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SPECIFIC FEATURES OF TRANSPORT MARKET CHARACTERISING THE INTERRELATION OF LOGISTICS, GLOBAL DISTRIBUTION AND TRAFFIC

ABSTRACT

If we acknowledge the role of traffic as active leader of the sustainable economy development, then we certainly have to analyse the environment in which the traffic exists as a system, and therefore we have to foresee its limits which are determined by the specifics of the traffic system. Representing the circulation system of economy, traffic has to eavesdrop on the demands of the market, and has to be transformed and modernised. The experience gained by working on the projects and the studies related to business organisation resulted in the conclusion that the requirements related to logistics in the nineties were significantly greater than had been the common target until then – reduction of costs. In order to adjust completely to the market demands, with the help of advanced information technology, the companies apply logistics as tools of competitiveness on the market. Extraordinary achievements of IT, using of virtual reality enable business people to communicate and contract businesses without being physically present. What is it that makes some companies more successful than others? It is obviously a question of the advantages of distribution realisation due to the fact that nowadays purchase and selling are run globally in the world. The distribution of products at the right time, to the right place, at a price which is favourable both to the seller and the buyer, in the right manner and in the appropriate quantity in the marketing sense is the prerequisite for the business success as element of business logistics. The development of this tool must be based on the monitoring of the needs for the logistics management and the tactical adaptability of the company. The solution of logistics management of business processes must satisfy the current and future customers' requirements in order to be competitive.

KEY WORDS

transport market, logistics, global distribution, competitiveness, IT

1. INTRODUCTION

Transport, as blood circulation of the economy is undergoing huge changes and a difficult phase of development. Having this in mind, it is necessary to transform the transport market, so as to make its function in the economy as efficient as possible and to make it maximally purposeful.

Since the very beginning, humans have tended to establish connections and to communicate with each other. These needs, whether referring to overcoming space, change of place of residence or intercommunication, forced humans to invent technical means that would facilitate achieving these desires. Very fast development of science and technology have brought humans to the today's level of thinking and so, apart from other fields this resulted also in establishing traffic as a field of science.

Constant growth of the material basis of our society and increasing integration of the economy of our country in the international goods exchange flows requires fast, regular, efficient and safe transport capable of rational inclusion in the economic and social flows. Similarly, the technical and technological progress providing the basis for production development requires fast reaction of the transport participants and certain flexibility on the transport service market.

Intensive modernisation of traffic is one of the basic objectives of the more economic, more profitable and more successful development of the overall economy. This results in the need to continuously study the development of the transport techniques, technology, and organisation in order to harmonise the demand of the total economy with the size, level, structure and quality of demand for traffic services in national and international relations. The more so, since the traffic,

especially new transport technologies, significantly affect the price of goods, on the location of certain production facilities regarding normal functioning of the overall social reproduction, on the profitability of investments and the level and structure of our international exchange.

The globalisation worldwide and particularly economic relations have forced the entrepreneurs who want to do business successfully to start thinking about their strategies in a different manner. At the beginning of the nineties, owing to information technologies, possibilities of production and a great number of educated and creative people who could be relatively easily employed by the companies, the production of a good product at an acceptable price, anywhere in the world was not a problem any more. The competitiveness was achieved by more efficient management of all materials, information and value flows within and outside the company.

Based on many years of defining strategies for many US companies, Ries and Trout (1) concluded that the strategy has to be defined in a bottom-up manner, i.e. that the tactics should determine the strategy. A great number of business people involved in marketing still think differently, that is, that the strategy defines the tactics. Those who have recognised that the selection of a successful business strategy requires good knowledge and experience with business tactics, looking for factors of success on the market, have identified great possibilities of improving their own work by introducing some new methods of managing business processes. The "tool" of competitiveness on the market of consumer goods is not the product any more but rather the logical method of managing the processes of physical distribution and information with the aim of minimising overall business costs and maximising customer service.

2. STARTING CHARACTERISTICS AND TRAFFIC MARKET DETERMINANTS

It is necessary to focus more efficiently on the possibilities and necessities of the development of the interrelation between logistic and traffic, i.e. global distribution, as a characteristic and determinant of the traffic, i.e. transport market.

Due to such specific characteristic of traffic market supply and demand, the traffic and economic theory considers the existence of a single market of traffic services impossible and claims that one can only speak of the existence of traffic services market on certain relations.

However, from the standpoint of relations between the overall supply and demand of traffic services, these individual markets cannot be simply un-

derstood as a simple sum of independent markets, but rather as a complex of interconnected and dependent relations on the whole traffic network. This practically indicates the need to consider the markets as integral parts of a common whole, which is the basis of organising the traffic system, i.e. organising of the supply of traffic capacities that need to optimally satisfy their overall demand.

In this short study analysing the characteristics of traffic market some of the conceptions provided by Prof. Radačić (2) will be applied.

During the process of producing transport service, human work is materialised on the transport object, and this work materialisation consists in the displacement of the transport object from one place to another simultaneously retaining the quality and quantity of the transport object matter in the form which provides it with the properties of utility value, that is, properties the object had acquired in the process of its previous production, that is creation and development, if the object of transportation is a human being. If the transportation object includes goods on the market, it carries also the materialised work of the transportation process and therefore the value of the transportation object as its component. The objectively provided material and economic carrier of the value and price of the transportation market is the transportation object in which the transport work has been materialised as the production process. The utility value of the transportation service has been materially determined by the position of the transportation object, and its value by the quantity of live and materialised work which was needed in the given circumstances in order to perform the traffic process. If the traffic process is organisationally separated as an independent economic organisation, and the production of transport services is performed as production of goods, that is, as manufacture of products intended for exchange on the market, then the value of the transport service also occurs as independent value of an independent product regardless of the value of transport object if it is intended for the exchange on the market as a product.

According to the definition of general economic theory on the market, the market is a complex of relations between supply and demand in a certain area and at a certain time. Consequently, the basic market functions are expressed in the following:

- the produced goods are realised on the market, which means that the goods arrive on the market with the value created in the production process based on the spent individual working time, and on the market its market value, i.e. market price is formed based on the socially needed working time;
- the market is the main form of connection among the goods producers and it is here that one concludes whether individual work was really socially

necessary, whether it matches the average productivity, whether the producer realises profit or loss, and whether the overall individual production meets the social needs thus allowing the market to influence the regulation of production;

- connecting numerous producers and consumers, the market balances the overall supply and demand, based on the supply and demand law.

The supply and demand law acts basically in the following way: if the demand for certain goods on a market where a certain price has been formed is increased compared to the supply or if the supply is reduced compared to the current demand, the price of the goods increases. If, however, the demand is reduced and the supply increased, the price is reduced. On the other hand, prices influence the supply and demand; they have the tendency to stabilise at a level at which the supply and demand of certain goods become equal; every increase in price of the goods reduces the demand and increases the supply, and every reduction of prices increases the demand and reduces the supply.

These considerations about the nature of the production of traffic services as goods which are exchanged on the market and the function of the market where the law of supply and demand is valid, result in the fact that one can speak of the existence of traffic, that is, transport market and that it should be understood as a complex of relations which are created between supply and demand of transport services.

The traffic process, as is well-known and previously mentioned, is characterised by three basic or general characteristics:

- The transportation process means overcoming physical distances. Unlike the production process in other fields of material production, the basic characteristic of transportation process lies in the fact that it occurs in space and that it is not related to a certain fixed location.
- The production process and the consumption process are a single process, regarding time and space. The traffic service exists only at the time and in the place of transportation process itself. Its consumption is, therefore, possible only simultaneously with its production.
- The transportation service as the result of work does not exist as material product which exists outside the production process and after it has been completed. The transportation service cannot be stored like other products in other fields of material production. This characteristic significantly influences the organisation of the transportation process which in fact consists in supplying traffic capacities which would meet the demand, the so-called traffic demand. Therefore, that is, due to the fact that traffic services cannot be produced and stored in order

to meet the traffic demand when it exceeds traffic supply, and due to the fact that for a certain period of time traffic capacities are fixed and traffic demand varies, very significant problems occur in the organisation of the transportation process in all cases of a sudden increase in the traffic demand.

These three basic specific characteristics of the transport services production process provide a specific feature of the traffic supply as one of the two basic segments of the transport market. The transport service producers offer their products in a certain space, on a certain network, on a part of the network, i.e. concretely, on a certain relation.

On the other hand, specific characteristics of the traffic services production process give specific feature to transport demand as the second basic segment of the transport market. The traffic service users, namely, can realise their demand only in a certain space, a certain network, part of the network, that is - on a defined relation.

3. CHARACTERISTICS OF PHYSICAL DISTRIBUTION AS MANAGEMENT FUNCTION IN A COMPANY

The decision made by the first Viscount Leverhulme of Unilever on founding of "Speedy Prompt Delivery" (SPD) Ltd. in 1918, that is following the World War I, is considered to be the earliest documented example of understanding the significance of physical distribution. Certainly, that was the time of the earliest age of marketing, but the Viscount Leverhulme had already grasped the fact that fast delivery was a significant factor of successful retail and wholesale of consumer goods. Since then "immediate and fast delivery" has become the key to efficient distribution. However, it was not before the 50's that physical distribution was singled out as an independent business function in a company, focused on efficient movement of products and materials within a production process and outside the company towards the customer. Physical distribution covers a great number of company activities, such as transport, storage, handling, stock managing and control, order processing and packaging. Based on many studies and analyses of business cases, Professor McGinnis (3) claims that service is more important than costs, which is in accordance with today's systemic approach to management of all business processes. The principle of integral logistic management gained in significance in the early 80's marked by insecure economic conditions and many crises, including oil crisis, worldwide. The most important research objects of the possible business improvements in companies were at the level of strategic alternatives regarding distribution and logistic

operations in order to raise the levels of service and reduce the overall operation costs.

Today, this principle is even more important due to greater physical distances between the supplier and the customer, but not every company can achieve the same rate of improvement.

4. INTEGRAL LOGISTIC APPROACH

Greater responsibility of the company management for the level of costs and services has resulted in integration of material operation with physical distribution. Such an important change in the company was reflected in greater control of the volume of stock of material and finished products, transport standardisation, uncertain sales increase, high costs of engaged capital, increased competition from abroad, higher costs of energy and transport.

The companies that implemented the integral approach to distribution operated more profitably with additional effects regarding:

- increase of sales as consequence of increased level of service;
- increased productivity of the logistic resources;
- improved operative results in production and marketing;
- improved financial effects by reducing the costs of stock and improved cash flow;
- improved assets management.

According to the definition given by the US Logistic Management Council (4), logistics or logistic management is:

- a process of planning, implementation, and control of the flow of raw materials, semi-products, and finished products, as well as the related information, from origin to destination, with the aim of minimising overall costs and full satisfaction of customers' requirements.

It has already been mentioned that the elements of business logistics (distribution, transport, products handling, storage and stock management, gathering of information and preparation of management documents) are most important regarding costs in a company. As a rule, the result of good logistic management is minimising of total operating costs with a high level of customer service, so that greater competitiveness on the market is realised by those entrepreneurs who satisfy the current and future customers' requirements.

In the economically developed countries of the world, a changed approach to company management is reflected in the so-called Integrative Resource Management – IRM (5) divided into four research fields:

- integration of business functions
 - total quality management – TQM,

- human resources management,
- finances and accountancy,
- information system;
- customers and products
 - marketing and sales,
 - customer services,
 - product design and development;
- production processes
 - management of production shopfloors,
 - design and development of production processes,
 - production;
- logistics
 - production and control of stocks,
 - purchase,
 - distribution.

The basis of realising such an approach to business operation is the constant development of the managers' education level. The decision-makers have to know for their respective level of responsibility what lies beneath the business surface: who the employees are, what the everyday strategic problems are, how business processes are carried out, in which areas improvements are to be expected, and what technological changes are about to occur. The basic knowledge of these areas enables their interconnecting. For the needs of this paper, the field of integrative distribution management will be explained, as element of logistic approach to company management.

5. COMPETITION AND INTEGRATIVE DISTRIBUTION

Unlike conventional, modular approach to the flow management of raw materials, semi-products and finished products from the place of production to the place of consumption, the logistic approach is a systemic approach to all processes and information.

The characteristics of today's market competition require additional modification of the definition of logistics in the sense of *satisfying the identified and unidentified customers' requirements and gaining advantage over competitors*. This definition should be supplemented by the possible contribution of logistics to achieving commercial objectives of a company, based on the costs of the lowest integrative management of all activities related to stocks and implementation of the logistic method of process management in order to satisfy the customer in all segments. Logistics, as a concept of company management has been lately marked by the greatest number of innovations. The beginning of this concept can be found in the supply for military purposes (6).

Table 1 - Changing of the significance of competition factors of companies from 1970 to 1990

Indicator	70's	80's	90's
1. production	productivity	efficiency	flexibility/fast response
2. features of products / demand	irrelevant	selection / design	diversification according to the customer requirement
3. product lifecycle	depending on financial input	introduction of new products	time / effects
4. technological changes	balanced	big	very big
5. most important elements of technological development	automation	information / connectivity	integration
6. information support	info-system management	computer integrated manufacture - CIM	integrative logistic systems / business information systems
7. information management	centralised MIS, led per departments	centralised MIS / designed user-friendly	user decentralised / information integration
8. type of management	general / specialists according to functions	inter-functional	inter-functional
9. management methods	strategic planning / portfolio of methods	production excellence	logistic excellence / company excellence
10. purchase management	suppliers as "enemies"	supplier excellence	strategic alliances with suppliers
11. orientation towards customers	product as an essential element	customer services – quality, costs, delivery	full customer satisfaction
12. significance of costs	direct cost of work	costs within the company	total costs
13. significance of the employed	regarded as resource	active employment	improvement of the employed
14. introduction of new products	only when obligatory	at customer's requirement	used as element of market competitiveness

Source: Gopal Ch. and G. Cahill, Logistics in Manufacturing, The Business One Irwin, Homewood, Illinois, 1992, p. 6.

Table 1 gives an overview of the meaning of production and sales elements in the 70's, 80's and 90's.

Table 1 shows the changing of the role of the mentioned fields in company management over the observed period, and that the 1990's mark the integrative approach to business process and continuous harmonisation with the changes occurring in the environment.

Today, for a company to survive and to compete efficiently, the manufacturers have to abandon the functional model of managing and performing processes and rather accept the so-called virtual model of delivery chain. This paper studies the distribution regarding management of physical displacement, storage of goods, services and information management, including:

- internal and external transport,
- warehouse management,
- stock location.

The influence of these elements on the delivery chain, and especially on the distribution function, is so

strong that it forced the manufacturers to be competitive according to the criteria of the necessary *time*, level of customer *service*, and *costs* of performing the mentioned processes. The new competitive "must" includes:

- improvement and maintenance of customer service regarding the selection of the right distribution channels of products and market segments;
- reduction of the overall time of the distribution cycle from placing the order to the delivery / issuing of the bill on the hours i.e. days, instead of the previously needed weeks and months;
- reduction of the total distribution costs by improving the storage, allocation of stock, reduction of waste and breakage at lower costs and transport costs management.

Distribution is the key point of the marketing mix of the catering activities. The excellence of integrative distribution is the basis for good connections with the customers and the basic criteria when customers select the supplier.

Table 2 - Interrelation between types and goals of logistics

Type of Logistics	Goals of Logistics
Logistics of purchase	Optimisation of the purchase flow from taking over the material - raw material from the manufacturer (supplier) to delivery to the customer (consumer)
Logistics of production	Optimisation of production flow from taking over of material-raw material from the logistic of purchase to delivery of the produced to the logistic of distribution
Logistics of distribution	Optimisation of the physical flow of the product from the moment of taking over the product from the logistic of production to the delivery in the distribution chain
Logistics of packaging	Optimisation of packaging in accordance with the principles of identification, transport protection, storage, purchase requirements, and delivery of the product and disposal of packaging
Logistics of transportation	Optimisation of transport regarding selection of transport mode and method, cargo handling, transport itinerary, unloading and delivery to the customer
Logistics of storage	Optimisation of storage process from taking over, schedule for individual storage objects by using adequate methods of storage and storage work organisation
Logistics of spare parts	Optimisation of logistic flow from taking over of the spare parts from the storehouse until the delivery to the user in accordance with the principles of product servicing and complaint processing
JIT Logistics	Just in Time logistics means optimisation of functional and production chain between the supplier and the manufacturer in order to minimise the time of purchase and production, minimise "scrap" and harmonise production with the customers' requirements
Logistics of information and communications	Optimisation of information and communication flow between the logistic partners with the aim of achieving speed and quality of transferring information necessary for decision-making.
Specialised logistics of individual groups of goods and activities most frequently applied	Logistics of automotive production and distribution Suppliers' logistics Forwarders' logistics Hospital logistics Brewers' logistics
Other logistics specialisations	Logistics of waste disposal, logistics in installation processes, traffic logistics, travelling logistics, etc.

Source: H. J. Schmidt: Logistik Grundlagen, Konzepte, Realisierung, Vieweg und Sohn, Wiesbaden, 1993, p. 3

Changes in a company determine also the behaviour of participants on the market, and they need to be taken into consideration already in the planning phase and in the business operation of a company.

The most important environmental changes directly influencing the business operation include:

- shortening of the product lifecycle (measured now in months rather than in years) and duration and quality of delivery (e.g. fast delivery, quality of delivery, and packaging of the product as elements motivating the customer);
- technological advances, especially information technology (introduction of electronic media and networking within a company as well as connecting with customers and suppliers enabling real-time order processing; virtual offices; EDI, etc.);
- market globalisation (purchase, production and sales develop globally and this requires increasing standardisation in all business areas);
- balance of powers between manufacturers and distributors (it is especially emphasised for consumer

goods including PC market and mobile means of communications);

- increased competition results in the reduction of margins and this requires constant reduction of operational expenses.

All these changes, and especially the last one mentioned, were the cause for the introduction of a logistic method of management as a possible way of reducing the overall operational expenses. The strategic significance of introducing the logistic method of managing business processes in a company, results from the systemic approach. The systemic elements of logistics are people, goods and information, and the logistic systems can be defined according to Pfohl (7) as systems of transformation of goods in space and time, which needs to be understood as a combination of processes of movement (transport) and processes of waiting (storage). Acknowledgement of the objectives of the whole (system) directly affects the decision-making at the level of subsystems (business logistics elements) and contributes to avoiding sub-optimal singled out

logistic decisions. The goal of the company is to remain competitive on the market, and this can be achieved only by minimising overall costs by installing logistics as part of the company management system.

The strategic significance of logistics may have been best defined by Warren Benis (5) when he said that *marketing is an activity of generating demand, and logistics is an activity of satisfying demand*. Marketing should, therefore, answer the question of what is to be sold, and logistics has to state how this should be done at the lowest total costs and maximum level of customer service.

The implementation of logistics business operation has spread over time worldwide to such an extent that today there is a great number of specialised fields of logistics which have been systematised in the following overview according to the criteria of operating functions, activities, objects and application methods.

The need for intensive connections between the producers, users and service providers in economy, has resulted in creation of new and sophisticated ways of business management according to the criteria of a systemic approach. Table 2 shows that logistics of transport is just one of the fields of logistic management of business processes.

Considering the need to implement the logistic way of management *at a tactical management level* in a company, one understands the contracting between partners, systemic planning, comparison of tasks (regarding liabilities and rights) within logistics, change in logistic plans in accordance with other changes on the market and within the company.

The aim of the logistic management is to achieve maximum integration of working processes regardless of the functional positions of certain parts of these processes. Since, apart from the physical distribution that has already been mentioned, the most important facilities for logistic realisation of distribution are warehouses, the factors affecting the location of warehouses will be explained a little in continuation.

The traditional goal of every company is to achieve the highest possible value at the lowest costs and minimum time. The need for continuous presence of the product on a selected market is the basis of business success. Many entrepreneurs, immediately when they appear on the market, want to have an organised distribution on the entire national market. The production and distribution facilities are usually built and opened one next to the other, and the construction of new ones should be based on the results of the analysis of the marginal operational costs. The necessary number of warehouses, that is, distribution centres is determined on the basis of simulations since they depend on many factors, such as the type and features of the product (consumer or industrial goods), partners' demands and capacities, climate, traffic organisation,

own production capacities, engaged capital for each solution, etc. A distribution centre stands for the warehouse which stores products that are part of somebody's distribution system (8). Distribution centres are mostly warehouses between the manufacturer and the retail, especially important for the functioning of the franchise systems and the so-called capillary delivery to the shops. Many retailers tend to minimise their own storage spaces, since these, although necessary for the distribution of products, still represent a cost item. This business policy principle has resulted in the development of the so-called capillary delivery from the manufacturer's distribution centre (for the products that have a high turnover coefficient, e.g. perishable goods for daily consumption, non-alcoholic drinks, etc.), or from the wholesale distribution centre directly into the shops. The delivery dynamics depends on the capacity of the premises of the shop or the catering facility and on the speed of goods consumption.

6. CONCLUSION

In order to be able to speak about the possibilities of balancing the supply of traffic services and the demand through market action, thus establishing an optimal structure of the traffic system, a series of preconditions, i.e. assumptions would have to be ensured. We have already identified a whole number of specific features of the transport market. However, in order to answer the question about the role and possibility of transport market to influence the forming of an optimal structure of the transport system, it is important that the transport market can theoretically correctly be discussed only if individual relations are treated as separate transport markets. This means that the relation between the supply and demand of transport services may be balanced on certain relations, i.e. on certain traffic corridors through laws of transport market.

Considering transport market from the aspect of the already known considerations about the specific features of transport market, we may conclude that it does exist, that it is determined by the characteristics of the transport service production process, and that therefore on such a market the essential preconditions for free competition are absent, since, as already mentioned, there are no basic economic preconditions for free operation of market laws.

The hypothesis of this work was that the criteria of decision-making in companies have changed a lot, that the conditions and methods of operation have also significantly changed due to the technological development. The manufacturers choose location of production according to the criteria of the least expensive labour, since risks of different economic systems have been eliminated by introducing ISO standards

into production. Therefore, the sources of purchasing raw materials, semi-products, finished products and labour have become global.

The result of these changes has been felt gradually, in the form of systemic way of managing business processes, which means in the logistic management method. The role of transport is very important in achieving fast processing of orders, but the intention of this work was to focus on and explain the changed method of evaluating the possible effects in the distribution of an increasing number of products that appear on the market.

It is not easy to find excellent logistic solutions. This process requires great knowledge, a lot of work and money, but it pays off eventually, and this has been also understood by those Croatian entrepreneurs who introduced major changes in the business management some two to three years ago. However, the survey carried out on a sample of 94 Croatian manufacture and trade companies showed that significant changes have been undertaken only by exporters who have had to respond to the fierce competition of the foreign market.

SAŽETAK

POSEBNOSTI PROMETNOG TRŽIŠTA KAO OBILJEŽJA MEĐUODNOSA LOGISTIKE, GLOBALNE DISTRIBUCIJE I PROMETA

Ako želimo sagledati ulogu prometa kao nositelja održivog razvitka gospodarstva, onda zasigurno moramo analizirati i okružje u kojem promet kao sustav djeluje, odnosno sagledati njegove determinante koje su određene specifičnostima prometnog tržišta.

Promet, kao krvotok gospodarstva, mora oslušivati zahtjeve tržišta, mora se transformirati i modernizirati.

Iskustva rada na projektima i istraživanja vezana za organizaciju poslovanja rezultirali su zaključkom da su zahtjevi glede logistike u devedesetim godinama znatno veći nego što je to do tada bio uobičajeni cilj – smanjenje troškova. U želji da se potpuno prilagode zahtjevima tržišta, uz pomoć primjene suvremene informatičke tehnologije, poduzeća primjenjuju logistiku kao oružje konkurentnosti na tržištu. Izvanredna postignuća informatičkih tehnologija, korištenje umjetne stvarnosti (virtual reality) omogućuju poslovnim ljudima komunikacije i ugovaranje poslova bez fizičke prisutnosti. Što je to što neka poduzeća čini uspješnijima od drugih? Očito je riječ o prednostima u realizaciji distribucije jer se danas u svijetu nabavka i prodaja odvijaju globalno. Distribucija proizvoda u pravo vrijeme, na pravo mjesto, po cijeni koja odgovara ponuđaču i

kupcu, na pravi način i u odgovarajućoj količini u marketinškom smislu preduvjet je poslovnog uspjeha kao element poslovne logistike.

Razvoj tog sredstva "oružja" mora se temeljiti na praćenju potreba za logističkim upravljanjem i taktičkoj prilagodljivosti poduzeća. Logističko upravljanje poslovnim procesima mora svojim rješenjem zadovoljiti sadašnje i buduće zahtjeve kupaca da bi poduzeće postiglo konkurentne prednosti.

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