]. The support of senior management is one of the factors to consider the negative impact of supply chain integration [16]. Supply chain integration can adjust the relationship between employee commitment and enterprise performance. Employee commitment can improve internal integration while internal integration can affect enterprise performance and contribute to supply chain integration and customer integration [17]. From the perspective of external factors of product and market complexity, it is found that when providing simple products or in a highly complex market environment, integration of supply chain information is more conducive to the improvement of enterprise performance [18]. Supply chain integration can bring certain benefits to suppliers, retailers, consumers and the supply chain. For example, after integrating suppliers and retailers, the competition type of retailers is of great significance to the structure of the supply chain [19].

There are many performance evaluation indicators for operations, including cost, distribution, flexibility, and quality that are widely recognized by researchers [20], and some include innovation [21]. Based on these five performance indicators, by comparing the operation performance of different integration modes, it is concluded that supply chain integration has a positive correlation with the other four indicators, except for the curvilinear relationship between supply chain integration and cost indicators. In addition, there are those who evaluate the supply chain performance from other perspectives, such as flexibility, resources and output [22]; Profit, fast delivery, lead time and inventory [23]; Flexibility, service level and quality [7]; There are also seven characteristic measurement indicators proposed by Maskell [24].

3. Synergistic effects of supply chain integration

The process of supply chain integration is a process of collaborative operation of supply chain. Supply chain is a chain structure or network structure composed of upstream and downstream enterprises. Supply chain management includes the whole process of information flow, logistics and service flow from raw material suppliers to final customers. In the Internet era, market competition has intensified, and supply chain synergy occupies a dominant position in supply chain strategy [25]. The collaboration of online and offline dual channel supply chain is mainly to coordinate and manage the cooperation activities between upstream and downstream alliance enterprises in the supply chain [26,27]. Synergy and product market scope, competitive advantage and development direction are all the elements of enterprise strategy. Collaboration is produced on the basis of resource sharing among the independent components, which grows with each other, and forms the business performance of the enterprise group through simple enterprise activities [28,29]. In the process of collaboration, resource sharing includes tangible resources and intangible resources, and the combination of the two increases the value of the enterprise [30].

By summarizing the existing literature, foreign scholars mainly have the following views on the synergistic effect of the supply chain, as shown in Table 1.

China's supply chain collaboration is mainly studied from the following aspects: (1) the viewpoint of system theory, that is, the supply chain should exist as an organic system, and each independent component forms the overall value through internal and external connections [38]. (2) Supply chain management is mainly to plan, coordinate and control the "three flows" of logistics, information flow,

and capital flow in the supply chain, with the aim of maximizing the increase in net value, improving the efficiency of various activities and the overall effectiveness of the organization [39]. (3) Management mode of enterprise strategic network. The constituent enterprises in the supply chain are all nodes in the entire supply chain relationship network, and, they can achieve the strategic goals of the strategic network through strategic management of their own core capabilities [40]. (4) In addition, there are scholars who have studied the collaborative management of supply chain from other perspectives, including the two-level inventory coordination model [41], the development bottleneck of the collaborative management of the supply chain, the supply chain coordination strategy, and the evaluation of collaborative performance [42], obstacle factors of supply chain coordination [43], the internal motivation of supply chain coordination [44], the development trend of supply chain coordination management [45].

Table 1 Research viewpoints on synergistic effect of foreign supply chains

Viewpoints	Content
Value chain perspective	Value chain of supply chain is a business process model by integrating the business activities of enterprises in the supply chain [31]. Through the value chain model, the business process parts of each component member of the supply chain, namely suppliers, manufacturers, distributors and retailers, to the end customers are integrated to produce supply chain synergy.
Free rider theory	Core resources form supply chain synergy in the process of diffusion [32]
View of process reengineering	Redesign and integrate business processes between organizations to achieve supply chain synergy [33]
The idea of strategic network	As a strategic resource, the strategic network can be integrated with strategy of enterprise from the aspects of the company's own capabilities, switching costs and transaction costs, corporate revenue, industrial structure and positioning, and network evolution, so as to directly affect the performance and behavior of enterprises [34].
Research on demand in supply chain	Research proves that demand coordination is of certain importance for improving supply chain capabilities. The bullwhip effect cannot be completely eliminated, but centralized demand information can be effectively suppressed [35,36].
Research on inventory coordination	Prove that supplier collaboration can improve the performance of the whole supply chain [37].

4. Synergy of multi-channel integration

In recent years, many scholars have studied the generation of synergistic effect in the process of multi-channel integration [46-48], analyzed the importance of synergy when consumers make purchase decisions from multiple channels of the same enterprise [49], and the advantages and disadvantages of retailers in channel coordination [50]. There are also a lot of articles on consumer motivations for channel selection, but there is no research on the factors that influence channel traffic flow from the perspective of channel integration. This paper attempts to find the influencing factors that stimulate the coordination effect and erosion effect of dual channels and their impact on channel passenger flow from this perspective.

The ultimate purpose of retailers adopting multi-channel is to better cater to the purchase motives of different consumers. Providing consumers with multi-channel choices can create a healthy competition, increase customer base and improve loyalty of consumer [51]. The improvement of the operating performance of each channel is the most ideal state of integration, that is, the accumulation of channel diversity and richness produces a strengthening effect [52]. The first step to create a consumer centered multi-channel system is synchronous use, and the synergistic effect of channels is more important in the multi-channel system than the parallel retail model of channels [53]. Limited cooperation, competition, conflict or disharmony among channels will cause confusion to customers [47,54]. Increasing online channels by traditional retailers may lead to channel conflict, that is, one channel has a cannibalism effect on the other [46].

The synergistic effect of multi-channel integration is reflected in attracting new consumers through new online services, differentiated added value, improved consumer loyalty, increased sales, and

reduced costs. Multi-channel retailers try to share infrastructure, market, business model, and consumers through channels to achieve synergy [46]. In order to better integrate multiple channels, strategies can be formulated from many aspects, such as product consistency, high integration of customer information and promotion, cross channel pricing and inventory information, providing multi-channel search opportunities and so on [55]. In the process of channel integration and operation, the importance of inter channel organizational structure and channel coordination than their independent operation is reflected in three aspects: advertising, price and brand. The advantages and disadvantages of multi-channel market variable coordination are reflected in its positive correlation with consumer channel orientation and overall customer loyalty, on the other hand, it is positively correlated with the encroachment effect of channels [56-58].

5. Decision making of dual channel integration—Collaboration Contract

At present, supply chain collaboration contract is the main direction of dual-channel supply chain coordination research, and wholesale price contract is the simplest and easy to implement. When the manufacturer increases the direct sales channel and its wholesale price is equal to the online retail price, the product retail price of offline channel retailers can be reduced. In order to meet the needs of service-sensitive consumers, the manufacturer needs to provide an effective mechanism to control the sales price of retailers without damaging the profits of offline retailers [59]. The opening of dual-channel by manufacturers can increase market coverage and intensify price competition between online direct sales channel and offline traditional channel, and reduce the wholesale price can have a certain compensation effect on online retailers, but the manufacturer's total profit will be reduced [60]. The study found that based on the sales efforts of distributors, that is, by making concessions or giving a certain commission to distributors and adjusting the wholesale price of products, the overall efficiency of dual channels can be improved [61]. After the manufacturer opens up dual channels, it will lead to the migration behavior of consumers. When some consumers from offline channels are attracted by online channels, the manufacturer will be affected by the wholesale price and reduce the total cost of completing the target. Based on the lower wholesale price of products, manufacturers can share high-level product services with traditional retailers [62]. Some scholars believe that wholesale contract is not absolutely effective in the process of realizing dual channel supply chain coordination, and dual channel coordination is carried out through other contracts. For example, a two-step compensation entrustment coordination contract that depends on the sales volume of retail channels and is easy to operate [63]; To achieve the coordination effect through linear contracts of product retail prices, transfer payments and residual inventory subsidies [64]; Coordination can also be achieved through markup contracts [65].

6. Summary

Supply chain management is already a necessary and sufficient condition for the sustainable development of enterprises. Through supply chain integration, the resource sharing and information integration of various enterprises in the supply chain can be effectively strengthened. The first step to create a consumer centered multi-channel system is synchronous use, and the synergy of channels is more important in a multi-channel system than the parallel retail model of channels. The ultimate purpose of adopting multi-channel is to better cater to the purchase motives of different consumers. Providing consumers with multiple channel choices can create healthy competition, increase customer base, and increase consumer loyalty. The improvement of the business performance of online and offline channels is the most ideal state of integration, that is, the accumulation of diversity and richness of channels produces a strengthening effect. Through the summary of the existing domestic and foreign literature review, we hope to explore the new research direction of dual-channel supply chain integration, so as to provide better decision-making opinions for channel integration.

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