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Environmental and reverse logistics policies in European bottling and packaging firms

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Abstract

Concern for the environment has led many firms to define policies that protect the environment within which they operate. This concern is reflected in all the activities of the product life cycle, both in those of direct logistics as well as reverse logistics. In order to set up environmentally friendly practices, bottling/packaging firms must maintain collaborative relations both upstream and downstream in the glass container value chain. This paper analyses the differences existing in the relations between bottling/packaging firms belonging to the food and drinks sector and their suppliers (fundamentally bottle/jar manufacturers) and their customers (end consumers of the packaged or bottled products) in two European countries with different characteristics: Spain and Belgium. The joint implantation of environmental practices was also studied, and more specifically those corresponding to the activities of reverse logistics.
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1. Implantation of reverse logistics practices

Producers and suppliers are nowadays assuming more and more responsibility as regards placing their products on the market; mainly motivated by the strong pressure they are subject to as a result of customer expectations. This has led them to take into consideration environmental aspects (Vándermerwe and Oliff, 1990; Thierry et al., 1995) and existing governmental regulations (Thierry et al., 1995; Guide et al., 2000) when defining their policies. This concern for the environment has motivated increased interest in reverse flows, which have become the subject of growing attention over the last decade (Fleischmann et al., 1997). Correspondingly, new organizational paradigms have been created as ecological and environmental issues play a more important role in corporative strategies (Sarkis, 1995). The initiatives that generate a reverse flow are basically of three types (Murphy, 1986): from the customer, who returns the goods; from industry, interested in recycling; and from the government, which aims to promote practices of this type.

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Thus arises the concept of reverse logistics, whose management may suppose a significant difference with respect to the competitive edge of the firm within the industry and become a beneficial and sustainable business strategy for the company. This new concern has led companies to develop strategies that integrate environmental management (Brysson and Donohue, 1996; Handfield et al., 1997); in many cases actually constituting a competitive edge for the organization (Sarkis, 1995; Autry et al., 2001). To develop these strategies, a series of trends such as environmentally oriented design, total quality environmental management, life cycle analysis, green supply chain management and ISO 14000 standards are becoming more and more widespread (Sarkis, 1998).

Reverse logistics comprehends both the return flow of products as well as recovery and recycling activities (Beaulieu, 2000), the keys to which lie in the generation of profits for the producers. Thierry et al. (1995) also include other alternatives with this same goal: repair, renovation, reprocessing and cannibalization.

The reasons behind promoting reverse logistics practices are of both an economic as well as environmental kind. Among the economic motives we find the recovery of the value still incorporated in the used product and the important savings in materials and components. From the environmental viewpoint, we might cite concern regarding solid waste pollution (Ginter and Starling, 1978), landfill saturation (Kroon and Vrijens, 1995) or the scarcity of raw materials (Ginter and Starling, 1978).

Despite the current relevance that reverse logistics seems to have, the available literature in the field is relatively scant (Dowlatshahi, 2000). The quantitative models developed within this field may be divided basically into three areas (Fleischmann et al., 1997): distribution planning, inventory control and production planning (see for instance Kleber et al., 2002; Minner, 2001; Teunter and van der Laan, 2002). Some examples of the implantation of these kinds of practices are to be found in Del Castillo and Cochran (1996), who studied the production and distribution planning of products supplied in reusable containers.

Among the many industries that have put reverse logistics techniques into practice are to be found the iron and steel industry, commercial aviation or the medical products sector (Dowlatshahi, 2000).

2. Definition of hypotheses

The reverse chain starts with the customer, the producer being the last link. This is the reason behind the importance of communicating with consumers (Pohlen and Farris II, 1992) and the type of agreements reached between both parties (Ayres et al., 1997). In addition, relations with suppliers are a significant element in the success of the application of environmental technologies (Geffen and Rothenberg, 2000).

This study focuses on an industrial sector in which recycling has been implanted for some years now, namely that of glass, a 100% recyclable material. However, the quality of glass decreases as the percentage of calcine (recovered glass) increases. The degree to which this loss of quality is acceptable depends on the sector in which the customers (bottling/packaging firm) operate. Glass containers are primarily employed in the food and drinks sectors.

Environmental practices, and reverse logistics activities in particular, are reflected in the relationship between bottling/packaging firms and the prior and subsequent links in the supply chain; i.e. with their suppliers (containers manufacturers) and customers (end consumers of the packaged or bottled products). The aim of this article is to verify whether any differences exist between the environmental and reverse logistics practices implanted in the glass container chain in two European countries: Spain and Belgium. The drink and food industry is important in both countries, though their companies have different cultures and characteristics. These differences will subsequently also be analyzed. A second aim is to verify what influences the implantation of environmental and reverse logistics practices.

Current governmental legislation in the majority of European Union countries, and in these two in particular, already clearly expresses the goal of