



## Antecedents and consequences of logistics value: And empirical investigation in the Spanish market<sup>☆</sup>

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### ARTICLE INFO

#### Article history:

Received 21 January 2007  
Received in revised form 3 July 2008  
Accepted 10 November 2008  
Available online 22 January 2009

#### Keywords:

Logistics  
Logistics value  
Logistics service quality  
ICT  
Inter-company relations  
Satisfaction  
Loyalty

### ABSTRACT

In business practice and the academic study of logistics, the incorporation of concepts such as quality followed by value has been truly revolutionary. In addition, the use of information and communication technologies (ICT) has substantially modified the way inter-company relationships are managed. This has meant that logistics is no longer considered a routine, merely operational activity but a strategic variable which is a deciding factor in achieving customer satisfaction. There are, however, still a large number of companies which continue to ignore the differentiating potential of logistics and consider it to be a routine activity. Our contribution comes within the framework of this new perspective which is analysed on the basis of an emerging concept: logistics value. The objective of this study is to contribute to the knowledge on what logistics value consists of and how it is formed, in business to business (B2B) relationships in particular. On the basis of a theoretical framework obtained from the literature review of perceived value from a trade-off perspective, we carry out an empirical analysis to determine the antecedents and consequences of logistics value. Our results, through SEM analysis show that ICT, the benefits derived from supplier–customer relationship, logistics service quality and the sacrifices associated to logistics service delivery in terms of costs, contribute to creating logistics value which is the antecedent to the classic satisfaction–loyalty chain.

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### 1. Introduction

The study of “logistics value” is currently in the early stages of development. In recent years, several studies have used this term (Novack et al., 1992, 1995; Rutner and Langley, 2000; Stank et al., 2003) and recognise the capacity of logistics to generate value (Mentzer et al., 2004a, b; Ballou, 2004), however, very few studies define its content or analyse its determining factors and formation process (Rutner & Langley, 2000).

Similarly, there is a clear need for in-depth study of logistics from the sphere of inter-organisational relationship (Lambert et al., 2004; Knemeyer & Murphy, 2004, 2005; Foggin et al., 2004) as the generalised use of information and communication technologies (ICT) has led to a deep transformation. Specifically, logistics activities such as stock or order management, storage and transport make use of the new oppor-

tunities ICT provide to articulate new types of inter-organisational relationship.

In this context, and from the tradition of studying perceived value as trade-off, we aim to offer an in-depth analysis of logistics value based on the study of logistics service profit and cost variables and ICT adoption in the context of inter-organisational relationships. We aim to observe how these variables perform as antecedents to logistics value and as the final contribution by logistics to the classical satisfaction–loyalty chain. This relationship between logistics value and satisfaction is one of the most significant contributions of our study. In accordance with the research into perceived value we complete this consequence chain with a study of the influence of satisfaction with the received logistics service on customer loyalty. The importance of this relationship chain has led us to retain it for future, more in-depth research work.

This paper is structured as follows: firstly, we offer a literature review of logistics value, taking the notion of perceived value as the reference framework. Secondly, we analyse the variables which influence value generation in order to define the benefits and costs in logistics services from the trade-off perspective, considering ICT as catalysers for the process. We then present the empirical research objectives and methodology whereby the hypotheses posited in the theoretical framework are accepted or rejected. The analytical results

<sup>☆</sup> This work has been financed by the Spanish Ministry of Education and Science (Projects ref.: SEJ2004-05988 and SEJ2007-66054).

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are reported and finally we present the conclusions and implications for research and company managers and the limitations and proposals for continuing this line of research.

## 2. Theoretical framework and hypotheses

### 2.1. Logistics value

Traditionally, logistics has been seen as a necessary activity to bring production and consumption into contact. This approach meant that a company's logistics function was considered only as a cost generating centre with no capacity for differentiation (Ballou, 2004). In the mid 1990s the study of logistics began to focus on its capacity to generate value and nowadays, as Ballou (2004:13) has said, it is accepted that "logistics revolves around the creation of value: value for the customers, the suppliers and company shareholders". In fact, the review of current definitions of logistics (Novack et al., 1992; Stern et al., 1998; Ballou, 2004; Council of Supply Chain Management 2005), allows us to define it as: the planning, management and control of the physical flow of materials and associated information flowing directly and inversely from the point of origin to consumption, aimed at satisfying the consumer by generating value. Thus, value is claimed to emerge when a logistics service is offered which meets customer needs (Stank et al., 2003) while also reducing costs and maximising logistics benefits, including those deriving from relationships between supply chain members (Rutner & Langley, 2000). Under this approach, value is called "logistics value" (Novack et al., 1992, 1995; Rutner & Langley, 2000; Stank et al., 2003). However, this new view of logistics as a variable generating logistics value has not yet been accepted by a significant number of companies which continue to view logistics as a routine cost-generating activity, thus generating a theory–practice divide. In our empirical work, therefore, we focus on companies with a high level of interest in developing logistics.

Conceptual proposals on logistics value come from the research tradition on perceived value (Zeithaml, 1988). In this line of work, different authors (e.g. Woodruff, 1997) have analysed contributions in the literature establishing that, from the marketing perspective, there is a type of evaluative judgement in the notion of value which denotes a clear subjectivist orientation. Furthermore, value is not inherent to services "but it is experienced by the customers" (Woodruff & Gardial, 1996:7). Value in this context is perceived by the subject and in inter-company interaction specifically, this perception materialises in "judgments or assessments of what a customer perceives he or she has received from a seller in a specific purchase or use situation" (Flint et al., 2002:103). Following Oliver, there are two approaches in the literature to the concept of value: the first considers value on the lines of quality or utility, as a unidirectional cognitive perception; the second considers that value is bi-directional, using the term trade-off with the idea of compensation or balance, on the lines of retaining benefits and sacrifices: "the first includes concepts from a single stimulus, while the second considers two, such as the term benefits/sacrifices" (Oliver, 1999a:45). This approach to the notion of value is consistent with the parameters and proposed analytical methods for consumer value. Logistics value is thus defined as "a trade-off between a customer's evaluation of the benefits of logistic service and its costs" (Novack et al., 1995:40). Logistics value is delivered by satisfying customer requirements in terms of logistics service at the lowest possible cost (Novack et al., 1992; Rutner & Langley, 2000). The company's resources and efforts focus therefore, on offering high value service by increasing benefits for the customer and reducing the associated costs or sacrifices linked to the service process (Mentzer et al., 1997; Bititci et al., 2004). According to Flint, Larson, Gammelgaard, and Mentzer (2005:117): "logistics services create significant value business customers because they have the potential to impact both benefit and sacrifice aspects of customer's overall value perceptions". Morash, Droge, and Vickery (1996) and Williams, Nibbs, Irby, and Finley, (1997)

go even further, stating that integrating logistics into corporate strategy offers more opportunities to increase the value delivered to the customer than any other management process. The different contributions analysed above allow us to define logistics value as a trade-off between logistics service benefits and sacrifices perceived by the customer throughout the commercial relationship between the two companies. The strategic management potential of the logistics function, however, will depend on how skilful the company is at integrating basic operational processes and thus generating a differentiated service (Bowersox & Daugherty, 1995; Van der Veecken & Rutten, 1998; Zhao et al., 2001). To facilitate and understand this process, Langley and Holcomb (1992) formulate four basic assumptions: (a) Logistics represent a strategic process which is closely interrelated with other basic strategic processes in business management; (b) Logistics provide enormous opportunities to generate value for the customers. Basic to that is the articulation of collaboration measures with suppliers and commercial intermediaries and the satisfaction of both internal and external customer needs; (c) Logistics are well positioned to obtain advantages from new strategic management processes; (d) Companies apply the new logistics tools which permit logistics value to be generated, such as ICT or service quality delivery.

It thus appears that management of supplier–customer relations, ICT and logistics service quality are variables that contribute to forming logistics value. We shall consider each of them below.

### 2.2. Logistics service quality

The relationship between quality and value has been widely contrasted from the theoretical body of "perceived value" (see for example Zeithaml, 1988; Raval & Grönroos, 1996; Oliver, 1999b; Sweeney & Soutar, 2001; Zeithaml & Bitner, 2002). In the logistics sphere, various authors point out that offering a quality logistics service enables a company to offer increased value to its customers (Innis & La Londe, 1994; Novack et al., 1996; Williams et al., 1997; Tracey, 1998; Lambert & Burduglu, 2000; Parasuraman & Grewal, 2000; Rutner & Langley, 2000). As Zineldin (2004:286) states "the concept of quality at present should focus on achieving value for the customer". Specifically, service quality makes it possible to increase the value offered to the customer by strict fulfilment of orders (Mentzer et al., 2001), avoiding stockout (Stank et al., 2003), complying with delivery dates (Mentzer et al., 2004b), offering a high delivery frequency (Innis & La Londe, 1994) or efficient management of complaints and refunds (Vázquez et al., 2002).

So, both the literature in the fields of marketing and logistics coincide in identifying service quality as one of the main antecedents of value, sometimes the only one. The influence of service quality on value which materialises in elements such as punctuality, stock availability, the service provided by contact staff and professionalism, the accuracy of the information transmitted and the ease of placing orders. Factors which, once the company has achieved them, make it possible to improve the value for the customer.

The literature review reveals two perspectives in the research on quality: objective versus subjective. Proposals such as that by Morash, Droge, and Vickery (1997) define logistics service quality as the capacity to deliver products, materials and services without error or defects to both internal and external customers. This definition includes the principles of objective quality or conformity to servuction standards. The logistics service quality model developed by Bienstock, Mentzer, and Bird (1997) summarises the process of transition from objective to subjective quality. These authors identify, as main service logistics quality components, objective variables such as punctuality, availability of stocks and the state of the order when it arrives, measuring these variables by customer perception in relation to customer expectations. The approach by Novack et al. (1995) is directed more towards the subjective perspective. Service logistics quality is defined on these lines

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