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SIGNIFICANCE OF SUPPLY LOGISTICS IN BIG CITIES

ABSTRACT

The paper considers the concept and importance of supply logistics as element in improving storage, supply and transport of goods in big cities. There is always room for improvements in this segment of economic activities, and therefore continuous optimisation of the cargo flows from the manufacturer to the end user is important. Due to complex requirements in the cargo supply and the "spoiled" end users, modern cities represent great difficulties and a big challenge for the supply organisers. The consumers' needs in big cities have developed over the recent years in such a way that they require supply of goods several times a day at precisely determined times (orders are received by e-mail, and the information transfer is therefore instantaneous). In order to successfully meet the consumers' needs in advanced economic systems, advanced methods of goods supply have been developed and improved, such as "just in time", "door-to-door", and "desk-to-desk". Regular operation of these systems requires supply logistics which includes the total throughput of materials, from receiving the raw materials or reproduction material to the delivery of final products to the end users.

KEY WORDS

supply logistics, , supply and transport of goods in big cities, "door to door", supply chain.

1. INTRODUCTION

In modern economic systems there are only two levels of services from the aspect of the customer, i.e. end user of a certain product: the 100% or 0% service. This fact clearly shows which level of service is expected by the end user in distributing the product to the factories, warehouses, households, etc. In the cities we encounter continuous "generating" of thousands of various requirements for product supply within short times. Optimal organisation of supply is possible only by means of supply logistics, whose role is to control the process of the product flow from the supplier to the customer with the aim of increasing its value on the market at the same time reducing the product supply costs.

2. STORAGE, TRANSPORT AND SUPPLY OF GOODS IN BIG CITIES

Sometimes the products tend to be described (defined) according to their physical forms and characteristics, regardless of their locations. Some concepts consider that only production activities improve the true value of the product. Such interpretation is, however, unacceptable. Serious research clearly shows that, e.g. toothpaste which is located at the storehouse of the Saponia factory in Osijek, does not have the same value for the customer in Zagreb, as the case would be had it been stored in the storehouse of Konzum in the Zagreb district of Dubrava. Naturally, after having transported toothpaste from Osijek to Zagreb, the price increases because of the transport and the necessary handling operations during transportation.

This means that the utility value of the product does not depend only on its quality and quantity, but rather also on whether it is there when it is needed.

This short consideration proves the influence of supply, storage and transport of the product on its utility value, and also on its price. Thus, the greater utility value along with the maximally correct price possible are achieved by optimal organisation of supply, storage and transport of the product.

In order to completely meet the needs of end users, i.e. in order to realise the product supply using "just-in-time" and "desk-to-desk" systems, the supply of products needs to be organised by focusing on the "complete satisfaction of the customers' desires" - customer value. The focus on customer value means planning and organising of supply in the following manner:

- better (superior quality of service),
- faster (faster reaction, reduction of the necessary time),
- cheaper (optimisation of storage and transport of products),
- closer (establishing of "supply chains").

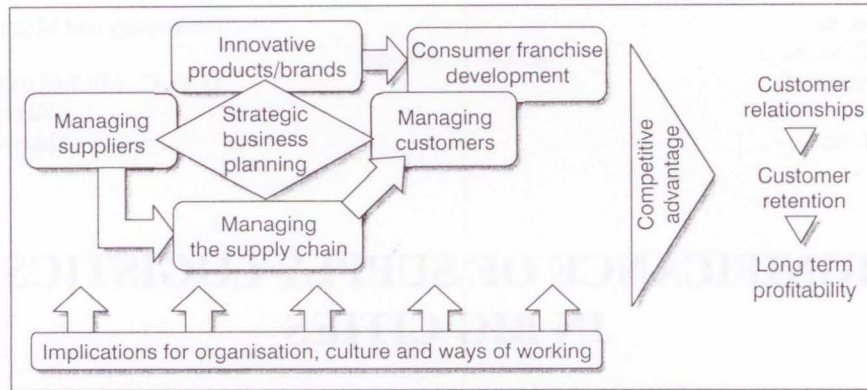


Figure 1 - Organisation of supply chain according to the latest world standard

3. SUPPLY LOGISTICS IN THE OPTIMISATION OF GOODS SUPPLY IN CITIES

Etymologically, logistics can be interpreted in different ways. Today, logistics means, first of all, the ability, efficiency in good organisation of certain resources, i.e. success in good management of resources.

The beginnings of logistics date back to the Roman Empire, when Romans started to apply it in the army. Over the years, logistics has been developing and it has been implemented in an ever-increasing scope of human activities.

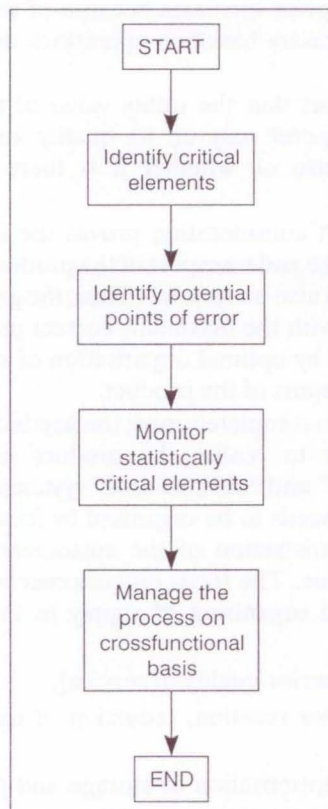


Figure 2 - Flowchart of organising supply logistics

Good quality logistic system includes the total throughput of material, from accepting the raw material or reproduction material to the delivery of final products to end users. This means that storage, distribution and transport of goods represent an important component of the logistic system.

As mentioned in the introduction, thousands of various requirements for product supply over a short period of time are continuously “generated” in the cities. Customers, i.e. end users, make decisions on buying by taking into consideration several “parameters”! These parameters are:

- a) customer buys a product on the basis of its value,
- b) value is the quality with relation to the price,
- c) quality contains attributes that are not expressed through price, these attributes mean the quality and quantity of a certain product, and their utility reflected in its availability to the customer - customer service.

All this shows that the quality, the price and the value are relative.

Optimal supply of products according to the placed order has been achieved if all the customers’ requirements are met. The elements of optimal product supply in compliance with the placed order include:

- delivery on time – “just-in-time”
- delivered contracted quantity,
- correct documentation during job realisation.

In order to achieve optimal product supply according to the placed order, it is necessary to represent the process schematically, i.e. to develop a flow-chart.

Modern industry tends to produce goods for the known customer and in the quantities required by the customer. This, however, is not always possible since there is a need for certain stocks, that is, production for anonymous markets. With such production, the demand is met from stock, and the quantity is determined by comparing the costs of production, storage and transportation. In pharmaceutical industry, there

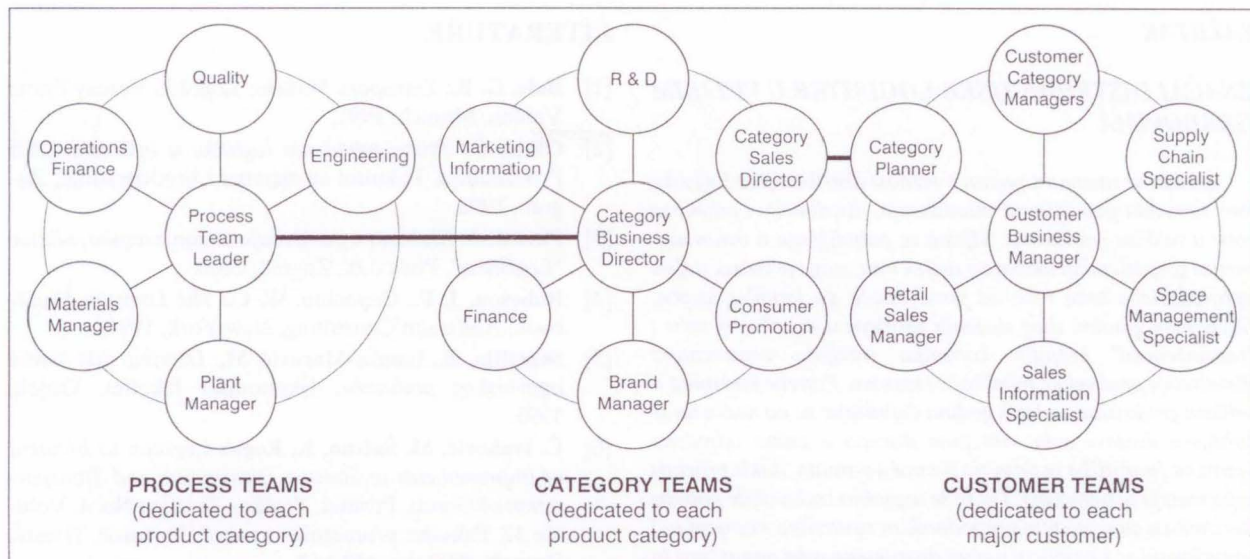


Figure 3 - Organisation of management in modern logistic centres

is a wide range of products of various demand regarding the customers' needs, requiring different stock at certain points of supply. In order to avoid unbalance and excessive stocks, the central control of all the stocks is organised supported by advanced information systems and this results in avoiding excessive stocks. By application of information systems and introduction of minimal safety stocks, empty drives, empty return drives and other costs are eliminated. According to Ihde (p.254), we may add that the totally maintained safety stocks can be reduced based on the predicted demand in the supply system, if the independent stochastic demand is oriented to these centralised points of supply, re-oriented to central stocks. This reduction of safety stocks in case of certain delivery readiness is based on the statistical balancing of random occurrences. The volume of balance effects can be estimated for the random variables x_1 by variant $\text{var}(x_1) = \delta^2$ as difference D between the standard deviation in related and standard deviation in non-related demand.

$$D = \sum_{i=1}^n \sqrt{\text{var}(x_i)} - \sqrt{\text{var}(y_n)}$$

where $y_n = x_1 + x_2 + x_3 + \dots + x_n$ is a series of random variables of demand. This means that with the greater dispersion of stochastic demand over several supply points, the number of taking over per stock decreases, thus increasing its uncertainty, that is, dispersion, and the safety stocks have to be increased.

4. CONCLUSION

We can therefore, conclude that logistics is very important in improving all the human activities. For

instance, in the Netherlands, in weekly purchase of household goods, a logistic approach can be seen.

On the contrary, logistics is not sufficiently present in Croatia. Apart from several companies that use logistics (Pliva, Podravka), other companies do not even "think logistically".

The example of Pliva, doing business according to logistic principles, clearly shows the positive effects of organising business on logistic support. Savings in business operation are great. Therefore, costs of logistics in the operation of the companies in the world are increasing, but the overall costs are significantly reduced. Logistics has justified itself completely in all the aspects of its implementation. It will continue to develop due to the advanced business systems (door-to-door, JIT, in forwarding operations and logistic operation).

According to J.B. Quinn, "strategic focusing" means that a certain company can concentrate on the selected market more than the competition. In the past, it meant owning huge material resources, such as production plants, research laboratories, or supply chains for production support. Today, material resources, even superior products, rarely bring significant advantages. They are easy to avoid, "clone" and even surpass.

Instead, sustainable advantage results from carefully selected human resources, possibilities provided by logistics, knowledge or some other advantages that cannot be copied by the competitors, resulting in higher value for the customer.

It is therefore important to study the logistics in our country, in order to educate and train staff who will implement logistics in the economy of Croatia, and thus modernise business and achieve competition of the Croatian companies on the foreign markets.

SAŽETAK

ZNAČAJ DISTRIBUCIJSKE LOGISTIKE U VELIKIM GRADOVIMA

U radu se razmatra pojam i važnost distribucijske logistike kao elementa poboljšanja skladištenja, distribucije i prijevoza robe u velikim gradovima. Mjesta za poboljšanja u ovom segmentu gospodarskih aktivnosti uvijek ima, stoga je važna stalna optimalizacija toka robe od proizvođača do krajnjeg kupca. Suvremeni gradovi zbog složenih zahtjeva u distribuciji robe i "razmaženosti" krajnjih korisnika stavljaju organizatore distribucije pred velike poteškoće i izazove. Potrebe korisnika u velikim gradovima zadnjih godina definirane su na način da se zahtijeva dostava robe više puta dnevno u točno određena vremena (narudžbe se primaju pomoću e-maila, dakle prijenos informacija je trenutna). Da bi se uspješno zadovoljile potrebe korisnika u suvremenim gospodarskim sustavima razvijeni su i usavršavaju se suvremeni načini distribucija robe poput "just in time", "door to door" i "desk to desk"! Za pravilno "funkcioniranje" ovih sustava potrebna je distribucijska logistika koja uključuje ukupni protok materijala, od primanja sirovine ili reprodukcijskog materijala do isporuke gotovih proizvoda krajnjim korisnicima.

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