STRATEGIC MANAGERIAL IMPLICATIONS OF SUPPLIER SEGMENTATION IN THE CURRENT COMPETITIVE ENVIRONMENT

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ABSTRACT
Supplier segmentation represents now a strategic approach for companies with a great number of suppliers. Rather than dealing with each supplier separately, the buyer can establish a set of rules for interacting with each set of suppliers. But the segmentation and assignment of each supplier to a different group might not turn into an easy task. The fact that must retain the attention of buying specialists is that these kind of tools, whether simple or more complicated, are now at hand for everybody and, if they don't have the means to recur to a more complicated method, they can always use the principle laying at the basis of these approaches and design a method of their own.

KEYWORDS: *supplier segmentation, supplier evalution, fuzzy logic method, ABC method*

JEL CLASSIFICATION: *L11, L22, M11, M2*

1. INTRODUCTION

In a very competitive and global business environment, the success of a company is driven directly from its capacity to create value, and does not involve only the production and selling and promoting capacities. The activity of a company implies developing relationships not only with the consumers, but also with the important suppliers or the resellers, all these becoming part of the value chain (Kotler, 2004). This chain brings together the partners from upstream but also from the downstream of the production activity.
Companies face today conditions of highly turbulent environments, rapid technology turnover, market restructuring and globalization (Wagner & Johnson, 2004). All these challenges force them to bring change into the organization, from the sales department to the supply chain system. New business models are emerging and old ones are redefined to fit the new challenges of the market (Grigore, 2012).
The development of highly technological products and the use of high technology in the process of production lead to a raise of costs for the companies. One solution for these companies, and more and more referred to, is outsourcing. The costs are, thus, transferred to the supplier, who specializes in a narrow area of activity and makes profit by supplying to several companies. The increasing use of logistics information systems helps the companies manage more easily the cooperation with the suppliers, sharing information and knowledge offers the chance to develop a collaborative logistics and supply chain strategies in order to break the asymmetric barriers of the markets or of a particular industry (Imeri, 2012).
Because of outsourcing, companies face the challenge of dealing with an increasing number of suppliers and feel the need to invest in supplier relationships, especially when the value gained from interacting in a supply network rests on the principle of prioritizing the right suppliers to work with (Day, 2009).

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2. THE NEED FOR SUPPLIER SEGMENTATION

Relationship management is vital for the company's value creation chain and the companies are starting to understand that not all the supplier relationships should be close partnerships. Companies should develop strategic supplier portfolios. The strategic portfolio perspective considers risks, trade-offs and interdependencies between the firm's array of supplier relationships. (Wagner & Johnson, 2004). This perspective will bring differentiation between suppliers in terms of the amount of resources that a company must assign to each partnership or set of suppliers.
The form of supplier relationship is determined by several factors as: information exchange, operational linkages, legal bonds, cooperative norms and buyer/seller adaptations. (Wagner & Johnson, 2004). A lot of supplier relationships are based on the accumulation of rents, as complementary skills, technologies and know-how are brought together synergistically (Day, 2009). When building a supplier portfolio, a company is trying to manage the sources of risk that might imply from the interaction with the suppliers. Thus, the companies try to manage risk by reducing dependence on suppliers that could negatively impact cost, quality, or delivery rentability (Day, 2009).
The classical approach of many firms (suppliers) presupposes concentrating on public relations, trying to identify precisely their needs and to satisfy them as well as possible. They spend a considerable energy to understand the clients' reasoning on each segment, to anticipate their needs and the future tendencies on the market. In the same time, a detailed study is necessary to clarify the relationship with the competitors, analyzing the competitive advantages that permit a firm to differentiate from other and to defend from competitors (Deac & Cârstea & Bâgu & Pîrvu, 2010). Differentiation means promoting a product on the market, that the consumer perceives to be unique, referencing certain criteria that are vital for the product. The most commonly used methods of differentiation are: (Cârstea & Deac & Podgoreanu & Popa, 2002): (1) product quality, (2) brand image [a strong and positive brand offers a crucial competitive advantage (Popescu, 2011) (3) the after-sales services. It can be distinguished the following differentiation factors: (1) election strategy and general policy, which take into account the quality of offered products and services and used resources; (2) entry on the market (the existence of a company on the market for a longer time can create an advantage – notoriety, fame), (3) the area where the organization is located; (4) the diversity and size of activities that the company conducts.
There are several theories used in the approach of the supplier categorization. One which is most widely used is the transaction cost economics (TCE), describing the structuring of relationships based on the fact that the companies activate in imperfect market conditions and asymmetric power structures. (Day, 2009). Another theory is proposed by Porter (1980), and it asseses the nature of the supplier's power in the industry in comparison to the buyer, who must think its strategy through market positioning. Another theory, that brings more insight into the fact that the companies that interact in supplier-buyer relationships can create more value by depending on each other, is the inter-organizational theory.

3. METHODS OF SUPPLIER SEGMENTATION

A strategic supplier portfolio involves not only the company's relationships with its suppliers but also a much more deliberate approach. The goal of such a portfolio is to manage risks and optimize returns and is structured according to factors identified by the firm as important to sustainable competitive advantage, superior economic performance, or both. (Wagner &Johnson, 2004). The company will pay more importance to the suppliers with which dependencies and interdependencies occur, in order to minimize the supplier default risk. Other factors with implications on creating a supplier portfolio can be the limited number of suppliers, a specific number of suppliers with certain certifications, like the ISO 9000, the regional display of the suppliers.

The management of the supplier portfolio activities includes planning, implementing and monitoring of the supplier relationships, starting with the segmentation of the suppliers. There are several methods of supplier segmentation, some of them more used and thus, more likely to bring value to the company that uses them. Supplier segmentation represents a step between supplier selection and supplier relationship management, and helps determine distinct groups of suppliers based on their similarities. (Rezaei & Ortt, 2013)

3.1 The automotive industry example

One of the first industries that used the supplier segmentation strategy was the automotive industry. The automotive industry has always been among the first industries to develop and implement new methods for a more efficient supply chain system, as its manufacturers have to work with a large number of suppliers. Shortly after the second world war the automotive manufacturers were very integrated and produced themselves most of the parts they needed, but starting with 1960 , under the increasing pressure of the markets, they started to outsource. (Gorgeu, 1995) Many paradigms introduced by scholars and practitioners with the aim to improve the supply chain management are developed in the automotive industry. (Maleki, 2013)

A group of three professors, Jeffrey H. Dyer, Dong Sung Cho and Wujin Chu, conducted a survey in 1996, which resulted in a paper presenting the supplier segmentation strategies of three main automotive producers: US companies, Japanese companies and Korean companies. This survey shows that the traditional arm's-length strategy, accepted as the most effective way to manage supplier relationships through minimizing dependence on suppliers and maximizing bargaining power began to lose ground, and that the Japanese model brings more value to the company on the long term.

The survey showed that the US companies, Chrysler, GM and Ford, divided the suppliers between ‚arm's length' and ‚partner' in theory, but in reality their relationships didn't differ much. All the relationships were characterized by: frequent rebidding, low levels of information sharing, and low levels of relation-specific investments and low levels of trust. The only difference between the two sets of suppliers was the duration of the contract, the ‚partner' suppliers got contracts of much longer duration.

In the case of the Japanese automotive producers, Toyota and Nissan, the study identified three types of suppliers. The first set of suppliers were wholly owned suppliers or partly owned affiliates suppliers of the company, being considered as *keiretsu* companies. It's the set of closest suppliers, with whom the company holds a very tight relationship, holding equity stakes in these companies, working with them directly on long-term strategic plans, capital investments and capacity planning, finance and personnel transfer. The second set of suppliers included the companies that delivered customized components, with whom the automaker worked closely due to the high degree of customization and product development interdependence. The third set of suppliers delivered more standardized parts and not customized. The company didn't need to work closely with them.

The Korean model seemed to follow closely the Japanese model, because the Korean suppliers and automakers often have an exclusive relationship with 72 percent of all suppliers working with only one automaker. There is a lot of contact between these companies and these suppliers often made specialized capital investments for the relationship with one automaker. But the Korean model doesn't rely on the strategic supplier segmentation. Both categories of suppliers are managed in a similar manner, the level of relation-specific investments, information sharing, assistance and trust, are not significantly different between the *chaebol* (partner) and non-partner groups of suppliers.

The survey showed that the Japanese model of supplier segmentation benefited in fact from both strategies: arm's length and partner. The automotive producers benefited from the fact that the supplier of standardized elements made scale economies by selling to several buyers and thus, offered attractive prices, but had control over the companies supplying customized products.

The analysis recommends buyers to split the suppliers into two categories: one manufacturing necessary but non-strategic inputs and the other one providing strategic inputs, that may be useful in

differentiating the buying firm's product. For the non-strategic inputs, the buyer should choose the durable arm's-length type of relationship (quasi-market approach) because it minimizes procurement costs, allow suppliers to maximize economies of scale and maintains competition. After a brief assessment of suppliers on a few key criteria, the buyer can select the lowest price supplier. For the strategic inputs, the company must apply to the strategic partnerships, as these inputs require a high degree of coordination between supplier and buyer. The company must chose the right partners and a high level of trust must be established between them.

3.2 The crossed-segmentation matrix

Teodora Roman (2011) identified a method of supplier segmentation that designs a matrix with two coordinates: (1) the risks incurring by the position of the supplier on the market, that can occupy a monopolistic position but who can also run in a very competitive market and (2) the risks incurring by the degree of complexity of the products and services, from very simple to technical and high tech. Thus, the products and services supplied are ranked, the risks can be established and the suppliers can be disposed on an evaluation matrix. Different families with the same degree of risk can be approached similarly. The company can, thus, chose pertinent and limited strategies and have specialized buyers for different sets of similar products.

3.3 The ABC method

A method greatly used by companies is the ABC method, which takes into account factors as volume, suppliers' performance in terms of technology, quality, logistics, or price and supplier's strategic importance. (Wagner & Johnson, 2004) After analyzing the annual purchasing volume, the buyer categorizes the suppliers into three different types: category A accounts for 80% of the total purchasing volume, category B accounts for another 15% of the total volume and category C for the rest of purchasing turnover.

As category A supplies the most important volume of purchasing, the companies try to establish partnerships with these suppliers, as this relationship incurs risks associated with close cooperation and strong dependence on the suppliers. With C suppliers the objective is to reduce purchasing process costs by optimizing sourcing process efficiencies, direct supply strategies or e-procurement.

In the case of the A category, a lot of executives feel the need for supplier development, which can translate into supplier assurance, supplier assistance, supplier sponsoring, supplier advancement, supplier performance improvement, and reverse marketing. (Wagner & Johnson, 2004)

3.4 The fuzzy logic method

The fuzzy logic method can be of great importance for companies having a large number of suppliers, as it makes a connection between the supplier segmentation and supplier selection and development, based on the analysis of two dimensions: supplier capabilities and supplier willingness. (Rezaei & Ortt, 2013)

Fuzzy logic was developed by Lotfi Zadeh in the 1960s and it was a way to model those problems in which imprecise data must be used, and in which there are not just two alternatives but a whole continuum of truth values for logical propositions. (Rojas, 1996) This attempt formalizes two human abilities: the ability to converse, reason and make rational decisions in an environment of imperfect information and the ability to perform a wide variety of physical and mental tasks without using measurements or computations. (Rezaei & Ortt, 2013)

With this method, the company can measure the aggregated degree of supplier capabilities and willingness, by designing fuzzy rule based systems using different set of input and output variables. These variables are analyzed with the help of a fuzzy logic toolbox, and the suppliers receive final scores, which are represented on a matrix. The buyer can, thus, determine which are the suppliers more willing and capable to work with the firm, and the suppliers less willing and capable, who are going to be eliminated from the list.

4. METHODS FOR SUPPLIER EVALUATION AND SELECTION

As the segmentation process leads to the conclusion that the companies should maintain long term partnerships with suppliers and should use fewer but reliable suppliers, the buyers feel the need to evaluate and select the suppliers more thoroughly. This activity means more than evaluating a price list, and the selection will be made using a wide range of factors, quantitative and qualitative.
William Ho (2009) identifies a series of multi criteria decision making approaches for supplier selection: analytic hierarchy process (AHP), analytic network process (ANP), case-based reasoning (CBR), data envelopment analysis (DEA), fuzzy set theory, genetic algorithm (GA), mathematical programming, simple multi-attribute rating technique (SMART). Individual approaches of these methods are mainly used in practice, as integrated approaches may also appear in some cases.
DEA – data envelopment analysis is one of the most employed methods, being a "data oriented" approach for evaluating the performance of a set of peer entities called Decision Making Units (DMUs) which convert multiple inputs into multiple outputs. (Cooper, 2007) The method can be employed differently from one company to another, but the principle is that several factors are used to measure each supplier rating. Mathematical programming is also a wide spread method, as it can be found using a lot of forms like: linear programming, integer linear programming, goal programming and others. (Ho, 2009)
To use the example of the automotive industry, French manufacturers like Renault and PSA started in selecting the supplier on their capacity to deliver quality and answer to the technical demands and afterwards introduced new criteria, like organizational requirements. (Gorgeu, 1995)
Thomas E. Johnsen (2011) developed a more complex model for supplier relationship evaluation, using the following criteria: mutuality, exclusivity, co-operation, conflict, intensity, inconsistency, power/dependence, trust and proposing detailed descriptions for each relationship characteristic along the three relationship maturity stages (exploratory and tactical, developing, stable and strategic).
All these approaches use a set of criteria in order to rate the suppliers, the differences appear concerning the number of criteria and the importance that each criteria weigh in determining the evaluation process and output. The goal of the evaluation is to define the, in the end, the value added by the partnership with each supplier. Derrouiche (2012) proposes an analysis that links the context of the relationship with the collaborative value-added (tangible and non-tangible) called Collaborative Value-Added-TAV. The context of the relationship analyses the climate, the structure, IT elements used, life cycle of the relationship and the collaborative value-added takes into account the finance perspective, internal processes, partnership perspective and development and training.

5. CONCLUSIONS

Supplier segmentation represents now a strategic approach for companies with a great number of suppliers. Rather than dealing with each supplier separately, the buyer can establish a set of rules for interacting with each set of suppliers. But the segmentation and assignment of each supplier to a different group might not turn into an easy task.
The methods of segmentation, evaluation and selection of suppliers presented in this paper cover all the scale from simple to very complicated. A lot of them need investment in tools (software tools, specialized people) in order to use them, investment which must be calculated from the beginning. In some case, it might turn out that the investment is too high and might not be worth it, as the output will not cover the expenses in terms of business efficiency.
The fact that must retain the attention of buying specialists is that these kind of tools, whether simple or more complicated, are now at hand for everybody and, if they don't have the means to

recur to a more complicated method, they can always use the principle laying at the basis of these approaches and design a method of their own.
It is important to understand that in some companies the two sets of criteria approach might be enough, but in other cases, a more profound analysis must be done and all the important variables must be taken into consideration. The supplier segmentation can use more than two segmentation criteria, depending on the market situation of individual companies.
After segmentation, it is important for the buyer to build a durable cooperation with the set of suppliers categorized as 'partners' and allocate more resources to this group than to the others. Thus, this paper shows that the segmentation and evaluation of suppliers can have strategic managerial implications as these actions involve organizational change, the development of custom made methods of work, the appearance of new abilities in the supply chain department, all leading to an efficient outsourcing system based on partnership and added value.

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