

Outsourcing logistics management activities

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Outsourcing Logistics Management Activities

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In most developed economies the costs of logistics management are steadily growing and account for an increasing proportion of the gross national product [1]. Logistics costs have become an important part of the added value of products and logistics management is increasingly regarded as an important weapon in the international competitive struggle, in particular by large market-oriented companies. The emphasis in marketing strategies is shifting from product and price to promotion and place. Rapidly changing customer demands have an increasing effect on company policies. Reduction of product life cycles and assortment expansion will lead to faster development and delivery of new products and to smaller-sized and more frequently placed delivery orders [2]. Advancing technology will cause production to require more focus. Customers are becoming more demanding and manufacturers have to react faster to changing demand on the part of both private consumers and industrial customers. This requires enormous flexibility, which will be increasingly aimed at conquering and securing sales potential in the liberalized European market. Successful companies will focus on core activities. Activities other than core activities, but serving them, will have to be outsourced.

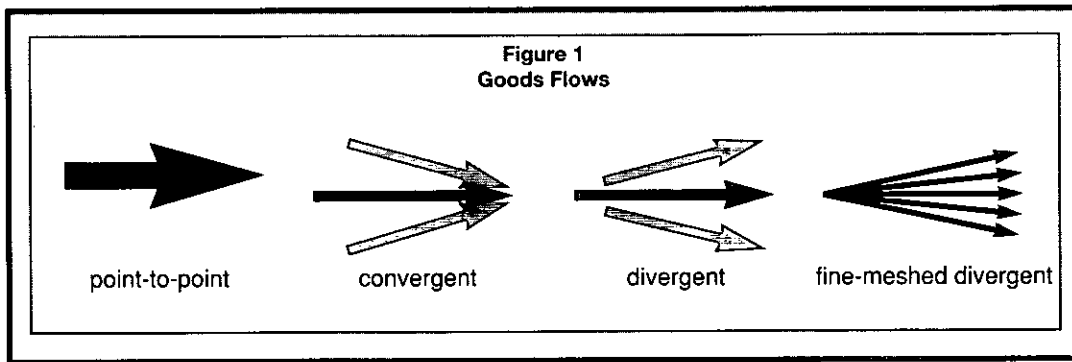
Concepts like JIT (Just-In-Time), TQC (Total Quality Control) and co-makership are bringing about an increasingly close cooperation between manufacturers and suppliers. Different segments in the logistics chain are synchronized, resulting in stock reduction and disposal of storage points. Streamlining and controlling the complete logistics chain is increasingly considered as strategically important. The customer order decoupling point is moving upstream, that means assembly, production, purchase and even engineering are more often done to order. Batch sizes are getting smaller, lead-times shorter and the importance of quick and reliable distribution is becoming evident.

Outsourcing of logistical activities by a manufacturer can be regarded as a logical consequence of the vertical differentiation process. Many large companies abandoned the strategy of integrating as many industrial column segments as possible. The interests and orientations in the several segments and with that the demands made on their control differ to a large. A segment close to the consumer (dealer) must have as many variants as possible in small numbers. A

segment close to the source of raw materials, on the other hand, aims at having large quantities of very little variants in order to gain economies of scale. Different segments require different kinds of control. The same goes for the goods flows between the segments in the industrial column. The goods flows close to the source comprise a great volume but only a small number of variants. This is called a point-to-point flow, whereas a goods flow closer to the consumer is called divergent or fine-meshed divergent (see Figure 1). The latter goods flows comprise smaller volumes, but have more variation in products and delivery addresses.

It is easy to reason that a company confining itself to one segment in the industrial column (vertical differentiation), being confronted with increasing customer requirements concerning product and process, will have to determine its core activity and concentrate on this activity. Manufacturers will consider production their core activity, qualifying logistics management, for example, for outsourcing. This is considered especially when a manufacturer is about to exceed capacity.

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Through the years a number of service providers have developed or will develop from transport organizations into integral logistics service companies, providing all activities within logistics management. When a service provider takes care of a shipper's complete logistics management, including the data flows involved, it is called a third party logistics management specialist. This specialization process will create pressure upon prices. Service providers will want to exploit economies of scale as well as speak of symbiotic logistics relationships that occur when two or more organizations develop a synergic relationship within their logistics system, in order to enhance each firm's ability to serve the demands of their ultimate customer [3].

Customers make increasingly specific demands upon suppliers of products and of services and, therefore, start more intensive and permanent cooperation with an ever decreasing number of suppliers. Great demands are made with respect to these suppliers concerning the process quality and certification of products and processes that is often requested.

The developments mentioned above incite manufacturers to ask whether their in-house logistics management functions are capable of performing their tasks at a competitive price quality ratio. This involves (re)considering the question whether to carry out or to contract out logistics management. Some companies are coming to the conclusion that their skills lie in manufacturing and marketing rather than in running a distribution system [4].

This article concerns logistics management activities qualified for outsourcing and considerations playing a role in this issue. The advantages and disadvantages of outsourcing are described as well as the circumstances under which to

consider outsourcing. Criteria that play a role in selecting a service provider are listed and a method that can be used to rationalize the decision making process is presented. Finally, some problems in this process are considered.

Logistics Management Activities

While considering outsourcing of logistics management activities, it is relevant to ask which activities are qualified for outsourcing. Logistics management activities can be divided into activities concerning physical flows and activities concerning information flows:

- Activities Concerning Physical Flows
 - physical handling in receiving and unloading of goods and degrouping
 - storage control
 - internal transport
 - physical handling out including order picking, grouping, and loading
 - reconditioning and packing including (de)palletizing, (re)packing, (re)labelling, and preparing an order for shipment
 - external transport both national and international
 - delivery
 - completion return shipments
- Activities Concerning Information Flows
 - order entry
 - clerical handling including goods clearance, quantity check (orders, volume), and quality check (packing and sell-by date or perishability)
 - clerical handling out including check on orders and number of order lines and preparing for shipment (forms)
 - creditworthiness check
 - completion customs papers
 - stock control
 - invoicing (outgoing)
 - customer service (complaint resolution)

While considering outsourcing of logistics management activities, it is relevant to ask which activities are qualified for outsourcing.

-providing management information
(performance indicators)

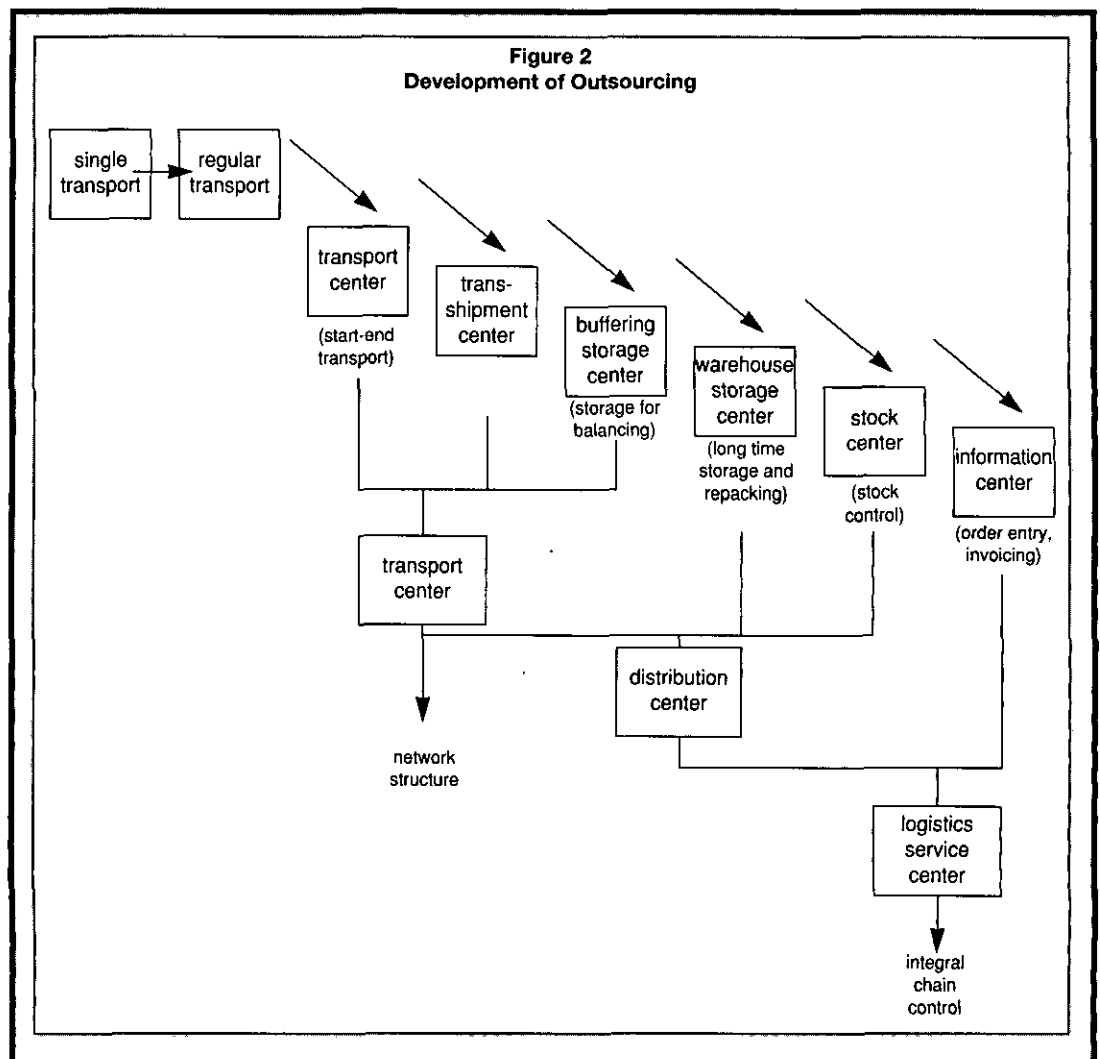
Depending on the circumstances, the outsourcing decision will have to be considered for each activity. If necessary, activities can be combined or split up.

Every one of the above mentioned logistics management activities can be outsourced. It is questionable, however, if it is sensible to contract out all activities at the same time. After all, the development into logistics service centers was a stepwise evolution rather than a sudden change-over. This development into logistics service centers can be divided into stages (Figure 2).

Single transport means occasional transport from one place to another. The only activity of the service provider is renting out a truck and a driver. Regular transport is single transport but on a regular basis. In a transport center, unlike the previous two stages, the service provider is responsible for

the truck's complement of staff. At a transshipment center goods are unloaded from trucks, degrouped and regrouped. At this stage the service provider is not only responsible for the capacity utilization of the trucks but also for optimal routing. A transshipment center is said to have a storage function if goods are stored for a longer period of time, in order to tide over an interval for the purpose of balancing the goods flows.

When a third party can carry out all activities mentioned above, it is called a transport center. If several transport centers are linked, a network structure is made up, creating a company that usually has a lot of customers. Enterprises like this have clearly determined in what geographical area they wish to operate and what kind of products they transport. They make their money primarily by transporting goods and they are paid per package/pallet per distance.



The next stage in the process towards a logistics service center is the warehouse storage center, in which money is primarily made by long-term storage. The shipper remains responsible for the information (order) flow concerning receipt and dispatch.

As for the stock center, the service provider is responsible for the information flow for dispatch purposes or, if desired, for the information flow necessary for dispatch and receipt. In the latter case the service provider is responsible for stock levels and, consequently, for the service level as well. As a result, the service provider bears responsibility for the complete goods flow and holds the position of a distribution center. Transport plays a secondary role.

The most advanced service form is running a logistics service center. The service provider is responsible both for the goods flow and for the information flow. This stage is characterized by 'co-shippership' relations with extreme forms of focus with regard to region and/or product.

Considerations

When making a do or buy decision four categories of considerations can be distinguished: economic considerations, market issues, availability of personnel and equipment, and dependence.

Economic Considerations

When a company keeps its logistics management activities in-house, investments are made in buildings and internal and external means of transport. The capital involved cannot be used for other purposes. If a production machine yields a higher return on investment than the investments mentioned above and if financial means are scarce, it can be advisable to contract out logistics management activities. The two alternatives, do and buy, should be compared to one another, including the costs aspect.

The alternative that involves the lowest costs is the one to be selected. However, the problem is that many companies use outdated accounting systems and allocate cost categories arbitrarily, making it very difficult to make comparisons.

Market Issues

Market issues can be classified into two

categories: demand fluctuations; and, commerce and flexibility.

Demand Fluctuations. Every enterprise is confronted with a changing demand for its products. Most of the time dropping demand for one product cannot be compensated by rising demand for another product, thus causing instabilities in capacity utilization of transport for example. Furthermore, if the peaks cannot be dealt with by deploying flexible manpower, it may be advisable to contract out logistics management. A service provider usually serves several clients enabling the counterbalance of a drop in one client's business with a peak in an other's, especially if these clients come from different trades. A commonly chosen compromise is keeping an average amount of logistics management activities in-house and contracting out the peaks.

Commerce and Flexibility. Many companies consider logistics management subsidiary to sales and marketing, which can be a reason to keep logistics management in-house in order to maintain direct customer contact. The company holds specific know-how about its product and can respond to changing customer desires in a flexible manner, whereas a service provider, for reasons of efficiency, wishes to minimize deviations from schedules. It is plain that flexibility can be at the expense of efficiency. However, a service provider is more capable of complying with specific customer requirements because of its expertise in a certain type of service.

Availability of Personnel and Equipment

A company carrying out logistics management activities in-house bears the responsibility for personnel matters like recruitment, selection and training. Furthermore, sufficient equipment must be available to make any necessary repairs. Outsourcing logistics management can be quite a relief for a company and allows one to cut overhead. Though a company keeping logistics management activities in-house bears responsibility for personnel matters and equipment, which can be regarded a disadvantage. However, it can control them, which is an advantage. By pursuing a certain employment policy, for example, a company can select people who best fit the profile of desirable employees.

...many companies use outdated accounting systems and allocate cost categories arbitrarily, making it very difficult to make comparisons.

Dependence

If a company carries out logistics management activities in-house, it can take action very rapidly in cases of wrong deliveries and damage. Furthermore, physical stock can be listed quickly to be compared with clerical stock. If logistics management has been contracted out, rapid reactions could be obstructed by the necessary consultations with the service provider and by any agreements made. Thus, the relief induced by outsourcing is also paid for by greater dependence.

Advantages and Disadvantages of Outsourcing

Judging by the considerations mentioned, it can still be unclear which alternative is recommendable. Every alternative has its advantages and disadvantages, the importance of which depend on the company and its circumstances.

Advantages

The service provider can effectuate a great degree of efficiency, by exploiting economies of scale among others. Capacity can be better utilized because the peaks and drops in transport quantities offered by different clients can be counterbalanced and because backhauls are often available. A service provider can invest in specific know-how, as logistics management is its core activity. The service provider can improve the quality and flexibility of service and with that improve customer service.

The manufacturer can refrain from investing in capital goods for the purpose of distribution capacity. This makes the storage location more flexible and reduces risk for the shipper. Capital can be used to invest into activities yielding higher return on investment. Moreover, fixed costs are made variable, since the shipper only pays for the service provider's output. As a result of this direct relation between the services rendered and the costs involved, budgeting and allocating logistics management costs become easier. As the logistics costs become more explicit, different logistics management strategies are easier to compare.

The shipper no longer needs to pay attention to recruitment, selection and training of necessary personnel, purchase

and maintenance of necessary equipment, transport licences, regulations governing driving hours and other legal provisions. The shipper can fully concentrate on the core activities of its business.

Disadvantages

As was stated earlier on, many companies consider logistics management subsidiary to sales and marketing. Outsourcing will bring about less frequent and less direct customer contact, which means the customers' feedback reaches the company less rapidly. The company will react less quickly to changing customers' desires. If some kind of service, like installation, is required during the delivery of a product, it is often decided not to contract out logistics management activities.

Sometimes speed and delivery reliability are realized more effectively by keeping transport in-house. Outsourcing can be a relief for a manufacturer, but the same time it loses direct control and the ability to react quickly. A well-organized logistics management can yield a competitive advantage and with that a better reputation. Outsourcing makes this more difficult.

Manufacturers contracting out activities are often worried about the protection of company information as they have to share confidential data. Especially a service provider who is also working for a shipper's competitors can do damage to the shipper. A shipper contracting out logistics management is partially dependent on the service provider. However, this can be eased a little by realizing it is a matter of interdependence, particularly when the service provider makes investments for the specific shipper. The frequent use of long-term contracts (10-15 years) has its origins in this interdependence.

If a manufacturer contracts out the logistics management activities, it runs the risk of losing expertise in logistics, which will make management more reserved as far as outsourcing is concerned. A conversion from carrying out to contracting out is relatively easy if compared to a conversion the other way round.

Circumstances

A *do or buy* decision is not easily made. In order to simplify the dilemma, a number of specific circumstances is

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presented under which one can consider outsourcing:

- A few product/market combinations demand disproportionate attention from the logistics management department.
- The assortment of articles is expanded, necessitating additional attention for order handling, stock control and logistics management.
- Buyers make ever greater demands upon delivery, requesting special packaging and accurate delivery times with low variance.
- The company is growing rapidly requiring quick solutions that involve logistics management as well.
- The company has limited resources for investment.
- Activities do not have strategic value.
- Activities do not have to be carried out every day; they have an irregular supply and discharge pattern.
- Activities disturb daily routine (ad hoc activities).
- Activities demand varying and/or specific expertise.
- Transport and storage of certain products requires specialism (dangerous goods).
- Activities are susceptible to errors.
- There is no discussion about the activities by top management.
- Activities require information difficult to establish in-house.

The circumstances mentioned above apply both to shippers and service providers. After all, as shippers can contract out logistics management activities to a third party, so too can service providers contract out part of these activities (transport) to a fourth party. The fact is, a situation can arise that forces a service provider to confine itself to core activities. A carrier, for example, may be capable of gaining economies of scale by single transports while a logistics service center cannot. The following circumstances especially apply for service providers:

- Shippers expect service providers to make ever greater efforts for the same price.
- Shippers request service providers to perform increasingly specialistic activities, like packaging or transporting dangerous goods. Reflection on core activities is necessary.
- Shippers are working more internationally and often they start working intercontinentally, making it more and

more difficult for service providers to control the whole distribution channel.

In a survey that examined the attractiveness of public warehousing 400 retailers were questioned about incoming goods flows (physical supply)[5]. The following sectors were excluded: foods, harmful substances and hanging textiles. Two delivery characteristics were examined, the number of deliveries per week and the number of cubic metres a week, as well as too what extent retailers were satisfied with these characteristics. The findings showed that for trades with low frequency of deliveries, small delivery volumes and a high degree of dissatisfaction, public warehousing is most attractive (see Table 1).

Suppliers of retailers confronted with these results were, in the long term anyway, favorable to public warehousing. Nevertheless some comments were given. Outsourcing must be done step by step. Before contracting out the whole distribution volume to a specialized third party, the seasonal peaks and certain assortment parts will have to be outsourced first. Furthermore, the activities cannot be contracted out all at the same time. First qualified is transport, next is storage and later, if desired, other services.

In certain trades commercial reasons will prevent a company from contracting out its logistics management activities. A lot of store chains have an aversion towards disinvestments in their logistics management capacity. For all suppliers confidence in a service provider's professionalism is important.

Method

After carefully weighing the advantages and disadvantages and comparing their circumstances to the circumstances under which outsourcing is considered worthwhile, companies with a *do or buy* dilemma have to proceed systematically to make a sound decision. A method for this decision-making process, consisting of a detailed description of relevant activities, products, markets and conditions was developed by Farmer and van Amstel [6].

Phase 1: Activities

The logistics management activities the company has to perform are listed using the

A lot of store chains have an aversion towards disinvestments in their logistics management capacity.

	Delivery <2 per week	Volume <3m ³ per delivery	Satisfaction <35%	
Textile business	*	*	*	Very attractive for PW
Shoe business	*	*	*	
Photography shops	*	*	*	
Household goods	*	*	*	Attractive for PW
Leather goods	*	*	*	
Sports goods	*	*	*	
Electrotechnical retail business	*	*	*	
Toy shops	*	*	*	Less attractive for PW
Chemist's/perfumery		*		
Office stationer's		*		
Do-it-yourself shops		*		

following steps:

- Step 1: sort out the most important relevant activities.
- Step 2: carefully divide these activities into operations.
- Step 3: determine for which activities/operations a *do or buy* decision has to be made.

An outline of logistics management activities was presented earlier in this article.

Phase 2: Products

The products that are to be distributed play an important part in the decision-making process. It must be decided for which products outsourcing logistics management activities is a good alternative. If there is only one type of product, a description of this type's logistics management requirements will suffice. If there is a variety of products, different steps will have to be taken:

- Step 1: divide the product range into similar groups.
- Step 2: sort out the groups that need closer examination.
- Step 3: determine the relevant product characteristics of these products.

Examples of relevant product characteristics include: volume (m³), weight (kg), volume/ weight ratio, handling unit (boxes, crates, pallets, roll-in-containers, containers), and state (gaseous, liquid, solid). The products also must be described in terms that are relevant to any service provider.

Phase 3: Markets

The market has to be split up into segments according to characteristics

relevant to logistics management using the following steps:

- Step 1: divide the market into distribution segments.
- Step 2: sort out the segments that need closer examination.
- Step 3: determine the relevant market characteristics.

A market can be segmented by, for example, geographical location, customer type (consumer, retailer, manufacturer) or product type. Market characteristics include distribution channels, distances, total demand (either per customer or per unit of time), frequency of deliveries and the extent to which demand depends on the seasons.

Phase 4: Conditions

An important subject during the negotiations with any possible service provider is constituted by the conditions under which activities are to be performed. These have to be specified in as much detail as possible. Some of the conditions can serve as standards by which the service provider must work. At this stage the existence of a frame of reference is essential: the present logistics management performance must be known. Some general conditions are:

- Packing, storing and handling instructions. These especially play a role when fragile or dangerous goods are involved.
- Safety regulations, for example from the government, with regard to chemical and explosive goods.
- Storage control rules. These concern products with a limited shelf-life (dairy products).

Furthermore, demands can be made with regard to customer service attributes

such as: frequency of deliveries; order lead time; reliability of deliveries; and, number of wrong deliveries.

After describing activities, products, markets and conditions, it can be decided which activities can be or must be outsourced for which product/market combinations under which conditions. A score list can be helpful while making this decision. The score list shown in Table 2 is an adaptation of the checklist developed by Hoftizer [7]. Depending on the company's specific circumstances (product/market combination and prior conditions), certain factors must be selected and, if necessary, supplemented with others. If desired, the factors can be given weights. Applying this so-called weighted factor score method, experts in logistics management must evaluate all activities considered relevant on the selected factors per product/market

combination. The *do scores* and *buy scores* are added and balanced separately, creating a *do or buy score*. It is not possible to state absolute borderlines of the do or buy score, indicating when to choose do or buy. It is evident however that if the buy score only slightly exceeds the do score, the need for outsourcing is questionable. In that case the decision to outsource is a gamble, especially because it is very difficult to reverse.

Criteria to Select a Service Provider

When the strategic decision is made to contract out certain logistics management activities, the question presents itself to whom these activities should be committed. In recent years some criteria were formulated which are not used in a normative way but in a indicative way in this article. First of all, a service provider's quality could be judged based on

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**Table 2
Do or Buy Score List**

Factors	Do					Buy		
	3	2	1	0	1	2	3	
1. Customer service factors - Does logistics comply with customers' desires? - System performance measurement available - Specific logistics know-how available - Is the price competitive? - Is the relation with suppliers stable? - Is the relation with customers stable?								
2. Capacity factors - Storage accommodation available - Capacity utilization of storage accommodation - Alternative applicability of warehouse - Transport facilities available - Loading degree of transport facilities - Working capital required/available - Additional investments foreseen								
3. Control factors - Design experience available - Tracking/tracing system available - System modification frequency								
4. Cost Factors - Great/small logistics expenses - Direct costs - Indirect (overhead) costs - Start-up costs								
5. Labor factors - Extension of staff/personnel required - Extension of operational personnel - High/low level of absenteeism - Dismissal required								
6. Expertise factors - Affinity with logistics management - Expertise logistics activities - Special schooling/training required - Knowledge of in-house efficiency								

experiences using it as a transporter.

The service quality a service provider can deliver is increasingly regarded as a criterion rather than the price [8]. This quality must not only be good, but also it must be laid down in an integral quality control system. This means quality is guaranteed rather than just a consequence of improvisation and luck. Quality can be put into practice in many ways. A quality service provider should always dispose of good and modern equipment. It may be important to know whether the service provider either owns or hires/charters this equipment. The answer to this question can give an impression of the degree of involvement and availability of the service and the equipment.

For a shipper, the throughput rate and delivery reliability of the goods can be decisive in the competitive struggle, which makes them important criteria for the selection of service providers. The service provider must have a high degree of flexibility; flexibility in place, time, volume, quantity and product. Documentation and information supply (order status information) to the shipper are important factors in order handling. This information includes data about shipment tracing, a system of check points along the route and quality standards.

The service provider's willingness and skilfulness at having discussions with the shipper on a regular basis is of great importance. Via this dialogue all aspects of a partnership must be discussed. These include agreements about liability, supplementary to standard transport liability for errors, negligence and carelessness. Furthermore, a system of logistical performance indicators has to be drawn up, allowing the shipper to continuously evaluate the service provider's activities. The service provider not only has to agree with this, but should consider this self-evident. Moreover, the provider will have to be willing to follow the shipper's technological developments and even anticipate them in order to better meet the shipper's needs. The network and geographical spread of the service provider are becoming ever more important elements in the service he can offer. With this the question arises whether the work in the different local markets is performed using private offices or using a third party, like a correspondent or an agent.

No service provider can be specialized

in all destinations and all services. If a service provider claims to be, it will contract out certain activities. This can result in increasing costs and decreasing control of the activities. The more segments involved in the process, each with its profit margin, the higher the prices, though this can be partially compensated by scaling effects in the segments. The decrease in control, caused by an increasing amount of segments in the chain, can be compensated by agreements fixed by contract.

A service provider must have a cost control system with a clearly and logically composed tariff structure. The service provider must be prepared to clearly state which performances and actions are covered in the tariff. This at least can prevent additional charges being imposed afterwards.

The financial strength of a service provider has to be evaluated. If the logistics management function is contracted out, it is not for a short period of time; the fact is, the reverse process from buy to do is much more difficult. Continuity is important and must be sufficiently guaranteed by the service provider. The service provider should not be dependent on one or two shippers. That could be at the expense of continuity as well.

The rhythms of the organizations' forecast horizons have to correspond. When a shipper uses week plans while the service provider is thinking in terms of hours or days, quite an effort is required to harmonize them. The service provider's personnel management is an important element of quality. How does the service provider feel about personnel motivation, education and development? The service provider must realize that its staff is in contact with the shipper's customers and thus plays a representative role. Transport organizations sometimes believe that all public warehousing requires is to erect a warehouse that has a sign with the words "Public Warehouse" on the door. If this mentality is compared with the mentality in, for example, the chemical or computer industry, where procedures play a more important role, it is imaginable that communication problems can arise.

Problems During Implementation

The implementation of the transition from do into buy is an intensive process. It requires a lot of time and considerable effort,

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and even so problems still have to be solved. In order to be at least a little prepared, one can take notice of the following possible problems during implementation.

The data must be a hundred percent accurate. These data include article numbers and numbers of products, which are often not univocal. Packaging must also be standardized. If a service provider uses a pallet as packaging unit while the shipper uses a box, rigid internal organization must make sure each pallet carries a fixed number of boxes.

Synchronizing the computer systems can be problem. At aggregate level there is often accordance, but the actual linking of the systems requires adaptations from both sides. The procedure for the introduction of new products must allow the service provider to be informed in time. Registration and plan data are important, like article number, size, weight and expected turnover.

It is an illusion to think that outsourcing will take away all worries and problems. Problems are always joint problems and by good communication and frequent deliberation these problems can be solved.

Conclusions

In conclusion we can say that the entire organization must be involved in the outsourcing process. The decision to contract out the logistics management function is a strategic one, having effects on the whole organization for a long period of time. The process would stagnate if it was only a one-two between the logistics management department and a service provider. Subjective aspects like personnel motivation may not be underestimated.

If the decision to outsource is made, it is necessary to do it right since it is difficult to reverse. It is recommended to take the entire goods flow (input, through-put and output) into consideration. The preparation for outsourcing is a time consuming process. It usually takes six to nine months. The offers by different service companies must be compared scrupulously. Hurrying the outsourcing process will almost inevitably end in failure. Clear, univocal agreements must be made, formulated in such a way that management can check the service provider's performance. Sincerity and trust must be present from the negotiation phase onward. The starting point both of the shipper and of the service provider

must be a win-win situation.

The shipper must continue to invest in know-how in the field of logistics. To take maximum advantage of the service provider's qualities, the shipper must develop expertise. It is a continuous process of improvement.

Outsourcing logistics management activities is a process that cannot be started quickly. If this process seems simple, this may indicate an incorrect approach. It should not be regarded as a magical option. After outsourcing a lot of shippers think that their logistics management know-how increased to a great extent in a short period of time. It is evident this positively influences the total performance of a company and therefore its continuity.

After outsourcing a lot of shippers think that their logistics management know-how increased to a great extent in a short period of time.

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