Chapter 5

A Hybrid E-Auction/Negotiation Model as a Tool for 4PL to Improve the Transport Provider Selection Process

Eleni Maria Papadopoulou
ATEI of Thessaloniki, Greece

Athanasios Kelemis
ATEI of Thessaloniki, Greece

ABSTRACT

The evolution of e-business has enabled the development of e-marketplaces facilitating the transactions among existing and potential supply chain members on an integrated platform. E-auctions are already considered a critical process for the selection of transport providers, but have not yet been systematically integrated in the 4PL concept. Specifically, a 4PL provider must add value to the e-auction process by assessing, in prior, the capabilities of potential transport providers through an e-negotiation process in order to justify its administrative role. The aim of this chapter is to present a hybrid e-auction-negotiation model, managed by a 4PL provider aiming to improve the transport provider selection process.

INTRODUCTION

Since the evolution of e-business, significant progress has been made in the field, covering all sections of electronic activity among consumers, business and government (Kourgiantakis et al., 2006), also affecting the functions of supply chains accordingly (Jin and Wu, 2006).

The need for e-marketplaces emerged in the late 1990’s, as this e-business model promises to enhance the process of information sharing. It also facilitates the transactions among existing and potential supply chain members on an integrated platform, the development of vendor managed inventory schemes and in general, it leverages the operations of collaborative mechanisms (Daniel and White, 2005).
Concerning transportation, it refers to the physical flow of goods from an origin to a redefined destination (Lai et al., 2004). Particularly, it constitutes an information intensive sector that continuously evolves in an attempt to follow the market trends. Therefore, the traditional communication means, such as phone and fax, are being gradually substituted by updated e-transportation tools, with main reference to bulletin boards, e-auctions, electronic Request for Quote (e-RFQ), horizontal and vertical portals, public and private exchange marketplaces, as well as collaborative communities (Nair, 2005). The requirements of each marketplace depend on the mode of transport, the number of modes and the types of goods (Kameshwaran and Narahari, 2001).

One of the trends in supply chain is considered to be the 4PL provider. The term was introduced by Accenture with the following definition (Bedman and Gattorna, 2003):

*A supply chain integrator that assembles and manages the resources, capabilities and technology of its own organization with those of complementary service providers to deliver a comprehensive supply chain solution.*

This chapter focuses on the utility of e-auctions in the transportation process, as an alternative of the traditional and time consuming RFQ process, within the concept of 4PL dominance. The first section of literature review refers to the traditional RFQ process, the auction types and e-auction administration, also presenting the benefits and drawbacks of e-auctions. Additionally, the characteristics of negotiations and e-negotiations are displayed, as they hold a prominent position in the negotiation process among the 4PL provider and the logistics service providers, based on specific criteria. The second section of the chapter presents the proposed framework that refers to the establishment of an auction process by a 4PL provider. The paper concludes with the presentation of the described process.

**LITERATURE REVIEW**

A comprehensive literature review was conducted, aiming to provide the framework on which the conceptual process is based. The literature provides details regarding the RFQ, e-auction, and negotiation process, so that the authors further use this information in order to construct the proposed model.

**The RFQ Process**

The RFQ process prerequisites the requested characteristics to be specified by the buyer, such as the type of product or service, the quality specifications, the quantity demanded, the terms and time of delivery and payment, etc., so that detailed information can be provided by the suppliers. Once the supplier responds, the buyer has to compare the proposals and decide to whom to award the contract. The time consuming and costly nature (Teich et al., 2004) of the process can be counterbalanced by an updated procedure, where RFQs can be implemented in an RFQ venue, created by an independent party. Clients electronically disseminate their shipping needs on site, without mentioning a price limit. This technique, processed either as an open request or as a closed tender, replaces the manual (fax, email) mechanism and condenses the RFQ cycle time (Kameshwaran and Narahari, 2001).

**The E-Auction Process**

**E-Auction Types**

Auctions can be distinguished in forward and reverse. A more analytical classification is provided below.

**Forward Auctions**

English auctions and sealed-bid auctions belong into the category of forward auctions.