

Klavdij Logožar, Ph.D.

Lecturer, Faculty of Economics and Business, University of Maribor, Slovenia

CRITICAL FACTORS TO SUCCESSFUL REVERSE LOGISTICS ACTIVITIES

UDK/UDC: 65.011.42

JEL klasifikacija/JEL classification: D29

Pregledni rad/Review

Primljeno/Received: 15. travnja 2002./April 15, 2002

Prihvaćeno za tisak/Accepted for publishing: 29. svibnja 2002./May 29, 2002

Abstract

Firms are recognizing that reverse logistics is a component of the total logistics management process that is growing in importance. Reverse logistics services are part of a trend toward incorporating environmental concerns into business philosophy and every day business operation of manufacturing firms. The scope of reverse logistics may range from a relatively limited combination of activities (e.g. collection, transportation and warehousing) to a comprehensive set of logistics services.

The author first discusses the characteristics of reverse logistics in the manufacturing firms, which could be helpful in understanding the importance of reverse logistics services. The author also analyses factors that are critical to successful reverse logistics strategies and programs. These factors can be grouped into the following categories: management and control, measurement and finance.

Keywords: *business logistics, reverse logistics, environment protection, services*

1 INTRODUCTION

The interest in reverse logistics that has developed during the 1990's is analogous to that which occurred in the inbound logistics area. For many years, corporations were not as concerned with the inbound side of logistics, concentrating mainly on the outbound side because of the larger amounts of resources associated with finished goods inventories. Logisticians recognized that raw materials, parts, components and supplies, while not as valuable as finished goods inventories, were significant financial investments that had to be managed. Hence, inbound logistics became a recognized and important component of the total logistics management process.

In a similar fashion, firms are recognizing that reverse logistics is a component of the total logistics management process that is growing in importance. As was the case in the development of inbound logistics, innovator firms that develop an expertise in reverse logistics activities can potentially gain competitive advantage in their various markets.

2 DEFINITION OF REVERSE LOGISTICS ACTIVITIES

From a business logistics perspective, the term reverse logistics refers to the role of logistics in product returns, source reduction, recycling, materials substitution, reuse of materials, waste disposal and refurbishing, repair and remanufacturing. From an engineering logistics perspective, it is referred to as reverse logistics management and is a systematic business model that applies best logistics engineering and management methodologies across the enterprise in order to profitably close the loop on the supply chain (Stock 1998, 20).

As an activity, program or process, reverse logistics will interface with many other functional areas within, and outside of, the organization, including manufacturing, marketing, purchasing and packaging engineering. Decisions made in each of these areas have an impact on the ability of logistics to conserve resources, generate additional revenues and achieve ecological goals.

Reverse logistics thus is the process of planning, implementing, and controlling the efficient, cost effective flow of raw materials, in-process inventory, finished goods, packaging and related information from the point of consumption to the point of origin for the purpose of recapturing value or proper disposal.

More precisely, reverse logistics is the process of moving goods from their typical final destination for the purpose of capturing value, or proper disposal.

Remanufacturing and refurbishing activities also may be included in the definition of reverse logistics. Reverse logistics is more than reusing containers and recycling packaging materials. Redesigning packaging to use less material, or reducing the energy and pollution from transportation are important activities, but they might be better placed in the realm of "green" logistics. If no goods or materials are being sent "backward," the activity probably is not a reverse logistics activity. Reverse logistics also includes processing returned merchandise due to damage, seasonal inventory, restock, salvage, recalls, and excess inventory. It also includes recycling programs, hazardous material programs, obsolete equipment disposition, and asset recovery (Rogers and Tibben-Lembke 1999, 3).

Typical reverse logistics activities would be the processes a company uses to collect used, damaged, unwanted (stock balancing returns), or outdated products, as well as packaging and shipping materials from the

end-user or the reseller. Once a product has been returned to a company, the firm has many disposal options from which to choose.

3 IMPORTANCE OF REVERSE LOGISTICS

Within specific industries, reverse logistics activities can be critical for the firm. Generally, in firms where the value of the product is largest, or where the return rate is greatest, much more effort has been spent in improving return processes. The auto parts industry is a good example. For example, 90 to 95 percent of all starters and alternators sold for replacement are remanufactured. Rebuilding and remanufacturing conserves a considerable amount of resources.

Reverse logistics activities may also result in competitive edges in comparison to firm's competitors not offering those activities to their customers or are offering only a limited range of reverse logistics activities.

Reverse logistics activities affect the purchase decision process and consumer behaviour so firm's customers may decide to purchase certain products because of reverse logistics activities offered with those products. This positively influences customers' loyalty as well.

Many companies first focused on reverse logistics issues because of environmental concerns. Today, some are concerned only with reverse logistics as it relates to returning product to their suppliers. However, in the future, environmental considerations will have a greater impact on many logistics decisions. For example (Kopicki 1993, 77):

- landfill costs have increased steadily over recent years and are expected to continue to rise;
- many products can no longer be land filled because of environmental regulations;
- economics and environmental considerations are forcing firms to use more reusable packaging, totes, and other materials;
- environmentally motivated restrictions are forcing firms to take back their packaging materials, and
- many producers are required by law to take back their products at the end of their useful lifetime.

4 CRITICAL FACTORS TO SUCCESSFUL REVERSE LOGISTICS

There are a number of critical factors that can mean a difference between successful and unsuccessful reverse logistics programs. These critical factors can be grouped into the following categories: management and control, measurement, finance.

4.1 Management and control

a) The reverse logistics process must be mapped or flow-charted in order to understand the components and their interrelationships.

Any process must be understood if it is to be managed effectively. Reverse logistics and environmental programs are no exception to this general rule. A first step in the development of any reverse logistics or environmental strategy is to flow chart the process. In doing so, the organization identifies all components of the process and their interrelationships. The understanding of the process allows optimal cost-service trade-offs to be made as well as helping to identify the important cost drivers. Once the components and flows are understood, organizations can implement activity-based costing systems, life cycle analysis/life cycle costing (LCA/LCC), and other control and evaluation methods.

b) An environmental management system (EMS) should be in place or in the process of being developed.

An environmental management system, sometimes referred to as an eco-management system, provides details of the firm's environmental program. Specifically, the EMS establishes procedures, work instructions and controls to ensure that implementation of the policy and achievement of the targets will occur. An EMS is a vital component of ISO 14001 registration/certification. Without the direction provided by an EMS, firms find it more difficult to concentrate their efforts into areas that provide the most return on their investment. Often, they also try to do too much, rather than concentrating on those things that are truly important. Because of the enormity of reverse logistics and environmental issues, it is easy to try and go off in too many directions at once. The EMS provides the direction to reverse logistics and environmental activities.

c) Educational programs are needed for customers, employees, suppliers, vendors and others in the firm's supply chain.

Reverse logistics and environmental initiatives often are new directions for many employees, customers, shareholders, and other stakeholders. The historical cultures of individuals and organisations have not included consideration of environmental factors, or the fact that returned items (e.g., take-backs, recyclables, etc.) are assets that need to be managed. Thus, in order to change the culture, stakeholders must be educated through training, promotion, and other communications mediums. Of course, education takes time. With adequate training and communication of information to stakeholders, it will be much easier to plan, implement and control various reverse logistics and environmental programs.

d) Economies of scale (i.e. volumes) are important in order to make some reverse logistics and environmental programs more viable (either by individual firms, through partnerships with other firms or with third-parties).

Economies of scale are important in reverse logistics and environmental programs (e.g., take-backs, recyclables, and repairs) must exist in order to justify the acquisition of personnel, equipment and facilities. If not, then outsourcing reverse logistics and environmental programs to third-parties is probably the best choice. If a firm wishes to perform these activities in-house, they will have to be sufficiently large, or else partner with other divisions or groups within their own firms, or other companies, including competitors and non-competitors. Dedicated redistribution and reclamation centres are expensive, recycling equipment (e.g., balers, shredders, and compactors) is costly, and these expenditures can often only be justified if sufficient volumes are involved.

e) Because multiple organizations must be involved in reverse logistics and environmental programs, partnerships or alliances are necessary to achieve optimal results.

Economies of scale and the actions of several parties (e.g., suppliers, manufacturers, retailers, logistics service providers) significantly impact reverse logistics and environmental programs. If one firm can not generate sufficient volumes, a partnership or alliance with one or more companies will be required. Also, within and between organizations, multiple functional areas are involved in reverse logistics and environmental activities, so coordination is necessary between logistics, marketing, manufacturing, engineering, and accounting/finance. Without coordination, be it between companies or functions, synergy's can not be attained, sub optimization can more easily occur, and duplicate effort will likely take place. All that results in increased costs, reduced revenues, and lower levels of profitability.

4.2 Measurement

a) Organisations need to adopt life cycle analysis/life cycle costing (LCA/LCC) approaches to reverse logistics activities.

LCA/LCC approaches are integrative approaches to addressing important issues that impact products during their life cycles. These approaches require that organizations consider every aspect of a product's life. All costs associated with purchasing, owning, managing and disposing of an asset need to be measured and captured if optimal decisions are to be made.

Organizations develop and change over time. For example, in the environmental area, "Firms begin by complying with environmental regulations and laws. They are involved in partial recycling of certain materials which have some economic payback or else are very easily recycled. As the process continues, recycling eventually becomes a very

important activity within the organization and recycling efforts are maximized. Changes in products and packaging are instituted next, which involves the concept of source reduction. Ultimately, environmental concerns become an integral part of an organization's way of doing business. At that point, full industrial ecology has been reached by the organization." (Stock 1998, 116). The importance of developing an ongoing, integrative strategy, with measurable programs, can not be overemphasized.

b) Measurement systems must be developed and implemented to determine if program performance is acceptable.

While some reverse logistics and environmental activities can result in short-term benefits, many are long-term in nature. With a scarcity of funds in many organizations, many worthwhile projects compete with each other. Those that can show tangible and measurable benefits are the projects that get and continue to receive support. It is imperative therefore, that measurement systems be in place that can identify both the costs and revenue implications of reverse logistics and environmental activities. The use of standard costs and activity-based costing approaches can be useful in developing measurement systems.

4.3 Finance

Sufficient resources must be allocated to reverse logistics and environmental initiatives.

If reverse logistics and environmental programs are part-time activities supported by budgets that are too small, with not enough employees dedicated to the task, it is unlikely the firm will be successful in developing effective and efficient programs in these areas. After conducting an audit of reverse logistics requirements, the organization must determine the proper amount of funding, personnel requirements, and material support that are required to carry out a "world class" program. To assign minor importance to reverse logistics and environmental programs almost guarantees that successes will be minimal and strategic impact will be small. With sufficient resources brought to bear on the issues, successes will be significant and strategic impact can be substantial.

5 CONCLUSION

It is clear that in the future, more firms will lavish considerable attention on reverse logistics. Many firms have only become aware of the importance of reverse logistics relatively recently, and have yet to realize the strategic importance that reverse logistics can play.

To reduce the cost of reverse logistics, in the future, firms will need to focus on improving several aspects of their reverse logistics flows: improved gate keeping technology, partial returns credit, earlier disposition

decisions, faster processing and shorter cycle times as well as better data management.

REFERENCE

- Kopicki, R. 1993. Reuse and Recycling – Reverse Logistics Opportunities. Oak Brook: Council of Logistics Management.
- Logožar, K. 1999. Razbremenilna logistika in varstvo okolja. Maribor: Studio Linea.
- Logožar, K. 2001. The significance of reverse logistics. Commodity science in global quality perspective, Vol. 2, 1427-1431.
- Rogers, D.S., Tibben-Lembke, R. 1999. Going Backwards: Reverse Logistics Trends and Practices. Reno: Reverse Logistics Executive Council.
- Schulte, C. 1999. Logistik: Wege zur Optimierung des Material- und Informationsflusses. München: Vahlen.
- Stock, J.R. 1998. Development and Implementation of Reverse Logistics Programs. Oak Brook: Council of Logistics Management.
- Wagner; G. R.: 1992. Ökologische Risiken und Umweltschutz. München: Vahlen.

Dr.sc. Klavdij Logožar

Predavač, Ekonomski i poslovni fakultet, Sveučilište u Mariboru, Slovenija

ODLUČUJUĆI ČIMBENICI ZA USPJEŠNO DJELOVANJE UZAJAMNE LOGISTIKE

Sažetak

Tvrtke uočavaju da je uzajamna logistika dio sve značajnijeg cjelokupnog procesa logističkog managementa. Usluge uzajamne logistike su u sastavu trenda koji uključuje pitanja ekologije u filozofiju poslovanja i svakodnevne poslovne aktivnosti proizvodne tvrtke. Djelokrug uzajamne logistike se može sastojati od relativno ograničenog broja kombinacija od prikupljanja, prijevoza i skladištenja do složenih logističkih usluga.

Autor ponajprije obrađuje obilježja uzajamne logistike u proizvodnim tvrtkama, koja bi trebala pomoći u razumijevanju značaja usluga uzajamne logistike. Autor također analizira čimbenike presudne za uspjeh strategija i programa uzajamne logistike. Spomenuti čimbenici mogu se grupirati u kategorije managementa i kontrole, te mjerenja i financiranja.

Ključne riječi: logistika poslovanja, uzajamna logistika, zaštita okoliša, usluge.

JEL klasifikacija: D29