

FLAGSHIP FIRMS OF DISTRIBUTION NETWORKS- THEIR ATTRIBUTES AND THE CONFIGURATION OF RESOURCES

Marzena KRAMARZ, Włodzimierz KRAMARZ

Politechnika Śląska, Gliwice, Poland, EU, makram5@wp.pl, wkramarz@op.pl

Abstract

The presentation of network supply chains, proposed in the article, indicates a new exploratory area which is the role of flagship enterprises and their strategy in distribution networks with postponed production. In the article we selected the key attributes of resources of a distribution enterprise and we studied relationships between them.

Keywords: Flagship firm, distribution network, postponed production, resources

1. INTRODUCTION

The complexity of processes in logistic and production systems requires distinguishing subjects which take over tasks of their co-ordination. In networks of co-operating enterprises, the role of co-ordinators of processes is taken over by flagship firms. A flagship firm combines its own and foreign specialized resources and competences for a definite time or in order to realize a definite activity.

The possibilities of cooperation of enterprises in a distribution sector are varied in individual lines of business, however, many recent publications have stressed their role in the growth of innovativeness, adaptiveness and even in the realization of the anticipatory strategy. The authors have analysed factors characterizing the model of a flagship firm and made an attempt to construct a criterion for distinguishing such subjects in the metallurgic products distribution network. It is both a theoretical and practical problem. The metallurgic products distribution sector evolves towards decreasing the number of enterprises. At the same time, specialization of each subject can be clearly observed. Thus there is a constant evolution of the roles of particular participants of the network, their market position and the bargain power in supply chains.

The research involved three main stages:

1. selecting the attributes of flagship firms in distribution networks with postponed production
 - a) necessary attributes - distinguishing flagship firms from among the group of distributors of metallurgic products
 - b) sufficient attributes - developing the coefficient of the strength of the flagship firm in the network, composed of attributes allowing the enterprise to compete with other flagship distributors
2. selecting the attributes of material resources and relational resources
3. investigating the significance of relationships between the integrator's force and the attributes of material resources and the network which is shaped by it.

2. MODELS OF ENTERPRISES IN NETWORKS

Enterprises cooperating in distribution networks depending on the adopted strategy and the bargaining power, take different roles. The special meaning is that of the focal position of the leading enterprise in a given network. The flagship unit concentrates on the key competences and the management of relations in the network. The idea of a flagship firm was explained in publications by J.R. D'Cruz and A.M. Rugan (1997,

2000). These authors defined the central enterprises in a network as leaders of vertically integrated business networks. Other authors defining the flagship firm define it as "the heart of the network" [2] or as "taking a strategically central position" [3]. With reference to the publications by J.R. D'Cruz and A.M. Rugan, such enterprises are predisposed and entitled to: coordinating networks, taking the position of a strategic leader of a network in relation to other members of networks (which means formulating a strategy for the network and supervising the implementation of the strategy by the remaining members of the network).

The literature considering the problems of networks of cooperating organizations mentions three strategic models of enterprises: the operator, the integrator and the conductor. A characteristic feature of the operator model is the concentration of the enterprise on key processes of the business. The operator realizes narrowly understood activities in the value chain. The characteristics of this subject is well established on the market of logistic enterprises [4]. The integrator takes over the responsibility for the entire value chain. This type of a subject is distinguished in mature sectors and is built by enterprises having already a strong position in a supply chain. Moreover, numerous publications stress that an essential element of this model is the possibility of controlling and intercepting the value added created in the technological string: supply - production - distribution [5,6,7]. However, W. Czakon (2010) claims that the integrator shapes the capital ties to a greater extent, and the relational and transactional ties to a smaller extent than other models of enterprises. Thanks to the position in a supply chain the integrator is not selective as regards the realized activities. So, the key discriminant of this model is the quantity of different processes realized in a value chain.

Conductor undertakes a conscious choice of concentration on the role of the coordinator of activities of many different operators focusing on the effectivity of the activity of the entire value chain by means of flexible selection of mechanisms of co-ordination. Janssen M., Feenstra R. (2010) claim that the orchestration of activities included in the business network of an organization comes down to creating temporary chains oriented on manufacturing of a product, as a "virtual" pool of resources and competences which are used for realization of an order.

The diversified roles of enterprises characterized with the models of the conductor, the operator, the integrator are shown in Table 1.

Table 1 The characteristics of roles of the operator, the integrator and the conductor in a network

	Operator	Integrator	Conductor (Orchestrator)
Coordination		+++	+++++
Integration	+	+++++	
Network creation	++	+++++	++
Selection of partners	++	+++++	++
Monitoring		+++	+++++
Maintaining the cohesion of the network structure	+	++++	+++++
Assignment of tasks to partners of the network according to their competences	++	+++++	++++
Creating the identity and the organizational culture	+	+++++	++
Settling transactions with customers and partners of the network	++++	+++++	

Source: The authors' study

With reference to the characteristics of business models and the management roles according to Mitzberg, certain features of enterprises, defining the flagship firm in distribution networks, were symbolically adopted: differentiation of processes in the value added stream, considerable market share according to the flow of final goods, diverse segments of recipients, a wide geographical range.

These attributes ensure a strong dominating position of the distributor in the network, providing it with authorizations and competences of the organization of the network (selection of participants, creating the

organizational identity and culture, settling transactions with customers and partners in the network, allocation of tasks and maintaining the cohesion of the network structure).

The model of the flagship firm of a distribution network comprises elements of the models of the integrator and the conductor [9,11]. The flagship firm of a network is not understood here as an independent organization concentrating exclusively on flow steering in the network. The subject defined in this way is the coordinator which fulfils its role in regional networks. In business networks the role of the flagship firm gets results from its strong market position, translating both into the interpersonal role and the decision-making role in the network. The information role is secondary and depends on the manner of organization of the network by the central enterprise. The flagship firm of a distribution network, as a leader, chooses its cooperators, settles the rules of cooperation and shapes the attitudes of cooperators, as the integrator shapes the level of integration (undertakes decisions about the degree of the integration of processes in the value added stream) and simultaneously possessing its own material resources essential for the realization of production and logistic processes and building network relations in order to gain additional resources from cooperators is an originator, a regulator (corrects the course of processes in the environment the moment any disturbances occur, and creates conditions for cooperation), a negotiator and at the same time a disposer (allocates available internal resources and distributes tasks and assigns authorizations and responsibilities to cooperators).

3. THE ATTRIBUTES OF RESOURCES ENABLING REALIZATION OF THE STRATEGY OF THE FLAGSHIP FIRM OF A DISTRIBUTION NETWORK

The flagship firms of distribution networks, when building their competitive strategy, choose material resources and form different types of interorganizational relations. Consequently, analysing the model of a flagship firm the authors supplemented the analysis by the configuration of material resources which include warehouses together with the infrastructure essential for the realization of tasks of postponed production. At the same time, it was assumed that these resources could be the property of the flagship firm or they can be gained from partners in the network (**Fig. 1**). In order to assess the influence of the resources configuration on the strength of the flagship firm in a distribution network the authors proposed the attributes of material resources and the attributes of a network built for the needs of gaining resources.

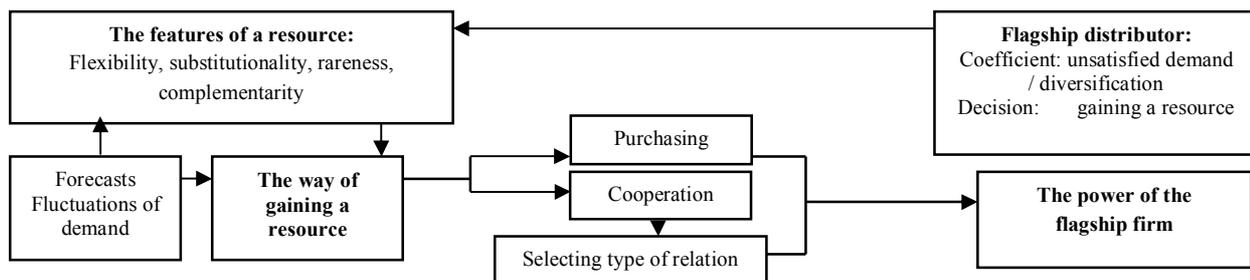


Fig. 1 Strategic supply decisions of the flagship firm of a distribution network

Source: The authors' study.

Among the attributes of resources the authors took into account:

- Rareness [11],
- complementarity and substitutionality,
- flexibility (universality) and specialization (dedicatedness) of resources [12,13].

The selection of attributes was preceded by an analysis of the literature on management in the supply theory of the organization.

The attributes of a network shaped by the flagship firm were adjusted to the specificity of a distribution network. The features characterizing a distribution network include:

- types of participants forming a distribution network and the number of different types of participants (the degree of differentiation of a network)[9]
- types of interorganizational relations between the flagship firm and other participants of a distribution network [9,14]
- the motives for establishing network relations and the number of different motives for establishing network relations (the degree of the complexity network) [9,15].

Moreover, extending the attributes of networks built by the flagship distributor in the research model, other items taken into account are types of cooperators, substitutability and complementarity of resources gained through the cooperation.

4. THE ATTRIBUTES AND THE STRENGTH OF THE FLAGSHIP DISTRIBUTOR OF METALLURGIC PRODUCTS

The features characterizing a supply chain of metallurgic products, including especially the realization on the level of the distribution of the strategy of postponed production, affected the expansion of necessary attributes (Proc_sum - realization of logistic processes (warehousing, organization of transport), realization of processes of postponed production, Miejsce_TLR - significant market share in respect of the turnover of metallurgic products according to tonnage, estimated according to the ranking list of distributors of metallurgic products, Zasięg_dz_P - geographical range of served markets, at least national one, Wlasna_siec - possession of the own distribution network (regional warehouses, branches), Miejsce_OLR - significant market share in respect of the turnover with metallurgic products in respect of value, according to the ranking list of distributors of metallurgic products) and sufficient attributes - strength of the flagship firm according to the intensity the features (quantity of different processes realized in the value added stream, number of segments, turnovers of products according to tonnage, Sz_asort - the width of the assortment).

Necessary attributes were used to divide distributional enterprises in a supply network of metallurgic products into two groups: flagship firms and other enterprises. At this stage of the research the discriminatory function was used. According to the research presented in Chapter 2, the flagship firm in a distribution network should be characterized with diverse processes realized in the value added stream (processes connected with reserves, organization of transport processes, diversification of processes in the area of postponed production), should provide services for diverse groups of recipients, and provide a diverse assortment, assuring a large capacity of its own distribution network built through a suitable location of warehouses and creation of regional distributional branches increasing the penetration of the market which consequently translates into the stream of flowing products from a tonnage perspective as well as assuring high turnovers of the enterprise. Simultaneously the authors took into account two looks at the market share of distributional enterprises: according to tonnage and according to value. The first approach stresses the logistic meaning of the flagship firm in a distribution network whereas the second approach takes into account processes of postponed production enabling an increase in the value added at the distribution stage.

The discriminatory analysis aimed at checking which from the mentioned variables has the greatest power of dividing the group into flagship distributors and other enterprises. Consequently, it was determined which from the variables has the greatest power of distinguishing flagship units of networks from the group of

distributional enterprises. These variables are the range of the activity of an enterprise (Zas_dz_P) and the turnovers of metallurgic products (Miejsce_OLR).

The coefficient of the strength of the flagship distributor (measured with the intensity of the features) consists of the following attributes: the width of the assortment, the quantity of different processes realized in the value chain, the number of segments to which the products of the flagship distributor were directed, the tonnage of the products flowing through a given enterprise quantitatively within a year, turnovers of metallurgic products qualitatively, the range of the influence of an enterprise.

The coefficient of the strength of the flagship firm is formed by the relative values of sufficient attributes.

$I = (\text{proc_sumar}/\text{maximum number of processes in the value stream}) + (\text{sz_asor}/\text{maximum number of assortments in the data base}) + (\text{ton_il}/\text{maximum tonnage of metallurgic products flowing through distributors within a given year}) + (\text{seg_sum}/\text{maximum number of industries of recipients of metallurgic products})$.

The coefficient takes values in the section of (0,4), where 0 means the lack of attributes of the flagship firm, and 4 means the maximum values of all the attributes. The coefficient of the strength of flagship distributors composed of sufficient attributes indicates further differentiation of enterprises within the class of flagship units. In connection with the above, the authors went on/proceeded to the next stage of research, which was determination of those attributes of material resources and those features of the network shaped by the flagship distributor, which significantly affect its strength.

5. THE STRENGTH OF THE INTEGRATOR IN THE CONTEXT OF THE POSSESSED RESOURCES AND THE SHAPED NETWORK

The second research stage we analysed the influence of the features of resources: the substitutability of the increased potential, the rareness of resources, the flexibility of machines, and the features of networks: types of relations, the number of different motives for establishing cooperation, the substitutability of machines gained from the cooperation, the number of different types of cooperators, on the strength of the flagship firm measured with the coefficient I. Consequently, the research aimed at indicating those elements of the supply strategy of the flagship firm which have an essential influence on its strength in the network.

The research took into account the following groups of variables:

- The features of resources represented by such attributes as: Sub_ZPP - the coefficient of substitutability of resources gained through purchasing (the substitutability of the increased potential), Sel_masz - the coefficient of machine flexibility, Wrzad - the coefficient of rareness of machines.
- The features of networks: Sr_F1 - the relation form - cooperation contract, Sr_F2 - the relation form - informal cooperation, LiczTyp_Mot - the number of motives for establishing cooperation (types of networks), LiczTyp_Koop - the number of types of cooperators, SubMasz - the coefficient of substitutability of resources gained as a result of cooperation.

In the regression analysis the authors used 5 elements of the supply strategy of the flagship firm, including two attributes of resources: the substitutability of increased potential and the coefficient of machine flexibility as well as three attributes of the network shaped by the flagship firm: cooperation F2, the number of different motives for establishing cooperation and the substitutability of increased potential through cooperation. Because of their strong correlation, other variables were not taken into account in the analysis. In consideration of all the analysed attributes the regression coefficient (Corrected R²) indicates that in 83 % they explain the strength of the flagship firm. The first step of the regression analysis clearly shows two components of the supply strategy which most strongly affect the strength of the flagship firm and which in 79 % explain the intensity of the features of the flagship distributor (substitutability of increased potential and the number of motives building network relations).

The detailed conclusions from this stage of research reveal that the independent variables: the rareness of machines and the number of different types of cooperators, the number of different types of cooperators and the number of different types of motives are considerably correlated. As results from the carried out research, in the metallurgic industry, the more general resources are possessed by the flagship distributor the more relations with different cooperators it builds, so the coefficient of the rareness of resources decides directly about the network of the flagship distributor. On the other hand, the correlation analysis showed that together with the growth of the differentiation of the motives for cooperation, and consequently different types networks including, the more different types of participants is included in the network by the flagship distributor.

The correlation analysis also indicated a significant relationship between the variables characterizing resources gained from cooperation and the types of relations: the coefficient of substitutability of machines gained as a result of cooperation is correlated both with the form of formal and informal cooperation whereas a stronger correlation appears in informal than formal cooperation. Therefore it can be stated that flagship distributors, wanting to gain resources which are to increase the productive powers and/or the capacity of warehouses, would more often build informal relations (the increase of the substitutability of gained machines attracts informal cooperation more strongly) with rival enterprises (possessing substitution resources compared with the flagship firm). However, as regards the need of gaining complementary resources from cooperators, widening the possibilities of creating the value added, flagship distributors undertake decisions to formalize their cooperation and conclude different types of cooperation contracts (the complementarity of gained machines involves formal cooperation more strongly).

After reducing the variables due to the correlation between them, the key variables in the regression analysis, decisive about the strength of the flagship distributor are the substitutability of increased potential whose increase reduces the intensity the features of the flagship firm and the number of various types of motives which enlarges the intensity the features of the flagship unit. The coefficient of multiple correlation R in the model explaining the strength of the flagship distributor is as high as 0.91, the determination coefficient R^2 is 0.83, which means that the intensity the features of the integrator in more than 83% is explained by given features of networks and attributes of resources. The coefficient of the intensity of features of the flagship distributor indicates two variables: the substitutability of increased potential and the number of different types of motives which in more than 79 % explain the strength of the flagship firm. The regression model has a large predictive value, which is also indicated by the analysis of residues.

The most important conclusion flowing from this part of the research is stating that the strength of the flagship distributor is the greater the more the distributor observes the following rules: it invests in complementary resources, substitution resources, gaining more often through cooperation, yet gaining resources through cooperation; it creates formal ties in the form of cooperation contracts more often for complementary resources than for substitution resources whereas it gains substitution resources more often through informal cooperation. The obtained results also confirm the tendencies indicated in the literature (Schweizer L. (2005), Czakon W. 2010) for central enterprises to emerge in mature sectors; the prevailing features of those enterprises are attributes of the integrator model of the network.

6. CONCLUSIONS

The strength of the flagship firm of a distribution network results from the configuration of resources being the property of the enterprise and gained from partners in the network (described by means of the proposed attributes of resources and networks) and its competences and skills of formation of interorganizational relations and selection of partners. Therefore, the strength of the flagship firm of a distribution network will be determined by the rational selection of resources and the skill of their utilization and not maximization of the owner's state of resources.

The components of the strategy of the flagship firm in a distribution network with postponed production were considerably related with the intensity of the features characterizing the model of the flagship firm of a distribution network (the strength of the flagship distributor) of metallurgic products. So, the selection of material resources and the features of the shaped network allow the flagship distributor to adapt itself to market changes and efficiently compete with other distributors.

Flagship firms of a distribution network integrate processes in a smaller range than the integrator of the supply chain, but they build network relations wider through neutral and mixed networks.

LITERATURE

- [1] D'CRUZ J.R., RUGMAN A.M. *Multinationals as flagship firms: regional business networks*, Oxford University Press, Oxford 2000.
- [2] ERNST D., KIM L. Global production networks, knowledge diffusion and local capability formation, *Research Policy* 31, p. 1417 - 1429.
- [3] LAZERSON M., LORENZONI G. Resisting organizational inertia: The evolution of industrial districts, *Journal of Management and Governance* 3, p.381-377.
- [4] CZAKON W. Model biznesu operatora a orkiestracja sieci, [w:] Pyka J. (red.): *Nowoczesność przemysłu i usług. Modele, metody i narzędzia zarządzania organizacjami*, TNOiK, Katowice 2010.
- [5] SCHWEIZER L. Concept and evolution of the business models, *Journal of General Management*, Vol. 31, No. 2, 2005, p. 31-56.
- [6] BRZÓSKA J. *Modele strategiczne przedsiębiorstw energetycznych*, Wydawnictwo Politechniki Śląskiej, Gliwice 2007.
- [7] AFUAH A. *Business models. A Strategic Management Approach*, McGraw - Hill Irwin, 2004, p. 9-10.
- [8] JANSSEN M., FEENSTRA R. Service portfolios for supply chain composition: Creating business network interoperability and agility, *International Journal of Computer Integrated Manufacturing*, Vol. 23, No. 8-9, 2010, p. 747-757.
- [9] KRAMARZ M. *Strategie adaptacyjne przedsiębiorstw flagowych sieci dystrybucji z odroczonej produkcją. Dystrybucja wyrobów hutniczych*, Wydawnictwo Politechniki Śląskiej, Gliwice 2012
- [10] ANAND K., GIROTRA K. The strategic perils of delayed differentiation, *Management Science*, Vol. 53(5), 2007, p. 697-712.
- [11] BARNEY J. Firm resources and sustained competitive advantage, *Journal of Management*, No. 17(1), 1991, p. 99-120.
- [12] LENORT R., WICHER P. Agile versus resilient supply chains: commonalities and differences, CLC 2012
- [13] BUCKLEY A. Valuing Tactical and Strategic Flexibility, *Journal of General Management*, Vol. 22, No. 3, 1997.
- [14] ŻEBRUCKI Z. *Badania form partnerstwa logistycznego między przedsiębiorstwami*, Wydawnictwo Politechniki Śląskiej, Gliwice 2012
- [15] SANIUK A., WITKOWSKI K., SANIUK S. Management of production orders in metalworking production, *22nd International Conference on Metallurgy and Materials - METAL 2013*, TANGER, Czech Republic, Brno 2013, s. [6] CD-ROM, ISBN: 978-80-87294-39-0.