Available online at www.sciencedirect.com

SCIENCE DIRECT

Industrial Marketing Management 34 (2005) 830–840

INDUSTRIAL MARKETING MANAGEMENT

Developing effective reverse logistics programs

R. Glenn Richey[a], Haozhe Chen[b], Stefan E. Genchev[b], Patricia J. Daugherty[b,*]

[a]*Department of Management and Marketing, Culverhouse College of Commerce and Business Administration, The University of Alabama, Tuscaloosa, AL 35487, USA*

[b]*Division of Marketing and Supply Chain Management, Michael F. Price College of Business, The University of Oklahoma, Norman, OK 73019, USA*

Received 15 June 2004; received in revised form 10 November 2004; accepted 10 January 2005
Available online 2 March 2005

Abstract

A recent survey in the automobile aftermarket industry examines reverse logistics practices. The research focuses on two key issues: 1) the influence of program design characteristics, i.e., formalization, returns policy restrictiveness, and innovation, on program performance and 2) the differential influence of making versus buying reverse logistics program software. The results provide guidelines for managerial decisions relating to reverse logistics.

Keywords: Reverse logistics; Make-or-buy; Supply chain technology; Formalization; Policy restrictiveness; Innovation

1. Introduction

What happens when the warehouse makes a "mistake" and ships out the wrong product? Or the new product that you just introduced bombs and your key accounts say, "Take it back!" Or you are charged with figuring out the most efficient way to retrieve used products for remanufacturing or refurbishing. Because of situations like these, companies face escalating pressures to develop more efficient distribution operations. They must not only develop world class supply chains, they must also focus on developing the best possible *reverse supply chains*. A reverse supply chain is a series of activities required to retrieve a used or unused product from a customer and either dispose of it, reuse it, or resell it (Guide & Van Wassenhove, 2002). More commonly this is referred to as reverse logistics.

Reverse logistics encompasses "planning, implementing, and controlling the efficient, cost-effective flow of raw materials, in-process inventory, finished goods, and related information from point of consumption to the point of origin for the purpose of recapturing value or for proper disposal" (Rogers & Tibben-Lembke, 1999, p. 2). The complexity of reverse logistics programs means that information support is absolutely critical. However, traditional information systems are designed around forward logistics (Trebilcock, 2001). For optimal reverse logistics efficiency and effectiveness, information systems and data management must be redesigned or expanded to accommodate returns. The current research centers on developing effective reverse logistics programs and the requisite information systems support. Specifically, the research addresses two important reverse logistics-related issues: 1) What is the influence of reverse logistics program design characteristics on the subsequent program performance? and 2) What is the differential influence of making versus buying reverse logistics program software? In the following sections, relevant literature is discussed and used to develop research hypotheses. Research methodology including the sample design is then presented followed by analysis, results, and discussion.

* Corresponding author. Tel.: +1 405 325 5899; fax: +1 405 325 7688.
E-mail addresses: grichey@cba.ua.edu (R.G. Richey), haozhechen@ou.edu (H. Chen), sgenchev@ou.edu (S.E. Genchev), pdaugher@ou.edu (P.J. Daugherty).

0019-8501/$ - see front matter © 2005 Elsevier Inc. All rights reserved.
doi:10.1016/j.indmarman.2005.01.003

2. Background literature and hypotheses

2.1. Reverse logistics

Reverse logistics is fast becoming a competitive necessity due to customer demands for more liberal returns policies or the option to buy on consignment (i.e., if it doesn't sell, the original seller gets the product back) (Daugherty, Autry, & Ellinger, 2001). Shorter product lifecycles also translate to increased returns. Retailers and other customers don't want to hold old models and outdated stock on hand. Other reasons for returns include receipt of damaged merchandise and incorrect shipments, product recalls, and regulatory requirements related to recycling (Ritchie, Burnes, Whittle, & Hey, 2000). This is not a minor issue. U.S. companies spend US$950 billion annually on logistics. Returns account for approximately US$43 billion or 4.5% of that total amount (Norek, 2002). Across all industries, reverse logistics ranges from about 3% to as high as 50% of total shipments (Rogers & Tibben-Lembke, 1999).

Manufacturers try to push for "no returns" through six-sigma and other quality efforts; however, the returns issue isn't always quality-related. Returns may be influenced more by the difficulty in projecting accurate sales forecasts or the whims of consumers. Consumers may change their minds and return products even if they are in perfect condition. Certain industries routinely handle large volumes of returns. The greeting card industry provides a prime example. Birthday cards and anniversary cards usually don't present a problem. They'll eventually sell even if a markdown is required. But what about Secretary's Day cards? Most people won't buy them at half-price and wait for next year. Because of such specialty cards (and other issues), the greeting card industry experiences returns in the range of 20–30%. Book distributors typically have high returns (10–20%), too (Rogers & Tibben-Lembke, 1999). Very few books make it to the best seller list. Projecting demand for the others is difficult.

The retail catalog industry is especially prone to returns although considerable variation is found across industries. Interviews conducted by the authors indicated apparel (particularly women's clothing) to be one of the highest return categories. One major catalog retailer reported returns in the women's apparel category exceeding 60%. That's the extreme. A survey of catalog retailers of electronics products reported mean returns at 9.71% (Daugherty et al., 2001). While much lower than apparel returns, the electronics catalog group still must deal with the return of nearly one product out of every 10 sold.

Reverse logistics is further complicated when operating in an international setting, but often is a necessity. If asset value above the cost of transportation can be recovered, it should be considered. Other factors affecting the decision to handle returns internationally include customer goodwill, the desire to keep name-brand products out of secondary channels, and environmental concerns (Gooley, 1999). Reverse logistics is also used to "clean out" the channel by removing obsolete or slow-moving items and make room for newer products (Andel, 1997; Tan, Yu, & Arun, 2003). Because of the potential volumes involved, some 3PLs (third-party logistics provider) have developed international returns handling capabilities.

Virtually all types of companies must deal with the problem of retrieving products and determining the proper disposition that will allow them to reclaim value that would have otherwise been lost. Proper handling of returns also has important customer service implications. Prompt, efficient reverse logistics can help to keep customers happy. A good returns handling system may even be able to function as a profit center. For example, some types of products can be remanufactured and resold (Stock, Speh, & Shear, 2002). Estee Lauder, the cosmetics manufacturer, provides an illustration of value reclamation. Their unsold products are sent back to the factory and are subsequently resorted, repackaged, and resold at a profit (Anonymous, 1999).

Because of the opportunity to reclaim value and maintain customer relationships, reverse logistics program design is of strategic importance. Three program design characteristics—Reverse Logistics Program Formalization, Reverse Logistics Policy Restrictiveness, and Reverse Logistics Innovation—were selected for examination. Each is discussed briefly.

2.1.1. Reverse logistics program formalization

With traditional outward bound distribution, companies work to develop an orderly flow of products. This is contrasted to the reverse side where it is necessary to "deal with chaos (and) trying to create order" (Harps, 2003). The rise in product returns has prompted many companies to work to formalize their reverse logistics processes in recent years (Malone, 2004). Formalization refers to the extent to which rules, procedures, instructions, and communications are written (Pugh, Hickson, Hinings, & Turner, 1968).

Reverse logistics represents something out of the norm. Instituting formal policies can prescribe how to handle returns that do not fall within the standard outbound distribution system. Consider the issue of disposition. Not all returns are handled in the same manner. Formalized decision rules can be developed to determine whether products should be scrapped or discarded, returned to a distribution center, sold in a secondary market, etc. The most cost-efficient manner can be prescribed based upon the type of product, reason for return, dollar value, market demand, or other relevant factors. Therefore, the following hypothesis is offered:

H1. Reverse logistics program formalization is positively related to performance as defined by:

a) cost effectiveness