

SCIENTIFIC PAPERS  
OF THE UNIVERSITY OF PARDUBICE  
Series B  
The Jan Perner Transport Faculty  
15 (2009)

**PLANNING METHOD OF LOGISTICS-DISTRIBUTION PROCESSES  
IN FUNCTION OF DISTRIBUTION CHAINS**

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## **1. Introduction**

Management of logistics-distribution companies is going through the constant and significant change. Specifically logistics activities are more widespread in everyday life, while companies that are engaged in such activities, with optimal planning of logistic and distribution processes have greater profits and a more stable position in the globalization market. It is therefore necessary to define the logistic and distribution processes, their elements, effects, and optimal ways of planning process, all to optimize the operation of logistics operators.

The processes involved in decision making are strictly hierarchical, although there are a lot of interaction and feedback relationships between each decision. Planning these logistics-distribution processes can extract the most important factor for optimizing logistics-distribution system. In order that the planning of logistics-distribution processes would be in a function of optimizing logistics-distribution systems it is necessary to know all the elements of these complex processes, as well as their mutual relationships and dependencies. In this study the most important elements of logistic and distribution processes that most affect the functioning of these logistics-distribution systems will be

processed, and will be based on this analysis to define the methods of planning logistics-distribution process as a function of distribution channels.

## **2. Theoretical logistics-distribution process**

In general logistics systems can be defined as systems of space and time transformation of goods, and processes that run in them as a logistics processes. Characteristic of logistics systems is the understanding of movement (transportation) processes connectivity with the retention (storage) processes. The movement processes and retention processes can be presented by the network. Objects moving mesh, retained in the nodes and cross the road that leads from here on. Nodes can linked in various ways, and the object can move around in different way. In addition to resources, in network energy, information and people are moving too. According to this idea of a network, the basic structure of the logistics systems can vary. There are few different stages of logistics systems, one-level, multi-level and combined logistics systems. in one-level system, space and time span by direct flow of goods between the point of delivery and receipt points. At the point of delivery goods are well prepared, and at the point of receipt are used. [2]

In the more graduated system flow between the point of delivery and receipt of the terminates at least at one point, whose job is to regroup the assets into smaller units or their concentration in larger units for delivery. This is due to the needs of the recipient at the point of receipt. Accordingly, the following functions that are performed in the logistic and distribution process can be defined:

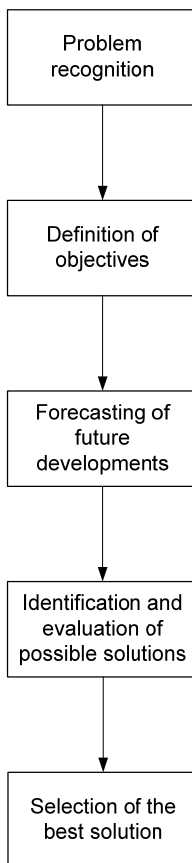
- Transport, storage and redeployment, where processes of flows of goods are significant
- Packaging and signing, where the processes of helping flows of goods are essential
- The delivery and processing of orders, where processes of information flows are essential.

Flow of goods between the point of delivery and receipt assumes the exchange of information between both points. Information's are exchanged before, during and after the flow of goods is completed. They provoke, follow and explain, control and follow and confirm or indicate the deviations of flow of goods. Therefore, the processes of information flows are also logistical processes. So, logistics processes are tasks whose execution implements by flows of transformation of goods and information. Those are related to planning, management and control of transformation flows.

### 3. Basics of the logistic-distribution process planning

During the logistic-distribution processes hundreds of individual decisions are made and they need to be coordinated every minute. These decisions are of different levels of importance, so that the level of preparation for each single decision is defined according to their level of importance. It is precisely this preparation that can be defined as the planning task. Planning represents the support to decision-making with identification of alternative future activities and the selection of the optimal one.

Planning can be divided into several phases (Figure 1):



**Fig. 1** Planning phases of logistic-distribution processes

Logistic-distribution processes are very complex, i.e. they consist of a multitude of details that occur in reality, but cannot influence the planning. Precisely therefore it is necessary to solve the real problems by simplified copies of these problems, the so-called models, as the basis for making a plan. The presentation of the real problem, the simplest possible but with all the necessary details and not ignoring several serious real

factors, is called modelling (“art of model creation”). Simulation models and forecasting models are trying to foresee the future condition and to explain the connections between the input and the output of the system. However, they do not support the choice of one or several solutions which are good in the conditions of certain criteria and the possible activities. This is the purpose of the optimization models which differ from the mentioned ones by additional “function of objective” which has to be either minimized or maximized.

Structural changes in the economy, high level of labour distribution, the “Just-in-time” and “Quick Response” strategies, and the globalization have influenced the transport demand, i.e. transport requirements. The mentioned changes have caused an increase in the frequency of deliveries and reduction of the quantity of goods per single delivery. This has brought to reducing the intensity of individual goods flows and increase in the costs and general increase in the transport volume.

The basic aim of planning the logistic and distribution processes is to achieve the uniformity and consistency i.e. continuity of the goods flows and the best possible usage of the traffic infrastructure and the transport means. Precisely this is of vital importance for the rational realization of the logistic functions, since good exploitation per time and capacity is the basic precondition for reducing the fixed costs which are, as is well known, extremely high in transport. [7]

Based on this it is obvious that planning of logistic and distribution processes has to be performed at the level of the entire system, and that it is necessary also to carry out separate planning of elements of the logistic and distribution systems, taking into consideration their interwoven condition, with the aim of creating optimal logistic processes.

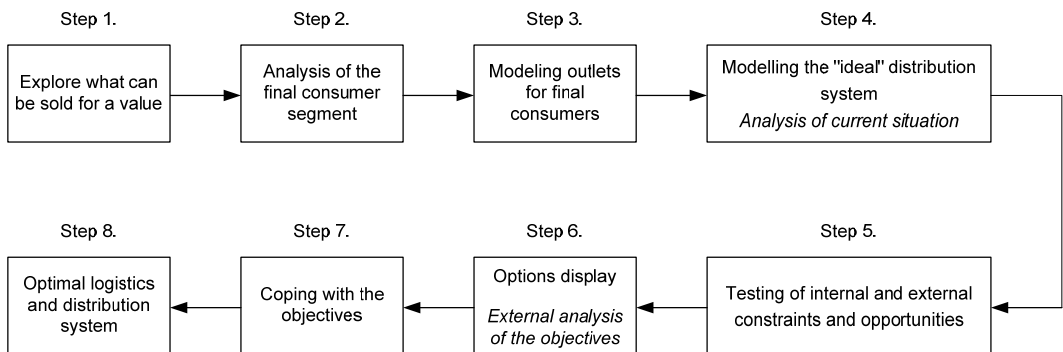
#### **4. Planning method of logistics-distribution processes in function of distribution chains**

As it is evident from the preceding analysis of logistic and distribution systems, their planning is not limited to, production planning, transportation or distribution, but covers the whole logistic and distribution process with all the elements. It can be sad that every element of logistic and distribution process is separate, independent and complex and requires a separate and independent planning. This fact represents the greatest obstacle to systematic planning of logistics-distribution processes. Namely, it is much easier to analyze and plan the elements of logistic and distribution processes separately because by well planning we can get the positive results in optimization of time, capacity, cost, etc. in a particular element. For these reasons in the literature can be found many methods and models, mathematical, statistical, empirical and heuristic, which can be applied to partial planning of logistic and distribution processes, ie, self-planning of certain elements of logistics-distribution systems. As stated earlier results obtained with

such planning are not sufficient so it is necessary to view logistic and distribution system as a whole, and in accordance to plan the processes within the system.

The above analysis of observation and research of logistics-distribution systems and its elements show that it is not possible to define the exact methods that could be applied in all cases, ie in the business of every company, so as to completely solve the problems that occur in logistic and distribution systems. Namely, different companies have different basic logistic and distribution priorities, regardless of that they all do business together in the logistic and distribution system. So as a result of the study method that may be applicable in most cases is listed, because it is in a distribution channels function, whose function is important in all businesses from the logistics sector. It should be mentioned that steps that are further described in this method are neither simple nor fast. In addition, a single step should not be skipped in the interest of speed, even if the process could accelerate if some steps could be done at the same time, not one after the other. For all marketing decisions that a company can bring completeness becomes obligation, and decisions of distribution have a long term nature. Company may change its pricing, advertising, rent or terminate the agency for market research, renewed its program to promote sales and to modify its product line in the short term. However, when the administration once sets of its distribution channels, strong evidence indicates that there is great resistance to their modification. [7]

The steps that are implemented in the method of planning logistic and distribution channels are clearly visible in Figure 2, and below are further described in detail.



**Fig. 2** Planning method of logistic distribution processes as a function of distribution channels

**1st Step:** to explore what can be sold for a valuable price

first rule of the distribution network is that all the hard work needed to structure channels will be wasted if the product or service that is placed on the market have no real value. If users do not perceive it as useful or significant, it will not be saved distribution,

regardless of how well designed it was. Vendors, distribution centres, retailers, distributors, manufacturers representatives, brokers, and other organizations and individuals who play a role in distribution channels, know when some products and services of lesser value are. Contrary to some beliefs, the distribution can not make weak product stronger, even though marketing efforts can boost sales, but only in short term.

### **2nd Step:** Analysis of the final segment of consumers

New approach to channel strategy requires that a company forgets that it already has an established distribution system. The best way to work out a system is to start from the beginning, forgetting history. Management must for that period of time temporarily turn off the usual wisdom and do not tie up their power of imagination trying to maintain in the existing model. In this step questions about the direct and indirect channels should be ignored. The first task is to find out what do users want regarding to the location of services, regardless to the location from which they should receive the products or services of other companies. Since there is no really homogeneous market where all users want the exact same services, the main focus must be on what limited, but significant, segments want or how the market can be divided into segments that want a common service.

### **3rd Step:** Modelling of sale for final consumers

Third step emphasizes buying group factors (outlets) and services that define a certain segment. Suppose, for example, that the following attributes are grouped together considering the purchase of consumer durable goods (eg TV, stove, refrigerator, etc.): very low cost, self-service, a fairly wide range of goods, limited after-sales service, a relatively Spartan atmosphere, the availability of multiple brands. Obviously, the set of consumers who are attracted to that kind of purchase are willing to compensate the benefits of expensive services and close facilities for a very low price. Such features prefers more business discount stores and not expensive department stores. For industrial goods, such as items of maintenance, operation, and repair one set of purchase characteristics could include a moderate (reasonable, but not the lowest) prices, emergency services delivery, enhanced credit terms, availability of multiple brands and a very wide range of brands, locally held stocks (inventories), ease of ordering (eg via a computer terminal), and occasional advice about new items and usage. This set prefers more industrial dealer than distribution centre manufacturer. Here, customers want full service and availability and are willing to sacrifice some benefits as far as the price to get them.

When collecting data in a second step, it is also extremely important to accept as many services for analysis, because if it does not give final users an opportunity to assess the value of an attribute, that attribute will not appear later in the analysis. In other words, in order to purchase properties affect the appointment of a set of characteristics in the third step, it must be able to appear in the third step. Short-sightedness in the second and third step of this process could harm the entire process.

#### **4th Step:** Modelling the "ideal" distribution system

So far, the whole emphasis was on the grouping of sets of market-oriented service (sales) sites and in their consideration of the types of outlets that satisfy final users. In the proceedings there are no other restrictions, such as the famous adage "The customer is always right". In the fourth step, it is important to keep this perspective. It is essential to assess whether it is statistically feasible to link the received attributes in an outlet, as it was done in the third step. As above mentioned, it often requires the collection of opinions of individuals who are directly familiar with the stores that are similar to those that are isolated. In this check the feasibility of a negative reaction should not be taken as final judgments. Furthermore it is necessary to enumerate types of efforts needed to ensure that the results of services can be delivered to relevant aspects by a set of feasible outlets. Outlets do not work in isolation: they are the endpoints of distribution systems. The entire distribution system is working to ensure "the opening" of the desired point of sale. Therefore, the critical task of the fourth step is to determine what will be needed in terms of marketing trends or activities (and associated costs) in order to get the results of the service. All in all, these allocation of costs are mainly a form of art, it takes a lot of innovative thinking for them and ability to concentrate on the direct and traceable costs.

#### **5th Step:** Testing internal and external constraints and opportunities

So far we have been faced with a relatively small number of realistic situations. Some appear in the fourth step when an ideal marketing channel is made, and when the existing system is analyzed and evaluated.

But the 5th step requires in-depth perspectives of environmental factors surrounding the decision about the channel. This step also makes the calculation of bias, goals and limitations of government. Since these two parts of the analysis are so important for the process of creating the channel, and because they focus on different problems, they were isolated as steps 5a and 5b.

##### *Step 5a:* Evaluation of environmental / external drivers

Many studies were conducted over the past decade about how Environmental factors influence the structure of marketing channels. Basically, this study shows that the more varied, diverse, and uncertain environment of channels is, it is more necessary to control the behaviour of channel members with any unforeseen circumstances that the canal is facing. However, the flexibility in adapting to a rapidly changing market is necessary too, and this need disproportionate to the need for control. Therefore, there is constant tension in the channels that are faced with complex and dynamic environments.

##### *Step 5b:* Company analysis

Profile in the risk management of key enterprises should be evaluated. Are they the ones to take the risk or to avoid such risks? Internal politics, the structure of the organization (eg, which group "owns" channels within the company - sales, marketing,

etc.) and culture are also important. They must be well known and recognized if they want to apply the final results and recommendations. For example, how strong are the forces of the inertia of conventional wisdom? Can the strength of evidence and logic really win? Is there anyone in the company, including Chief Executive Officer, Power and/or responsibility to implement channels change? Surprisingly and unfortunately, there are huge obstacles for action in the field of management strategy.

#### **6th Step: Options display**

In the end 5th step potentially three different distribution systems are isolated: (1) an ideal system (driven by customer), (2) the existing system and (3) system driven by the administration (ie, an ideal system diversified by objectives and constraints of government). In the 6th step three systems are compared and gap analysis is performed. In the first case (match), the current (system administration) and ideal systems are very similar to each other. In this case, management knows that the current system is "in depth" in terms of development, ie, has the ability to give final users what they want. However, if the final users often complain about the existing system, the administration knows the problems of the system do not lie in its structure but in how it is managed. Blame it on the implementation, rather than primary production (design). In the second situation (partial match), the existing system and administration system are mutually similar, but differ from ideal. This result would hint that the objectives / constraints assumed by the government caused the gap. In the third situation (complete mismatch), all the three systems differ considerably. If we assume that the system of governance is somewhere in between the existing and the ideal, some improvements in achieving the satisfaction of final users without yielding goals or restrictions should be possible. However, the relaxation of some restrictions on government would probably cause even greater benefits for final users.

#### **7th Step: Dealing with the objectives**

In the seventh step the administration must face the gap between its position and perfect location. It is the culmination of the entire process from two perspectives: First, all senior managers to which it relates should be brought together secondly, it forces the participants to carry out self-assessment and sometimes implement fundamental changes in their views. In order to emphasize the importance of this event in the process of designing the channel, a meeting must be planned at which must be described the description of "ideal" distribution system and familiarize with the results of steps 5 and 6. Top management must review the objectives and constraints that have limited the ideal, then they should show the effects of these factors on the ideal (ie, that the objectives and constraints have resulted in "answers" that are different than what final users really want).

#### **8th step: The optimal logistic and distribution system**

Last step in the process is making an ideal distribution system with set of goals/constraints that the government still retained after the 7th steps. Resulting in the distribution system should be the subject of intensive planning application, because what



comes at the moment is the optimal marketing channel for the company, taking into account what has been learned through the process. The optimal system may not be ideal, but it will largely meet the standards for quality management (ie, to achieve the final user satisfaction), efficiency, effectiveness and adaptability. Chances are that the optimal system will be more market oriented than the existing system.

## **5. Conclusion**

Contemporary flows of goods are all the more rarely used by direct selling producers of final consumer goods. Between the end points of social reproduction - the production and consumption more and more agents are set and their mediating function is called by different names. The main reasons for the existence of intermediary organizations lie in the necessity of spatial and temporal linking all spheres of production away from the sphere of consumption in the commercial possibilities of specialization and in minimizing the number of traffic transactions. The sustainability of a particular agent, or link in the distribution chain depends on its ability to organize the flows of goods (wholly or partially) that it exceeds the alternative, or when the cost of mediation is less than the cost incurred by the manufacturer when he perform the distribution. The mediators system is higher in developed markets and the economic advantage of a specialist broker proceeds from the possibility of higher concentration, and then the necessary dispersion of flows of goods. Intermediary costs are high in a small market, and rapidly decreases as the market gets bigger.

Planning of logistic and distribution process can be considered as the planning of all technologies involved in these processes. It is worth noting that the area of logistic and distribution planning process is not limited to production planning, transportation or distribution. It covers the whole logistic and distribution process with all the elements.

The above analysis of observation and research of logistics-distribution system and its elements show that it is not possible to define the exact methods that could be applied in all cases, ie in the business of every company, in a way that they completely resolve problems that arise in logistics-distribution systems.

So as a result of the paper states that this planning method of logistic and distribution process as a function of distribution channels, which sets the detailed steps of planning and as a result defines the optimal distribution channel for the company. All the lessons learned through the process are taken into account. The optimal system may not be ideal, but it will in largely meet the standards for quality management (ie, to achieve the final user satisfaction), efficiency, effectiveness and adaptability.

*The article is published within the solution of the research proposal VZ-MSM 0021627505 „Transport systems theory“.*

Submitted: 18. 11. 2010

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### Resumé

#### PLÁNOVACÍ METODY LOGISTICKÉHO DISTRIBUČNÍHO PROCESU JAKO FUNKCE DISTRIBUČNÍCH ŘETĚZCŮ

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Příspěvek se zabývá sledováním a výzkumem logistických distribučních systémů a jejich elementů. Soustřeďuje se zejména na oblast plánování v logistickém distribučním řetězci. Charakterizuje podrobně jednotlivé prvky, ale i fáze systému a rozebírá dílčí návaznosti. Zdůrazňuje potřebnost a důležitost aplikační fáze, neboť jen důkladné modelování pro konkrétní potřeby konkrétní firmy může přinést požadovanou funkčnost celého systému.

Darko Babić, Morana Ivaković Babić, Petr Průša:

## Summary

### PLANNING METHOD OF LOGISTICS-DISTRIBUTION PROCESSES IN FUNCTION OF DISTRIBUTION CHAINS

Darko Babić, Morana Ivaković Babić, Petr Průša

The logistic activities represent an optimized response to the globalization processes, and the companies involved in such activities, with optimal planning of the logistic and distribution processes, realize higher profit and more stable position on the world market. Therefore, it is necessary to define the logistic and distribution processes, their elements and interrelations, effects, as well as planning process methods, and all this in order to optimize the operation of logistic operators.

Logistic-distribution processes are very complex, i.e. they consist of a multitude of details that occur in reality, but cannot influence the planning. Precisely therefore it is necessary to solve the real problems by simplified copies of these problems, the so-called models, as the basis for making a plan. The presentation of the real problem, the simplest possible but with all the necessary details and not ignoring several serious real factors, is called modelling ("art of model creation").

The basic aim of planning the logistic and distribution processes is to achieve the uniformity and consistency i.e. continuity of the goods flows and the best possible usage of the traffic infrastructure and the transport means.

The above analysis of observation and research of logistics-distribution systems and its elements show that it is not possible to define the exact methods that could be applied in all cases, ie in the business of every company, so as to completely solve the problems that occur in logistic and distribution systems. Namely, different companies have different basic logistic and distribution priorities, regardless of what they all do business together in the logistic and distribution system. So as a result of the study lists a method that may be applicable in most cases, as a function of distribution channels, whose function is important in all businesses from the logistics sector.

## Zusammenfassung

Darko Babić, Morana Ivaković Babić, Petr Průša

Die logistische Tätigkeiten stellen eine optimisierte Antwort auf die Frage an die Globalisationsprozesse. Die Firmen, die sich mit solchen Tätigkeiten beschäftigen, mit optimalen Planen der Logistisch und-distributionsprozesse realisieren einen grösseren Profit und eine stabile Lage auf dem Weltmarkt. Daher ist es nötig Logistisch- und distributionsprozesse, ihre Bestandteile und Verhältnisse, Leistungen und Prozessplanen zu definieren. Es wird zum Zweck einer optimisierten Geschäftsführung der Logistikooperateure gemacht.

Logistisch und distributionsprozesse sind sehr komplex, d.h sie bestehen aus vielen Einzelheiten, die in der Wirklichkeit entstehen, aber sie können nicht das Planen beeinflussen. Daher ist es nötig wirkliche Probleme mit Hilfe ihrer eigenen Kopien, sogenannten Modelle als Grundlage für das Planen, zu lösen. Eine einfachst wie mögliche Darstellen eines Problems mit allen nötigen Einzelheiten, ohne einige ernste Faktoren zu ignorieren, nennt man Modelieren („die Kunst der Modellschöpfung“).

Das wichtigste Ziel des Planens ist eine Gleichmässigkeit und Dauerhaftigkeit, d.h. Kontinuität des Warenflusses und eine bessere Nutzbarkeit der Verkehrsinfrastruktur und Verkehrsmittel.

Die angegebene Analyse, Beobachtungen und Erforschungen von Logistisch-distributionssysteme und ihrer Bestandteile zeigen, dass es unmöglich ist, exakte Methode, die man in solchen Fällen verwenden kann, bzw. beim Lösen der Probleme, die in jedem Unternehmen vorkomenn, zu definieren. Verschiedene Unternehmen haben unterschiedliche primäre Logistisch-distributionspriorität, unabhängig davon, dass alle in Logistisch-distributionssystemen handeln. Als Ergebnis der Erforschung wird die Methode, die in meisten Fällen zu verwenden ist, angegeben, weil sie in der Funktion von Distributionskanäle, die in allen Logistikunternehmen sehr wichtig sind, steht.