

Chapter 18

A Fuzzy AHP Model for 3PL Selection in Lead Logistics Provider Scenarios

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ABSTRACT

Selection of service providers in the global supply chains of today has been recognized as having a very important effect on the competitiveness of the entire supply chain. It results in achieving high quality end results (products and/or services), at reasonable cost coupled with high customer satisfaction. This article discusses the use of Fuzzy Analytic Hierarchy Process (FAHP) to effectively manage the qualitative and quantitative decision factors which are involved in the selection of providers of 3PL services under Lead Logistics Provider (LLP) environments of today. Lead logistics providers (LLP) are increasingly being banked upon to integrate the best of 3PL service providers and allow for synchronized and optimized operations. In the asset free environments of today, many a times, the LLP uses the services of the 3PL and hence the issue of reliably choosing them assumes increasingly greater significance. The fuzzy-AHP has been adequately demonstrated in literature to be an effective tool which can be used to factor-in the fuzziness of data. Triangular Fuzzy Numbers (TFN) have been deployed to make over the linguistic comparisons of criteria, sub-criteria and the alternatives. The FAHP based model formulated in this chapter is applied to a case study in the Indian context using data from three leading LSPs with significant operating leverages in the province of Uttarakhand (India). The proposed model can provide the guidelines and directions for the decision makers to effectively select their global service providers in the present day competitive logistics markets.

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INTRODUCTION

In the present day environments of global competition, the modern logistics business organizations pay a special attention to the identification and selection among alternative sources. Traditionally, business organizations have tried to meet demand targets by a specific focus on bigger inventories and faster (and better) transportation modes. The emerging need of the day is to achieve increased levels of system design, logistics process management, data collection and storage analysis (Shen Shaoji, 2000). Companies are outsourcing their entire set of “non-core competency works” to organizations that have adequately well demonstrated and established professional excellence in those areas – logistics or otherwise. They are being asked to assess, design and execute/run integrated end-to-end supply chain solutions. Initially, outsourcing was at play in specific areas to specific players - the widely known third party logistics (3PL) concept. But, an increasing number of 3PLs led to a chaos of another kind. The scope for a 3PL provider was (and continues to be) immense. Many 3PLs failed at their own business transformation. The international 3PLs failed to provide domestic services and vice-versa. The shippers focused only on cost reduction, all the while ignoring their requirements for those specific services which they needed. Hence, it was in the resulting service vacuum created by 3PLs that the concept of Lead Logistics Provider (LLP) emerged. The LLP is essentially a 3PL with advantages of scale and other abilities which allow it to act as the “Lead” 3PL. It serves as a single point of contact as regards the organization and all the 3PLs it has hired. The LLP integrates and serves to co-ordinate the activities of the other 3PLs and hence emerges as a sort of Fourth Party service provider – though not really a 4PL in the sense we normally know 4PLs. The term 4PL or Fourth Party Logistics is a trademark of Accenture (formerly called the Anderson Consulting). The LLP builds on the foundations of 3PL and

additionally delivers a comprehensive supply chain solution with integrated skills aimed at an optimally leveraged supply chain. The LLP is a BPO provider whose sole edge over the 3PL is his ability to bring value and a re-engineered attitudinal approach to the customer and his needs. The LLP manages other 3PLs while maintaining the shippers’ perspective in the long term. The basic purpose of this evolution (LLP) is to infuse a maximized overall benefit to the end user/the customer. The Lead Logistics Provider (LLP) is a supply chain integrator who assembles and manages the resources, capabilities and technology of its own organization with those of complementary service provider to deliver a comprehensive supply chain solution (Xu Jianxin, 2002). The LLP thrives by leveraging the competencies of the 3PLs and the business process managers to deliver a comprehensive and integrated supply chain solution through a centralized point of contact.

The selection of 3PLs is a very important multi-criterion decision making issue. The globalization of the firm’s operations signifies the establishment of long-term business relationship with often unfamiliar and unproven international partners. The selection of global 3PLs is a rather complicated task fraught with risks. Selection of 3PLs is one of the most important aspects that firms must incorporate into their strategic processes. As organizations become more and more dependent on service providers, the direct and indirect consequences of poor decision making in selecting the 3PL extensions will become more and more important and critical as well. Frequently changing the 3PLs is also not a very feasible scenario given the current globally competitive markets. The focus of the present work is to derive and develop, through fuzzy analytical modeling techniques, the selection of 3PLs by the LLP rather than by the shipper.

In the present article, we have initially identified the critical criteria associated with the process. The selection of decision variables is basically based on the knowledge and informa-

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