

## DOCTORAL THESIS

# Performance measurement and management of third party logistics: an organizational theory approach

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**Performance Measurement and Management of  
Third Party Logistics: An Organizational Theory Approach**

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**A thesis submitted in partial fulfillment of the requirements**

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explores service quality (SQ), organizational effectiveness (OE), and relationship management (RM) between 3PL service providers and their supply chain partners. Sixteen hypothesized links are developed that represent 3PL organizational performance. These links affect channel relationships in the supply chain and the effectiveness of delivered services. Based on the literature and practice in 3PL services, a comprehensive measurement scale is developed with 98 items on service quality, organizational effectiveness, and relationship management.

A pilot study of the developed organizational performance measurement scale for 3PL providers was conducted among respondents from twenty business partners of 3PL providers to confirm the content validity of the scale. A survey was then used to collect data for the revision of the measurement scale from staff of four similar 3PL providers and their business partners in the transport logistics industry in Hong Kong.

To avoid confusion, data were collected on the expected and actual organizational performance of 3PL providers separately. Four (2×2) sets of completed questionnaires on the expected and actual organizational performance of 3PL providers from staff members and on the actual and expected organizational performance of 3PL providers from business partners were collected.

Randomly selected 3PL staff members were divided into two groups, and each group completed self-evaluation questionnaires on either the expected or actual organizational performance of 3PL providers. In an identical survey, two business partner representatives of the four 3PL providers also completed questionnaires on either the expected or actual organizational performance of 3PL providers. A total of 742 questionnaires were completed and serve as analyzable data.

The descriptive statistics are analyzed, and reliability tests and confirmatory factor analysis (CFA) to test the construct validity and measurement loadings are conducted. The sixteen hypothesized links between the three constructs and eleven factors of 3PL organizational performance are analyzed using structural equation modeling (SEM). Gap analysis is also performed to examine the loading differences between indicator variables and to confirm the variables on 3PL service providers, customers, and partners. The data on the actual differences in logistics service provide 3PL providers with useful recommendations for service improvement.

After the measurement model is analyzed, the structural model is tested and confirmed. The testing and confirmation results show that the significant criteria that are related to 3PL organizational performance comprise three constructs: service quality (SQ), organizational effectiveness (OE), and relationship management (RM). The three constructs in turn consist of eleven significant and positive dimensions. Service quality (SQ) includes tangibility (TANGI), reliability (RELIAB), responsiveness (RESPON), assurance (ASSUR), and empathy (EMPAT); organizational effectiveness (OE) includes cycle time (CYCLE), customer service (CUSTO), reputation, and goodwill (GOORE); and relationship management (RM) includes guanxi (GUANX), trust (TRUST), and commitment (COMMI).

The results indicate that the causal relationships between service quality, organizational effectiveness, and relationship management are important dimensions of 3PL organizational performance. The results also confirm the multidimensional measurement capacity of 3PL organizational success and support the application of the concept to organizational performance.

The four sets of collected data provide strong verification for the effectiveness of the SEM method; the multidimensionality of 3PL service quality, organizational effectiveness, and relationship management; and the existence of three constructs of 3PL organizational performance. After refinement of the measurement models and the testing of the validity and reliability of the constructs, relevant measurement items were retained for the final version of these items and their latent constructs. The final version serves as a reliable tool to measure 3PL organizational performance and also as a guideline for 3PL practitioners to improve performance.

Gap analyses are undertaken to examine the group differences between the indicator variables to confirm that they are 3PL service provider and partner variables, and also to examine the actual differences in logistics service, which provide useful feedback for 3PL company on service improvement. The results of this study can be applied to improve 3PL business performance.

This is the first comprehensive study of 3PL organizational performance measurement and management of Hong Kong service providers. The research provides analysis of 3PL service quality, organizational effectiveness, and relationship management; identifies a research framework of 3PL organizational performance; and confirms the collaborative relationship between 3PL service providers and their partners. The research results provide valuable information and insights for logistics practitioners, policy makers, and supply chain partners.

The study contributes to the literature on performance measurement and strategic 3PL management, and provides practical guidelines for practitioners to improve their 3PL organizational performance. The gap analysis examines the difference between perceived

and actual 3PL organizational performance, which defines collaborative relationships and 3PL competence, and develops a solid foundation for the improvement of 3PL organizational performance.

This is a theoretically, methodologically, and analytically detailed empirical study that adds to the limited existing literature on organizational performance. The study provides valuable groundwork for further studies on the development of strategies and the benchmarking of successful 3PL organizational performance.

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