INFLUENCING FACTORS OF THE PERFORMANCE OF SUPPLY CHAIN MANAGEMENT: AN ANALYSIS FROM THE PERSPECTIVE OF PSYCHOLOGY

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Abstract
Supply chain offers an effective way to integrate resources and upgrade performance amidst fierce market competition. However, it is difficult to share business information in the supply chain, resulting in a large psychological distance between individuals. This paper explores how psychological distance and teamwork awareness influence the performance of supply chain management. Firstly, a relation model was established for supply chain management, and an assessment system was set up for the performance of supply chain management. Then, a survey was carried out among e-commerce, finance and logistics companies with supply chain partnerships in Beijing, Tianjin and Hebei. Through the analysis on the survey results, it is learned that psychological distance hinders the flows of corporate information, capital and business and the logistics operation in supply chain; psychological distance suppresses the performance of teamwork management; a wide psychological distance between supply chain businesses will suppress synergy innovation and reduce management performance. This research pushes forward the understanding supply chain management performance.

Key words: Supply Chain, Psychological Distance, Teamwork Awareness, Management Performance, Synergy Innovation.

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INTRODUCTION
In the face of complex and volatile market environment, most companies choose to join the supply chain for survival and development, where they can timely and efficiently master external information and advanced knowledge (Eckerd, Boyer, Qi et al., 2016). They can effectively implement the supply chain integration strategies by mining, exploiting and utilizing resources therein, play to their own strengths and throw energy into its core competitiveness in order to ensure the smooth development of synergy innovation activities (Chen, Mitchell, Brigham et al., 2018; Maglio, Trope, & Liberman, 2013). As the supply chain management requires, corporate members should build unique competition advantages to rapidly respond to market demands by a win-win cooperation between companies in the supply chain (Hu, Erdogan, Jiang et al., 2017). How well the supply chain performance is depending more on the teamwork cooperation relationship, and the psychological distance greatly involves the supply chain management performance. The supply chain with psychologically congruent companies will help companies develop correct strategies in a timely manner, enhance the companies’ innovation capacity, facilitate interactive synergy between companies, and circumvent potential business risks (Bandara, Fernando, & Akter, 2017; Thomsen, Karsten, & Oort, 2016).

Numerous studies show that psychological distance serves as an important factor...
influencing the uncertainty in the supply chain system. As the supply chain collaboration activities are closely launched, the inter-company information transmission and sharing has been upgraded. The psychological distance responds by poor collaboration rapport and sharing level that spread to synergy innovation activities in the supply chain, interfere with the corporate operation and management and have an important influence on supply chain management performance (Michela & Vena, 2012; Rocchi, Comini, Ghidelli et al., 2011). Further, psychological distance can overshadow the embeddability between nodes in the supply chain and thwart the formation of knowledge sharing awareness, thus play a bad influence on the teamwork performance (Kiessling, Harvey, & Moeller, 2012; Mutingi, Mapfaira, & Monageng, 2014). The study traces the influence of the psychological distance and teamwork awareness training on the business supply chain management performance, especially its mechanism, laying a foundation for lessening the psychological distance between companies and improving the supply chain management performance.

BUILDING THE SUPPLY CHAIN MANAGEMENT RELATION MODEL

A complete supply chain consists of various business entities (including suppliers, manufacturer, distributor, retailer, etc.). It is designed to coordinate and manage companies in the supply chain to form a chained supply model, and works as an integrator (Soderberg & Bengtsson, 2010). The partnership established between the two companies is the major driving factor for the business supply chain management. The business management supply chain will be constructed to allow companies in the chain to reap more and improve the performance in parallel, and share the development results delivered in the chain (Eriksson & Svensson, 2018). Today, the supply chain management relation model has not yet been perfect. The assessment indices available now include the creation and improvement of initial indices, but there is still a space for us to improve the supply chain management performance model (Tian, Li, Li et al., 2015).

The driving factor assessment indices for supply chain partnership are shown in Figure 1. On the whole, the assessment indices include capital/cost benefit, customer service, marketing advantage, profit stability/growth, company compatibility, management ideas and skills, interdependence and symmetry, etc., which make up less correlated driving factors for supply chain partnership. The supply chain partnership management system is shown in Figure 2. First, judge there is a need to build a partnership, clarify the scope of the partnership selection from which appropriate partners are designated for daily management, development and maintenance by setting the selection standards for partnerships.

![Figure 1. Evaluation index of driving factor of supply chain partnership](image1.png)

![Figure 2. Supply chain partner management system](image2.png)

ASSESSMENT ON SUPPLY CHAIN MANAGEMENT PERFORMANCE

Analysis of supply chain management situation

As shown in Figure 3, the supply chain partnerships based on specialized asset inputs are classified. In the light of the relationship between supplier and buyer inputs in the supply chain, it is readily apparent that there are the four types of supplies, namely: buyer- and supplier-active, strategic cooperation and
market exchange types. Among them, strategic partnership requires companies in the supply chain to more concern their partners' demands when developing strategic programs. It is most stable and has a higher management performance. The supply chain that takes the teamwork as the core is a network-chain structure developed on the core business. It is dynamic, complex, competitive and cooperative, multi-layered and customer-oriented. However, current supply chain management that focuses on collaboration and sharing among partners more concerns the fine management for integration and the integrated application of information technologies.

In the automobile supply chain management, for example, China’s auto companies have uneven distribution and unclear division of labor among various departments in the procurement process, and also irregular system, lack the management methods; there are also gaps in supply chain management, including mismatch between goods and inventory capacity in the distribution process, and higher delivery cost. The business-based supply chain management level as companies in the supply chain adopt will be more able to manifest the future development potential, and the supply chain management performance can supervise the supply chain management implementation. In addition, the scientific system performance assessment indices are the best template for companies to build an inhouse supply chain management system.

Building the supply chain management performance assessment system

The supply chain management performance assessment system can be constructed based on some principles including the standardization, cost-effectiveness and systemic principles. Again, the assessment system is subjected to the assessment subject, content and methods. There are methods for supply chain assessment, mainly including qualitative and quantitative assessment and the integration of both. However, the results from management performance assessment is generally for internal use only. Psychological distance as a key factor influencing the supply chain management performance is so objective that increases the information acquisition cost of supply chain partners. Figure 4 shows us the assessment indices for supply chain management performance, including some dimensions such as customer, finance, business process, learning and growth, and social responsibility. The specific indices are shown in Figure 4.

Figure 4. Performance evaluation index of supply chain management

Customer dimension
Financial dimension
Business process dimension
Learning and growth dimension
Social responsibility dimension

Meet customer needs
Customer maintenance and development
Use and turnover of funds
Purchasing, production, inventory and logistics management
Product development and innovation
Staff training
Information system usage
Environmental pollution
Employment provision

EMPIRICAL INQUIRY OF INFLUENCE AND MECHANISM ANALYSIS

Descriptive statistics and hypothesis test

As shown in Figure 5, the psychological distance theory model is constructed. The psychological distance has a bearing on the teamwork awareness and the shared mental model. In Figure 5, it is obvious that the psychological distance can influence the supply chain management performance in two ways. As shown in Figure 6, the content of the psychological distance measurement clauses involves professional skills, interaction states, judgment and intimacy. Here, we conduct a survey among those companies with supply
Chain partnerships in Beijing, Tianjin and Hebei as the cases. The supply chain involves e-commerce, finance and logistics industries. The supply chain partners as percentage of the total are mostly 16-20 and 20-30 people. With data available from the survey, the statistical software AMOS 17.0 can be used to conduct a confirmatory factor analysis of the psychological distance and teamwork management performance. The simulated fitting index of the two factors is 0.924. It means that the confirmatory factor analysis results are acceptable.

**Figure 5. Construction of psychological distance theory model**

**Figure 6. Item content of psychological distance measurement**

When interacting with others, I feel I have more professional skills.

With others, I am in a passive state.

I always accept the opinions of others obediently.

When interacting with others, I am always in an aggressive state of refuting others' opinions.

I am very assertive and aggressive when interacting with others.

I'm very patient with other people.

My attitude towards others is very intimate.

I think about other people's feelings.

**Figure 7. Scale ratio of supply chain cooperators**

Analysis of empirical results

**Figure 8. Different psychological distance has different effects on team cooperation management performance**

From the analysis of correlation between psychological distance and supply chain management performance, it is found that there is a negative correlation between the psychological distance as an independent variable and the teamwork management performance as an outcome variable. As shown in Figure 8, there is the difference in the influences of different psychological distances on the teamwork management performance. In the high or low value co-creation mode, the teamwork management performance decreases as the psychological distance widens. Under the condition of low value co-creation, teamwork management performance declines even more.

**Table 1. Empirical analysis results**

<table>
<thead>
<tr>
<th>Hypothetical entry</th>
<th>Analysis results</th>
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<tbody>
<tr>
<td>Negative correlation exists between psychological distance and team cooperation innovation performance</td>
<td>Approved</td>
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<tr>
<td>Negative correlation exists between psychological distance and team shared mental model performance</td>
<td></td>
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<tr>
<td>Shared mental model has a positive impact on team cooperative innovation performance</td>
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<tr>
<td>Sharing model mediates psychological distance and team innovation performance</td>
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<tr>
<td>The relationship between value co-creation negative regulation of psychological distance and shared mental model</td>
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The results of empirical analysis are listed in Table 1. The relationships between psychological distance, value co-creation and teamwork management performance as proposed in the questionnaire survey are all proved. Synergy innovation activities among companies in the supply chain are carried out on the boundaries of companies. The way that the smooth development for collaboration and innovation can be guaranteed is to eliminate the communication and information barriers between the partners, thereby to provide channels quickly responded to knowledge acquisition and transfer. As there are different cultural backgrounds between companies in the supply chain and the business advantages differ a lot, the psychological distance between companies appears, which influences not only the interaction of information resources, but also the synergy innovation vitality among members, and also reduces the overall agility of the supply chain. The greater the psychological distance between companies in the supply chain, the more difficult it is for companies to suffice for the senses of support and trust. Information sharing, synergy innovation willingness, and cooperation satisfaction will all be involved, leading the supply chain coordination capacity to reducing and the synergy innovation capacity to weakening. It is impossible to respond to the market demands of partners for the information transmission and resource sharing in a timely manner, thus leading the overall operation efficiency of the supply chain to being subverted, and the synergy innovation performance to being influenced.

CONCLUSION

This paper focuses on the influence of psychological distance and teamwork awareness training on the corporate supply chain management performance, especially more on what’s mechanism subject to the influence. Here are specific conclusions:

(1) The supply chain with teamwork as the core is a network-chain type developed among the core businesses, which features dynamics, complexity, competitive cooperation, multi-layer and voice of customer.

(2) Psychological distance is an important factor that influence the supply chain management performance. It is objective and increases the information acquisition cost among supply chain partnerships.

(3) There is a negative correlation between psychological distance and teamwork management performance, and under the high or low value co-creation mode, the teamwork management performance will decline with the increase of psychological distance. Under the low value co-creation condition, the teamwork management performance has been reduced even more.

(4) The greater the psychological distance between supply chain businesses, it is impossible for the companies to timely respond to the demands of the market and partnerships via the information transmission and resource sharing, spreading to the overall operation efficiency of the supply chain, and the synergy innovation performance.

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REFERENCES


