

Outsourcing Reverse Logistics

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Abstract: The external supply of logistics services is part of a trend toward outsourcing non-core logistics activities. The scope of third-party logistics may range from a relatively limited combination of activities (e.g. transportation, packaging and warehousing) to a comprehensive set of logistics services. The author first discusses the characteristics of business logistics in the manufacturing firms, which could be helpful in understanding of outsourcing logistics services. The author points out the motivations for outsourcing logistics services, the evidence of outsourcing in logistics and analyzes outsourcing reverse logistics.

Keywords: logistics, outsourcing, reverse logistics, recycling

JEL Classification: L86, L96

Introduction

Reverse logistics 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,

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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).

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activities would be the processes a company uses to collect used, damaged, unwanted (stock balancing returns), or outdated products, as well as packaging and shipping materials from the end-user or the reseller.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 (Rogers and Tibben-Lembke, 1999). Some of these activities are summarized in Table 1.

Table 1: Common Reverse Logistics Activities

Material	Reverse logistics activities
Products	Return to Supplier
	Resell
	Sell via Outlet
	Salvage
	Recondition
	Refurbish
	Remanufacture
	Reclaim Materials
	Recycle
	Landfill
	Packaging
Refurbish	
Reclaim Materials	
Recycle	
Salvage	

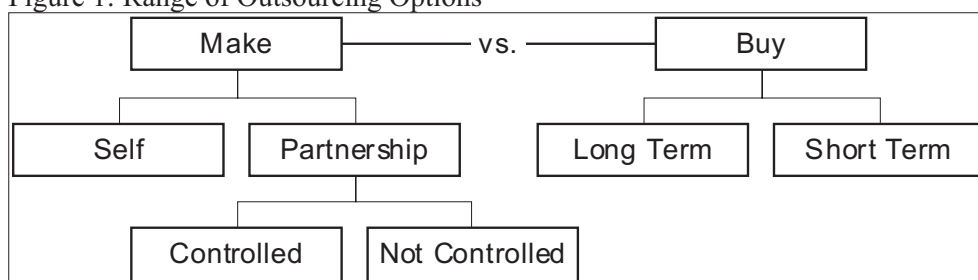
Source: Rogers and Tibben-Lembke (1999: 9)

Outsourcing means transferring certain activities to specialized providers who can perform on a higher level. Central to outsourcing decision is the 'make it or buy it' question. Outsourcing has become increasingly popular in recent years, and is often quoted as a means of coping with rapid changes in technology and in the business environment.

Outsourcing is a viable business strategy because turning non-core functions over to external suppliers enables companies to leverage their resources, spread risks, and concentrate on issues critical to survival and future growth (Sink and Langley, 1997). Many firms have turned to logistics outsourcing as a way to restructure their distribution networks and gain competitive advantages. Logistics outsourcing, the use of a third-party logistics (3PL) provider for all or part of an organization's logistics operations, has grown dramatically over the last several years. Logistics outsourcing has increasingly become an effective way to reduce costs and spread risks for traditional, vertically integrated firms. Overall, approximately 60 percent of Fortune 500 firms report having at least one contract with a third-party logistics provider (Lambert, Emmelhainz and Gardner, 1999). The functions performed by 3PLs ranges considerably. According to the survey conducted by Lieb and Hickey (2002), 3PLs provide Fortune 500 manufacturers a wide variety of services and they provide the typical user with multiple logistics services.

Five streams of literature relate to modelling the third-party logistics procurement by industrial buyers (Sink and Langley, 1997): strategic decision-making, industrial buying behaviour, transportation purchasing, supplier selection, and logistics relationships.

Figure 1: Range of Outsourcing Options



Source: Quinn and Hilmer (1994: 50)

A study by Persson and Virum (2001), discusses the potential economic advantages of logistics outsourcing. Some of these are: the elimination of infrastructure investments; access to world-class processes, products, services or technology; improved ability to react quickly to changes in business environments; risk sharing; better cash-flow; reducing operating costs; exchanging fixed costs with variable costs; access to resources not available in own organization.

In deciding on a sourcing strategy for a particular segment of their business, managers have a wide range of control options (see Figure 1). Where there is a high potential for vulnerability and a high potential for competitive edge, tight control is indicated. At the opposite end are firm's trivial activities. Between these extremes are

opportunities for developing special incentives or more complex oversight contracts to balance intermediate levels of vulnerability against more moderate prospects for competitive edge (Quinn and Hilmer, 1994).

The value added to services can take place through the efficiencies achieved by better cost management and through increased effectiveness brought about by value enhancement. A value enhancement activity may be adding value to the existing business – for example by better products and services – and adding value through innovation (Rothery and Robertson, 1996). Outsourcing is recognized as a vital mechanism for stimulating local employment.

It has been established that the logistics outsourcing improves the competitive position of the firm by rationalizing business activities and through synergetic effects. Transferring the logistics activities to the outsource supplier - known as third party logistics - enables the firm to fully concentrate on its core competencies.

Much attention in the transportation literature is focused towards identifying the buyers' factors to reach mode and carrier selection decisions. Cost-service tradeoffs were of prime importance of the early literature in this field. The recent literature, however, examines the third-party logistics purchasing.

The recent researches pay the increasing attention to the overall topic of logistics relationship, e.g. on the strategic benefits of logistics alliances, on several aspects of outsourcing logistics, and on the forces that have influenced growth of logistics and supply chain relationship.

The working hypothesis can be defined as: outsourcing logistics activities improves enterprise's competitive abilities what results in sales rise and gain in profitability.

Objectives of the paper are:

- defining the reasons for outsourcing with the emphasis on business logistics;
- presenting the business logistics characteristics in manufacturing firms which are to be considered while implementing outsourcing;
- analysing the specific issues of outsourcing reverse logistics.

Motivations For Outsourcing Logistics

Outsourcing is the common answer to the 'make it or buy it' question being asked by manufacturing industry and the 'do it ourselves or buy it in' question being asked by service firms (Rothery and Robertson, 1996). The concept's main idea is that a firm should focus on production of goods and/or carry out those activities that make it competitive though there exists a risk that services done by external suppliers may not be in accordance with firm's expectations.

It is the core competencies that differentiate a firm from competitive firms. With outsourcing firms want to increase their long-term competitiveness. In practice, however, many outsourcing agreements have been structured in such a way as to inhibit, rather than facilitate change. It has been observed that outsourcing can have hidden costs in the longer term, arising from a reduced awareness of the changing environment. Outsourcing of any logistics activity is most straightforward when the requirements are well understood and easily described. We must also be aware that incorporation of external suppliers causes large changes in information flow. Therefore the information system of a firm should be improved.

Obviously a firm will not leave those components or services to external suppliers that might jeopardize its existence. Therefore a balance between potential competitive advantages of outsourcing and increased vulnerability of a firm should be found. Outsourcing should take care for those services and activities that would increase competitive advantages at minimal risk. Business transactions in outsourcing should also be protected by appropriate form of management structure.

Decisions about outsourcing are within the competence of the top management. After some time - these are medium- or long-term decisions - another thorough judgment is necessary. 'Make or buy' dilemma is not solved only on the bases of cost estimation, an overall study from the point of view of all entrepreneurial areas is needed, and a study that also takes the indirect effects of decisions into account (Ogorelc and Logožar 2001).

When defining advantages and disadvantages we use theorem of transaction costs. Analysis of decisions about outsourcing is a result of teamwork. It is a cooperation of experts from the fields of purchase, production, marketing, logistics and controlling. One of the main problems, due to the non-operational analysis instruments, is defining the appropriate procedure of costing.

The motivations for outsourcing logistics are widely discussed in the literature. For the majority of firms, these are some combination of:

- reducing or stabilizing costs,
- concentrating on core competencies,
- financial restructuring,
- overcoming cultural and organizational problems,
- accessing world-class expertise.

The achievement of these objectives depends, in turn, upon some combination of beliefs concerning the capabilities and behaviour of outsourcing suppliers. For example, advocates of an outsourcing approach may believe that an outsourcing supplier will

- undertake work at lower cost,
- have more flexibility in financing the service,
- be more flexible in accommodating varying levels of demand,
- be more competent, both technically and managerially,
- be better able to communicate in business teams and understand business needs,
- eliminate the need for specialized staff who do not fit the organizational culture,
- relieve in-house management of non-core tasks.

For each of these beliefs, however, there is a corresponding risk. For example:

- the supplier's technical and management skills may prove less impressive than expected,
- the supplier may prove unable to relate to the customer's business and its needs,
- the supplier may be unable to deal with the customer's culture and internal politics,
- demand levels may not vary in the way anticipated,
- there may be a continuing need for specialist staff to monitor and direct the supplier.

It is quite understandable for a firm that has invested in logistics to ask whether this investment might be shared with other firms to reduce production costs. On the opposite, because of the high logistics costs, a firm would collaborate with another one that has excess logistics capacities.

The examples when logistics activities are outsourced to external suppliers are as follows:

- fast launching of a product on new markets;
- larger changes in purchasing and/or distribution logistics;
- changes in manufacturing;
- required quality of physical supply or physical distribution (e.g. reducing delivery time, changed incoming/outgoing quantity);
- adapting to the fast growth of sale.

Thus, some manufacturers estimated they would not be able to follow the logistics development. After a thorough analysis they decided to outsource it to the enterprises specializing in logistics. Enlarging the extent of outsourcing logistics has led to a closer connection between manufactures and logistics enterprises. In purchasing as

well as in distribution logistics there are a growing number of permanent services of outsourcing.

A German study (Heiner , 1996) on outsourcing in logistics tried to discover which logistics services of a firm should be left to external suppliers and what goals we want to achieve with that.

Table 2: Estimates of Logistics Services Outsourced

Service	Share (%)
Transport	85
Warehousing	53
Dispatch	47
Packaging	33
Commissioning	33
Reverse Logistics	32
Labelling	31
Customs Clearance	27
Clearing	12
Assembling	10
Quality Control	10
Financial Services	9
Organizing of Logistics	9

Source: Heiner (1996: 32-33)

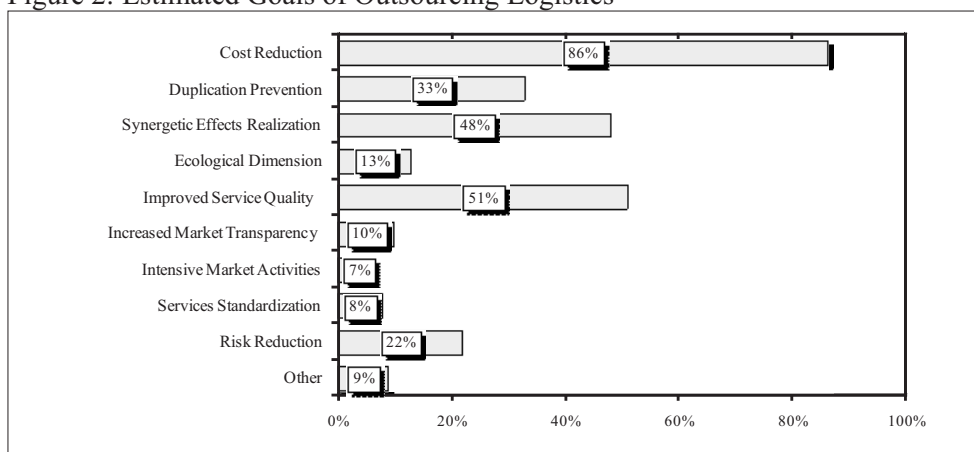
There are some interesting conclusions about the practice of outsourcing in logistics.

Logistics services providers (e.g. specialized logistics firms, especially forwarding agents) are changing their service profile: a shift from the traditional services with emphasis on transportation towards a complex offer of the logistics services is perceived. Though, the traditional services of forwarding agents, as for example quality control and warehousing, are still used.

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The trend of the growing outsourcing is well seen - besides the variety of services' offered - in the offer of complex solutions. Optimistic anticipations prove that innovations in logistics sector will increase. The current emphasis of outsourcing lies in the outgoing logistics, but in the future a growth above average is expected in the incoming logistics as well.

Figure 2: Estimated Goals of Outsourcing Logistics



Source: Heiner 1996, 33

In some branches of industry, the most important being the car industry, there is a trend towards single sourcing, which results in reduced number of suppliers and more intensive cooperation with selected logistics enterprises. Outsourcing of logistics services to external producers can help achieving positive effects of the concept of outsourcing (that is in production and logistics).

Outsourcing is becoming more and more an instrument of the strategic management. The key issues here are services of logistics counselling.

Outsourcing Reverse Logistics

Firms state many reasons for using foreign services when making new channels of reuse and recycling. The most frequent reasons are (Kopicki, 1993):

(1) Key ability orientation. If a firm is concerned with other activities besides its primary ones, this may cause too much dispersion of its resources and the flexibility of a firm when reacting on new market possibilities is jeopardized.

(2) Keeping the equity capital. Use of foreign services often includes also use of external supplier's capital, which reduces the need for large initial investments.

(3) Make a good use of the best possible capacities. Some external suppliers try very hard to be the best in their field. If a firm does not engage these leading suppliers (but less capable ones), or if it tries to develop its own solutions in reverse logistics, the result may not be optimal.

(4) Economies of scale. At waste collection (and consolidation of waste flows) there exist important economies of scale. Individual manufacturers cannot reach these economies of scale, especially not in the initial phases of reverse logistics.

(5) Integration of reversible chain. External suppliers that are in constant connection with all the participants in the chain can often better evaluate waste flows, and easier assure claims for waste quality.

Table 3: External Services in Reverse Logistics

Service	Examples
Specialized high value product collection and consolidation	De-install computers and office and medical equipment Consolidate used products into truckload quantities and ship to disassembly points
Commercial waste collection, sorting and marketing	Handle multiple material types (paper, glass, plastic, metals) from a variety of businesses
Specialized commercial waste collection, processing and marketing	Recover used oil and solvents Salvage and compact autos Sort commercial waste paper
Packaging and pallet pools	Operate reusable packaging system Exchange or rent pallets Recycle or reuse dunnage
Green product validation	Validate recycled content, recyclability and other environmental claims

Source: Kopicki (1993: 198)

Foreign services, useful in reverse logistics, can be classified into five categories:

Specialized high value product collection and consolidation. External suppliers help at dismantling of equipment, consolidation and transport. Clients preserve the right to products and give instructions for removal.

Commercial waste collection, sorting and marketing. Numerous firms for reversing offer services in the form of collection and sorting for common commercial waste (for example corrugated and office paper, and drink containers).

Specialized commercial waste collection, processing and marketing. Suppliers of these services are specialized in discharging large amounts of homogeneous or special waste used in firms (for example used oil, batteries and accumulators, used rubber). As a rule they are specialized only in certain types of material, such as used oil, metal waste or paper. Some of the firms pay more attention to sorting and processing and seldom offer collection services. Though collecting at special waste presents an important part of reverse services.

Dealing with reusable packaging and pallet pools. Purchase costs and costs for discharge of packaging material for single? Use again roused interest in returnable packaging and protective material (wrapping). New independent companies, which have their own pallets and rent them to manufacturers and distributors, provide quality services very successfully.

Green product validation. Firms interested in production, purchase or sale of green products must overcome consumer's doubts about firm's motives, contradictory regulations on marking and diverse opinions about what characteristics should a product have to be categorized as a green product. Firms have been established that offer manufacturers of green products an independent validation of environment pleasant products. These firms use methods such as life-cycle-analysis and comparison of similar products for which manufacturers want to prove they belong to green products.

Conclusion

In the nineties the importance of outsourcing in logistics has grown enormously. Industrial and service firms - users of logistics services - are aware that the realization of logistics should be left to the specialized logistics supplier. On the other hand, logistics firms are interested in offering an overall realization of logistics services.

Countries in transition need detailed studies of outsourcing. First the possibilities of outsourcing in manufacturing should be studied, especially regarding internationalization of business operations and globalization of world production. Parallel to that we should also look at the possibilities in transport and other logistics activities.

In the future a research will be done in some selected manufacturing sectors. It should be studied whether the present institutional set up of logistics plan is appropriate for the economy. Does the current economic situation encourage the development of logistics?

Enterprises will be selected from productive- and capital-intensive industries. The purpose of this research is to realize, (1) whether the enterprises actually implement

logistics outsourcing; (2) which logistics activities (transport, warehousing, manipulations, inventory control, etc.) are provided by external logistics supplier; (3) what are their experiences regarding outsourcing; (4) whether they intend to continue the outsourcing of logistics activities in the future or whether they want to begin with outsourcing; (5) the criteria for selection of external supplier; (6) what do they think about the impact of globalization on outsourcing; and (7) whether they are considering strategic logistics partnership. Further, we would like to find out in which sectors is outsourcing especially important from the aspect of internationalization of small and medium-sized enterprises.

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