IDENTIFICATION OF THE DISTRIBUTION STRUCTURE IN CHOSEN METALLURGICAL ENTERPRISE

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Abstract

The paper presents the identification of the distribution structure in the logistic system of an enterprise, while considering the analysis of distribution channels used in business practice and the analysis of the sphere of strategic assumptions for the distribution system. The area of empirical studies covered one of the Silesian metallurgical companies. Currently, in the market of metallurgical products being sold by the selected metallurgical enterprise there is a wide range of agents active. At the same time, the channels are set up rather incoherently and randomly; in particular, there are no clearly defined functions of individual links. Therefore, products are distributed ineffectively from the point of view of the customer, who not always knows which link he should use in order to satisfy his needs. On the basis of the analysis of literature data, interviews carried out in the enterprise, the examination of the enterprise's internal materials, as well as based on the available information on the metallurgical market and distribution processes, changes in the distribution channels are proposed in the paper. The principles of functioning of the distribution system in the selected business entity have also been identified, with particular regard to the possibilities in the area of distribution systems of the push and pull types. The proposed guidance for selecting distribution channels and functioning of the distribution system can be included in strategic decisions made in the enterprise and be reflected in achieved economic results.

Keywords: distribution, distribution structure, distribution channel, distribution system, distribution strategy

1. INTRODUCTION

Distribution is regarded as one of the most important links in the logistic system of enterprises by many authors, including E. Golembska [1], A. Harrison and R. van Hoek [2], D. Kisperska-Moron and S. Krzyzaniak [3], A. Rushton, P. Croucher, P. Baker [4]. First of all, emphasis is placed on the core of the distribution system, which results from its basic purpose, namely to ensure the availability of the product for the customer according to his preferences. Efficiently conducted distribution processes should lead to the assurance of a high level of logistic customer service, while ensuring relatively low logistics costs, thus contributing to increasing the profitability of sales and gaining a competitive advantage in the market.

In the logistic system of an enterprise, distribution is identified with the process of planning, organizing and controlling the flows of goods and related information, whose task is to provide the correct goods in terms of type, quantity and quality to the right place, at the right time and at the lowest possible cost [5]. The subject of distribution processes is therefore to move raw materials and finished goods to the places of their manufacture or production, and to the user or consumer.

As part of the distribution, two main decision-making problems should be indicated, namely:

- determination of the appropriate distribution channels, and
- determination of the area of strategic assumptions for the distribution system.

According to the majority of authors, it is the determination of the distribution channels and the physical area for the distribution system, along with the consideration of the strategic assumptions, that provide a basis for establishing the distribution structure, whose main task is to provide a resource in the location and time-frame

as dictated by the needs and requirements of customers [6]. In such a case, decisions about the choice of distribution channels, the locations and methods of deliveries and sales and distribution system operation are among the strategic decisions taken in the company, and are reflected in achieved economic results [7].

The aim of this article is to identify the structure of the distribution system within the logistics system of an enterprise, including the analysis of distribution channels used in business practice and the analysis of the sphere of strategic assumptions for the distribution system. The scope of empirical research covered one of the Silesian metallurgical companies.

2. IDENTIFICATION OF DISTRIBUTION CHANNELS

Distribution processes run within varied distribution channels, and their implementation in business practice has been analyzed on the example of a metallurgical company located in Silesia (Poland). The company supplies cold-rolled products and sheets to various processing and construction industries, both in the Polish and foreign markets. A small percentage of the entity's selling markets are also individual customers. The company's products are manufactured by three plants: a cold-rolled product plant, a sheet plant and a processing plant. To ensure the continuity of the supplies of raw-materials, such as scrap for steel production, and to enable the quick receipt of finished products by customers, the involvement of the metallurgical company's logistics department, which supervises the logistics processes, is necessary. The Steel Mill's main logistic department consists of a technical, materials management and raw-material warehouse; a finished goods and shipping warehouse; a scrap processing and management department; a rail transport and logistics department; a logistics maintenance department; a preparation & coordination and shipping department; and logistic maintenance managers.

The distribution channels form a network of relatively stable links and commitments of the company with respect to other companies, institutions or individuals [8]. In the metallurgical company under discussion, the distribution of products is effected through distribution channels with the participation of five intermediaries, which include: sales centres, wholesalers, retailers, sales agents and a web portal (see **Fig. 1**).

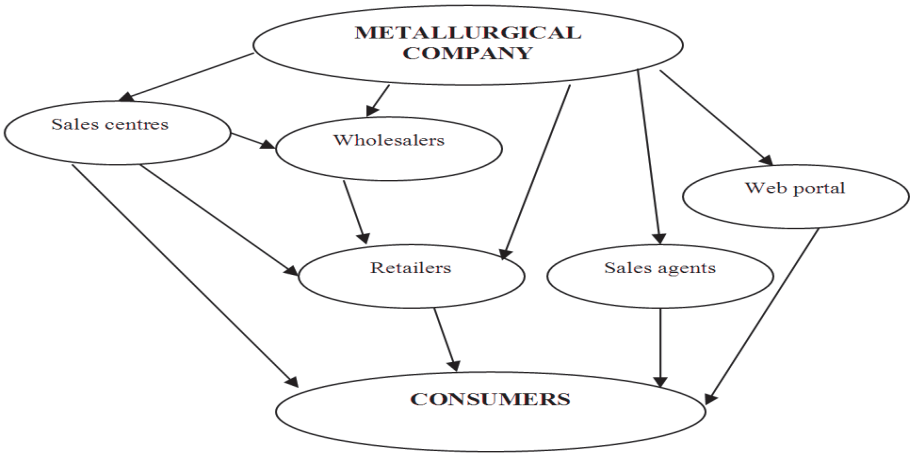

Fig. 1 Distribution channels in the example metallurgical company

If, as the core distribution channel of the discussed metallurgical company, a dealership, i.e. a sales centre, is selected, then the company's active links will make a steel product distribution chain, as presented in **Fig. 2**.

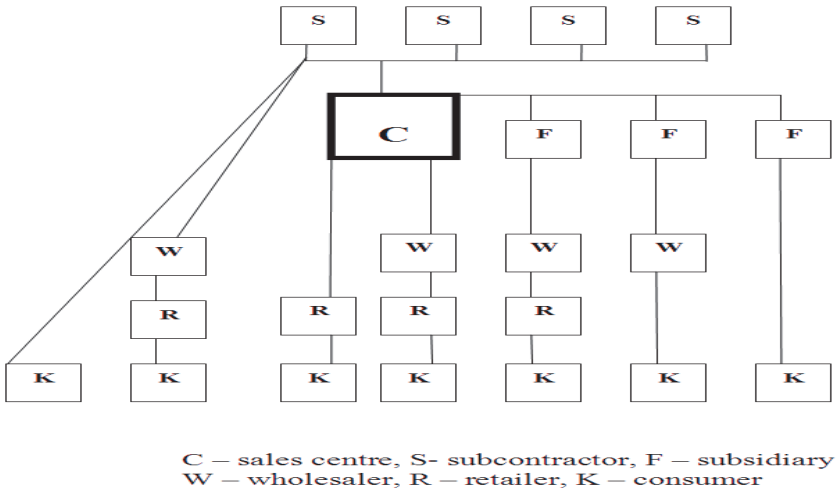

Fig. 2 The distribution chain in the discussed metallurgical company using a sales centre

The distribution chain of the discussed company, illustrated in **Fig. 2**, allows one to notice that the distribution and sales are spreading to different markets, mainly thanks to the subsidiaries set up by the sales centre. Currently, in the market of steel products sold by the metallurgical company in question, there is a wide range of intermediaries. Whereas, distribution channels are created quite inconsistently and randomly; there are no clearly defined functions for particular links. As a consequence, products are distributed inefficiently from the point of view of the customers, who do not always know which link to use to effectively meet their needs. From the analysis of the data on product sales and interviews conducted in the company, as well as from the available information on the metallurgical market and distribution processes, it can be inferred that it would be right to make changes in the distribution channels that will lead to rationalization as a result of their shortening. The situation in the steel product market in Poland is rather poor, and it seems appropriate to make strategic decisions to eliminate unnecessary supply chain participants [9]. The decisions should translate, at the same time, into the elimination of interferences in the information transfer, elimination of ineffective time in the supply chain, and thereby into the reduction of the cost inflating effect. Indeed, this excessive multilevelness of the distribution channel, among other things, often causes needs for maintaining excessively large inventories both at manufacturers, purchasers, as well as at sales entities, and also difficulties in estimating the time of product residence in the supply chain [10]. For these reasons, and because of the increasing customer demands for the extent of product processing, one of the right suggestions is to choose an intermediary, such as a sales centre, which has their own distribution chain available. Such an intermediary would be also helpful in providing additional services related to the processing of product in accordance with the customer's wishes, acting as a service centre. So defined functions of an intermediary offer the possibility of reducing the number of intermediaries, without compromising the fundamental measures of logistic customer service, namely the proper time, reliability, communication and convenience.

3. IDENTIFICATION OF DISTRIBUTION SYSTEMS

When analyzing a distribution system, its complexity resulting from the system's functions should be emphasized. Indicating the essential functions of the distribution system in an enterprise, one should mention both bringing closer and adjusting the supply to the demand under conditions, in which each of the partners derives a benefit, as well as, at the same time, the creation of values [5]. The reduction in the number of intermediaries, who are members of the supply chain, and shortening the time that does not bring about any added value to the customer, involves a tendency to creating distribution systems of the pull type, instead of the traditional push-type systems.

The push strategy means orienting the distribution to the mass purchaser market. This method of distribution is appropriate for a large number of customers buying smaller lots of product. It requires buffers between the manufacturer and the customer. The product is distributed by distributors and retailers. [2]

The pull strategy applies to the sale of product to institutional customers. The product is processed and the demand for it stems from the production cycle and demand for the processor's products. Every event is caused by an impulse in the next link of the supply chain and forces events in the preceding link. The main difference with the method of distribution is the manufacture of product to order. This model uses service centres or direct distribution to the customer [2].

Both the push and pull strategies can be referred to management in the distribution system of metallurgical companies. In the practice of these companies, at the same time, not all distribution channels may be converted to pull-type channels, because this involves costs is not always the best solution. Traditional systems prefer long production series and entail a significant increase in the cost of inventories [10]. If production is massive and is consistent with the existing demand for the product, then distribution through traditional channels does not necessarily mean excessive costs. The issue presents itself differently in the case of production to order, that is specific orders for regular customers, satisfying the conditions for the size of ordered lots and timeliness of payment [11]. In that case, it is possible to create flexible distribution channels strictly according to the customer's wish.

As part of distribution channels in pull and push-type distribution systems, as presented in **Fig. 3** and **Fig. 4**, supply chains can be set up, which will be specific to an individual kind of product and type of purchaser. Each of the chains will be guided by a different distribution system policy; also, organizational solutions will be different. It is therefore necessary to divide the entire metallurgical product range into homogeneous groups (in terms of selected criteria), as well as to make the segmentation of the selling market, while taking into account the difference between individual and institutional customers.

Fig. 3 A distribution channel in a distribution system of the pull type

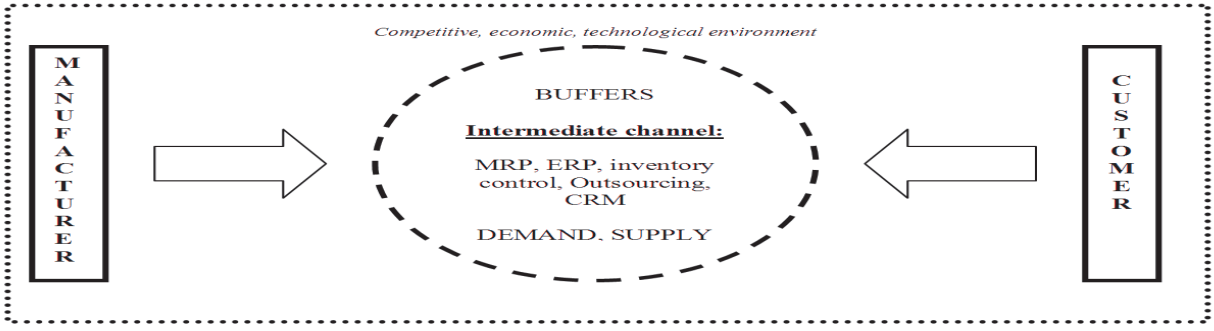

Fig. 4 A distribution channel in a distribution system of the push type

Classifying the examined product to one of the models presented above (**Fig. 3** and **Fig. 4**) requires also the typicality of the contract and cooperation conditions to be taken into account, with the latter being also dependent on whether the customer is regular or not. On the supply side, it is necessary to examine the structure of the production programme, the type of manufacturing process, and the type of production organization. The broadness of the production programme means the variety of offered products and the customization of production. This means that wishing to maintain their competitive edge, companies are nowadays increasingly forced to take into account the individual needs of their customers [7]. The more capable the production program to produce to individual orders, the more the pull-type channel can be used. At that case, the degree of complexity of logistic decision-making situations is higher. If production oriented to an anonymous customer prevails, the channel will be oriented to the warehouse and the market, so the push channel will be used. Unit production and production to an individual order correspond to factory production, while direct-line production is most commonly used in warehouse production and in multiple production (series and mass production), for which the push channel will be used. When choosing a distribution system, especially in the case of the pull channel, different kinds of restrictions resulting from the manufacturing technology, such as those associated with the minimum delivery batch, are important.

A company's distribution system, as one of its most important resources, is prone to changes occurring in the environment. For each of the models in **Fig. 3** and **Fig. 4**, the influence of individual factors from the company's environment will be different. For the pull channel, where the main control point is the customer, limitations related to the demand and the competitive environment seem more important. The push channel, where the control point is the manufacturer, must be considered chiefly from the point of view of the technology available in the market. On the other hand, economic constraints have a significant influence on all models [11].

The above-mentioned relationships exhibit differences, which also contribute to the diversity of information flows. It is therefore necessary to consider IT assistance to either of the variants individually. In the pull distribution system, IT systems should be oriented to the smooth transfer of orders and the constant contact with the customer. Just In Time and MRP systems, as well as systemic tools oriented to cooperation with the CRM-class environment will be applicable here. These systems are designed to acquire current information about the customer and the company's environment, as well as to make available all the data on the previous co-operation with the customer for the optimal customer service [12]. For the push distribution system, ERP-type inventory control systems, optimal inventory level development methods, buffer allocation and supply chain management systems will be appropriate.

As the pull systems are based on JIT, then in the case of direct channels it is necessary to create buffers. Companies cooperating with the metallurgical company under discussion conclude appropriate contracts. Immediately after going out of production, metallurgical products are loaded on either the customer's or the forwarder's means of transport then unloaded only at the point specified by the customer. Most often, these are the warehouses of the contracting company [13]. The intensity of distribution determines here the use of distributors' subsidiaries, as well as making the decision of whether it is more advantageous to deliver the product to a retailer or to sell it exclusively through sales centres. When choosing the pull system, the question arises whether it is worthwhile to take into account wholesalers in the channel structure [8]. It should rather be assumed that with the present development of information technology, the Internet and the storage automation technology, the existing functions of a steel product warehouse can taken over by the sales centre. It can be used to conduct both wholesale, as well as retail sale (in the manufacturer's retail shops), and also utilized as an interface in selling through retail outlets. It fulfils the essential function of a buffer in this line of agency through packaging or consolidation. It is furnished with specialized equipment for packaging, whereby the purchaser receives the product fully conforming to the specified need [14].

CONCLUSION

The formation of the structure of the distribution system depends primarily on the performed functions, the selection of distribution channel participants, tasks set for individual intermediary links in the distribution process, and the area of strategic assumptions for the distribution system. In enterprises, distribution structures are formed in various ways; however, in each case they have to be tailored to the specific operation conditions and to objectives set up to be achieved.

Based on the observation of the current conditions of operation of metallurgical enterprises, the foregoing discussions and interviews conducted in the discussed metallurgical company, some guidelines for the correct structure of distribution of metallurgical products can be proposed. The products offered by the company under discussion are partially processed products, which means that they are subject to further processing both at the level of the manufacturer itself, that is the company in question, as well as at lower levels, e.g. in a sales centre. The company's customers are mainly enterprises from the construction and processing industries, and a small group of individual purchasers, therefore the production should be conducted to order, using buffers only to a small extent. Hence, the right distribution strategy for the discussed entity seems to be the pull strategy. Utilized distribution channels should not use so many intermediaries, as this might cause disturbances of information flows in the supply chain, hinder the response to market changes, or lengthen the time of the delivery cycle. At the same time, the company should also limit itself to its own distribution chain [15]. Intermediaries should be selected from among distribution companies that have their own distribution chain available and offer additional services, which will make it possible to set up a service centre out of the distributor.

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