

## QUALIFICATION OF SUPPLIERS IN A SELECTED PRODUCTION ENTERPRISE

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**Purpose:** Supply logistics in an enterprise is extremely important because regardless of the business profile, all enterprises purchase materials, semi-finished products, raw materials or various types of services on the market. Typically, the amount of purchased assortment is so large that it can be stated that the share of materials in the total costs of the company is significant. The indicator of a modern enterprise is the number of clients and their level of satisfaction, which is why quality is a key factor for each production company (Kuczyńska-Chałada, and Furman, 2016) and an important element of process improvement is also an aspect of work safety (Małysa et al., 2019). The purpose of this article is to show that the process of choosing a reliable supplier does not end with choosing the supplier that offers the lowest rates for materials, but other elements that should be considered when choosing a supplier.

**Design/methodology/approach:** This is a research paper and the author presents the process of suppliers' qualification using the specified supplier evaluation criteria.

**Findings:** Before writing the paper we put a hypothesis stating an important feature of the supplier should be flexibility and readiness to change, develop and implement new solutions, because the supplier should strive for the customer.

**Research limitations/implications:** This is a research paper and the author utilized survey method.

**Practical implications:** What criteria determine the selection of the best supplier for the enterprise.

**Keywords:** logistics, orders, supply, classification.

**Category of the paper:** Research paper.

## 1. Identification and evaluation of suppliers

After verifying the material demand and making a purchase decision from external sources, it is necessary to search for potential suppliers and their evaluation. The initiation of this process consists in creating a list of suppliers, based on such sources as: (Skowronek, 2008):

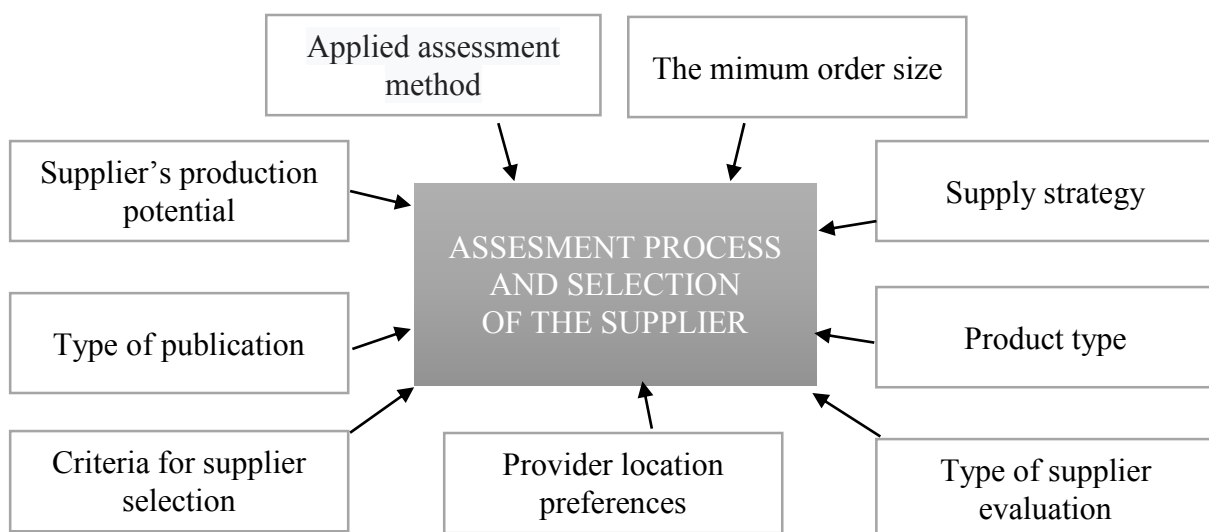
- information from sales representatives,
- trade press,
- catalogues of materials available on the market,
- directories,
- offers,
- information from exhibitions and fairs,
- advertising brochures,
- company's database,
- advertisements on the Internet,
- information obtained through business intelligence.

The following criteria may be used to assess potential suppliers (Zakrzewski, and Zakrzewska, 2014):

- the ability to design and carry on the process – this is an important criterion, especially when the company expects the supplier to design and produce a particular part. Establishing cooperation with such enterprises will allow to shorten the time of development of new products;
- the level of management staff – the qualities of the staff can reflect the experience and the ability of the company's employees, willingness to establish cooperation with a potential client as well as the quality of services provided;
- financial condition and cost structure – the assessment of the potential supplier's condition allows to eliminate threats related to entering into business relations with a partner who is in a disadvantaged financial position;
- planning and control system – having, by a potential supplier, a system for planning and controlling workflow in an organization can be a determinant of the efficiency of their work, which affects the efficiency of the supply chain;
- compliance with environmental protection regulations – compliance with environmental regulations by a potential supplier may be an important criterion for selecting a supplier of materials, because environmental awareness of the impact of industry on the natural environment is increasing;
- the possibility of establishing long-term cooperation – establishing cooperation is important when the supplier has proprietary technology or has access to foreign markets.

The selection of purchase sources is one of the main supplying problems of an enterprise. The basic criterion in the selection of suppliers should be to minimize the total costs associated with the purchase of materials and maintenance of inventory, as well as to organize the necessary conditions for running smooth production while ensuring the supply of full-value production materials (Kowalska, 2005).

Creating an analysis divided into particular criteria, with the assigned significance for the company, allows to obtain a lot of information about cooperation with individual suppliers. Analysis of suppliers on the basis of archived data clearly presents errors and exposes new supply perspectives. The essential elements influencing the assessment and selection process of the supplier are presented in Fig. 1. Modeling cooperation with suppliers can also be based on CRM (Customer Relationship Management) experience (Odlanicka-Poczobutt 2016).



**Figure 1.** Elements affecting the supplier's evaluation and selection process. Adapted from: "Review of evaluation methods and selection of suppliers in the enterprise" by T. Nowakowski, S. Werbińska-Wojciechowska. Copyright 2012 by Publisher.

The supplier's assessment should be carried out regularly in order to obtain current information in order to identify supplier's strengths and weaknesses, to implement corrective actions in the event of identifying infringements, to introduce improvement actions (Wolniak, and Skrotnicka - Zasadzień, 2008). The assessment of suppliers is aimed at:

- choosing the best supplier that will meet the company's expectations,
- motivation of suppliers at whom the process of deliveries and services needs adjustment,
- eliminating suppliers whose services and products do not meet the buyer's requirements (Bozarth, and Handfield, 2007).

When evaluating potential suppliers, the purchase department has the possibility to use methods that support decision making (Kowalska, 2005). For each supplier evaluation method, it is crucial to establish a list of criteria that will be the basis for qualifying the supplier. In each industry, the basic criteria may change as buyers classify suppliers according to their own preferences (Burdzik, 2017). The supplier's assessment may be based on the following criteria:

- a) price:
  - price level in relation to the competition,
  - payment conditions,
  - price discounts,
  - cost of delivery,
- b) timeliness of deliveries:
  - delivery time,
  - keeping deadlines,
  - flexibility in relation to a customer,
  - supplier's location.
- c) quality:
  - the level of customer service,
  - the level of product's quality,
  - quality guarantees/complaints,
  - production standards.
- d) additional aspects:
  - maintaining stocks,
  - own transport,
  - available assortment,
  - technical competences,
  - financial condition,
  - mutual agreement,
  - customer approach,
  - following the procedures,
  - production capacity,
  - way of packaging,
  - innovation,
  - communication system (Burdzik, 2017).

## 2. Choosing a supplier of materials and services

After the evaluation of potential suppliers, you can make the final choice of the product or service provider. Selected manufacturing companies have a database in which the suppliers who have the best chance of placing orders are listed. These suppliers are selected on the basis of experience, where they could demonstrate their effectiveness and provide high quality services in the implementation of existing orders. When the enterprise has such a list of suppliers, the purchasing department has the ability to quickly identify reliable suppliers.

However, in the absence of the database, the choice of the supplier will take place through the distribution of inquiries (calls for placing orders) or the organisation of tenders (Bozarth, and Handfield, 2007). After the company has collected the appropriate number of offers, the next step in choosing the supplier is their selection. Due to it, the most beneficial proposals are highlighted. When selecting offers, the following is taken into account:

- opinion about the potential supplier who submitted the offer,
- technical preparation and readiness of the potential supplier for technological and quality delivery,
- the supplier's ability to produce or deliver the required quantity of goods at the right time and in specified batches.

One negative evaluation should eliminate the tenderer from the further tenders contest. Pre-selection of offers allows to start negotiations as the final stage of the supplier selection process (Bendkowski, and Kramarz, 2011).

Procurement negotiations mainly concern (Bendkowski, and Kramarz, 2011):

- technical arrangements – convincing the buyer that the supplier is able to ensure the supply of materials in the right quantity and quality,
- organisational arrangements – supplier's possibilities to ensure timely delivery of materials,
- techniques of transport and reloading of goods – determining which side is to ensure the transport of goods, and whether special packaging of goods is required,
- rules of qualitative and quantitative acceptance, rules for reporting complaints and possible damages in this respect,
- products prices.

### **3. The analysis of current system of evaluation and classification of suppliers in an enterprise – proposal of solutions**

The researched company is one of the largest manufacturers of LPG tanks in Poland and many complex large-size constructions for the steel, cement, sugar and energy industries.

The process of qualifying suppliers in an enterprise is used for two types of assessment:

- assessment of a new supplier – where the purchase is made for the first time,
- assessment of a qualified supplier – periodic.

The purpose of qualifying suppliers and contractors in the discussed company is to ensure the required quality properties of materials, products, processes and services performed.

A purchasing office employee collects data for qualifications based on analysis of suppliers' self-assessment questionnaires – self-assessment consists in completing a survey by the supplier, the purpose of which is to collect the necessary information about the organization,

competence and technological capabilities of a given supplier to meet the requirements of the company. The supplier's self-assessment consists in providing the most up-to-date information about the supplier to the purchasing office employee, as this organizational unit is responsible for selecting the best supplier for the company.

The supplier self-assessment process consists of the following steps:

- sending in an electronic version to the supplier "Qualifying questionnaire of the supplier and contractor of services" in Polish or English language version,
- sending a cover letter, which contains information for the supplier regarding the essence of the self-assessment and the deadline for delivery of the completed questionnaire to the enterprise,
- feeling in the questionnaire by the supplier,
- receiving the completed "Qualifying questionnaire of the supplier and the contractor of the services" along with any accompanying documentation (copies of the certificates currently held by the supplier.) Copies of surveys and documentation are stored in the database on the enterprise network disk,
- carrying out the supplier's evaluation based on the supplier's self-assessment questionnaire, giving the supplier the right status,
- the result of the audit, which is carried out at selected suppliers – the supplier's audit is aimed at verifying the competences, as well as the supplier's possibilities in technical and organizational terms,
- delivery receipt results,
- information obtained from heads of organizational units (in the scope of services) and users of goods,
- market information,
- own supervision carried out by employees of the purchasing office,
- allowances and permits resulting from legal provisions held by a potential supplier.

Evaluation of external suppliers and service providers is performed once a year by a purchasing office employee and then approved by the supervisor. This supervisor makes the final decision regarding the qualification of the supplier or service provider.

Documents that support the supplier evaluation process in the enterprise:

- supplier's self-assessment questionnaire,
- table of verification,
- procedure,
- timeliness of deliveries sheet.

The aim of the current supplier assessment system is to ensure that the purchased product meets the specified requirements and ensures good cooperation with suppliers. After observing the functioning of the current supplier's assessment and qualification system in the company, it was analysed and the following observations were made: the scoring process is not appropriate for the specificity of the company. Each of the criteria has different meanings for

the company, so they should be given equivalent weight of importance for the company. Assigning weights to individual criteria will also allow for a more accurate evaluation of suppliers. The list of criteria for the supplier should also be extended (the offer of criteria for the supplier together with the weights are presented in (Table 1). It is also proposed to change the evaluation of scoring system along with the characteristics (Table 2).

**Table 1.**  
*Qualities and criteria for a supplier*

Quality	Criterion	Weight [%]
Price	<ul style="list-style-type: none"> <li>• Price level</li> <li>• Payment terms</li> <li>• Price discounts</li> <li>• Delivery cost</li> </ul>	35%
Timeliness of deliveries	<ul style="list-style-type: none"> <li>• Delivery time</li> <li>• Keeping deadlines</li> <li>• Flexibility of deliveries</li> <li>• Supplier's location</li> </ul>	20%
Quality	<ul style="list-style-type: none"> <li>• Level of customer service</li> <li>• Quality level of products'</li> <li>• Quality guarantees</li> <li>• Certification and licenses</li> </ul>	30%
Additional features	<ul style="list-style-type: none"> <li>• Maintaining stock levels for a customer</li> <li>• Deliveries on own behalf</li> <li>• Diversity of assortment</li> <li>• Technical capabilities</li> <li>• Financial conditions</li> </ul>	15%

**Table 2.**  
*Change the evaluation of scoring system along with the characteristics*

Criterion	Score				
	1	2	3	4	5
Price level	The highest price of products, after which the purchase is unfavourable and will bring losses to the company	The price is high compared to the competition. Buying at this price is unprofitable for the company	The price is relatively low, comparable to market prices	Favourable price compared to the competition. Buying at this price is profitable.	The lowest price level on the market. Purchasing at this price is the most profitable for the company.
Payment terms	Very unfavourable, no negotiable conditions and limited payment options	Unfavourable, no negotiable conditions	Payment terms comparable to the competition, it is possible to negotiate.	Favourable payment terms, in many aspects better than at competition.	Very attractive payment terms. Better than at competition.
Price discounts	No price discounts, no possibility to negotiate	Occasional price discounts, there is no possibility of negotiating	Price discounts comparable to most companies, there is a possibility of negotiations	Ability to negotiate price discounts better than the competition	Very attractive price discounts, much better than at competition

Cont. table 2.

Delivery cost	High delivery costs, despite the value of the order	Cost of delivery is always charged despite the value of the order	Delivery costs comparable to the competition, depending on the value of the order	Most deliveries are made at the expense of the supplier despite the value of the order	All deliveries are made at the expense of the supplier
Delivery time	Very long delivery time, need to order very well in advance	Long delivery time, need to order well in advance	Delivery time comparable to the competition	A large part of deliveries is carried out in a short time	Short delivery time. All deliveries are made in a shorter time than the competition
Keeping deadlines	The supplier repeatedly has not delivered the products on time. Very long delays	The timeliness of deliveries raises many objections, as the goods are often not delivered on time. Long delays in order fulfilment	The supplier has been late several times with the fulfilment of the order, usually orders are processed on time	The supplier performs orders on time. There were only isolated cases of short delays	The goods are always delivered on time. The supplier has never been late with the delivery
Flexibility of delivery	No flexibility. In the case of a request to change the conditions of the order, there is no possibility of changes	Low flexibility. In the event of a request to change the order conditions, there are occasional instances of change	Supplier's flexibility comparable to the competition. The possibility of making changes to the order in selected cases	High flexibility of the supplier. In most orders, it is possible to change the terms of the order	Very high flexibility of the supplier. For all orders revision and changes can be performed
Supplier's location	The company is located very far from the buyer. Difficult access	Supplier located at a considerable distance from the buyer	Supplier located at a distance like most competing companies	A supplier located close to the buyer	Supplier located very close to the buyer
Level of customer service	Very low level of customer service. The supplier does not pay attention to the buyer's requirements. Very low communication	Low level of customer service. Low communicativeness regarding the implementation of orders and requirements	The level of customer service is medium, the communicativeness of the delivery is comparable to the competition	High level of customer service. The supplier is communicative	Very high level of customer service. The communication of the supplier is very high. The supplier considers the needs and requirements of the customer
Quality level of products	The product quality is very low. The product does not meet the majority of quality requirements. The lowest quality compared to the competition	Most of the product does not meet the requirements and quality criteria	The product meets some of the quality requirements. Overall quality rating unacceptable	The product meets most of the requirements. The product quality is at a good level. Quality rating acceptable	Product without objections. It meets all expectations and standards. The highest quality of goods on the market



Cont. table 2.

Quality guarantees	The supplier often provides faulty products and does not accept complaints. The complaint handling period is very long	The supplier is reluctant to consider complaints with often faulty products. Long waiting time for decisions regarding complaints	The supplier considers most of the complaints of his goods positively, however they are rare. Examination period comparable to the competition	The supplier considers the majority of complaints positively, products very rarely returned to complaints. The period of consideration is short	The supplier considers complaints immediately. There are isolated instances of complaining the product
Certificates and licenses	Lack of certificates. No quality management system. Work on the system has not been undertaken	The supplier does not have a quality management system, although work on the system has been undertaken	The supplier has introduced a quality management system. The system has been certified	The supplier has introduced a quality management system. The system has been certified. Activities in the system are without reservations	In addition to the quality management system, the supplier has many additional certificates or an integrated management system
Maintaining stock levels for a customer	Lack of possibility to maintain the stock of specific goods for a customer	It is possible to keep stocks of specific goods for a buyer only in sporadic cases and in small quantities	The possibility to maintain the stock of goods for a buyer applies to goods designated by the supplier and in a specified quantity	A significant possibility of maintaining the stock of goods for a buyer. Isolated cases for individual products where this is not possible	High possibility of maintaining the stock of goods for a buyer. All goods can be kept in stock for a buyer in any quantity
Deliveries on own behalf	The supplier does not provide transport, does not have a company car or contracts with courier companies. Only own collection by the buyer	The supplier does not provide transport, does not have a company car or contracts with courier companies. Occasional cases where the supplier "drops" the goods	The supplier does not provide deliveries using his own transport, only through courier and forwarding services	The supplier provides delivery by means of his own transport, in some cases it is courier services	The supplier provides deliveries using his own transport – up to several times a day
Diversity of assortment	The assortment is only basic. Lack of diversity	The variety of the assortment is low, in rare cases it is possible to deliver goods from outside the basic assortment	Variety of assortment is moderate, in many cases there is the possibility of delivering goods from outside the basic assortment. Diversity comparable to the competition	Variety of assortment high. A wide range of assortment, and in case of willingness to buy goods from outside the range, there is a possibility of delivery	Diversity of the assortment is very high. A wide range of assortment. There is a high possibility of delivery of goods from outside the assortment

Cont. table 2.

Technical capabilities	Lack of technical possibilities. No purchase option by design	Low technical capabilities. Low purchase options by design	Moderate technical possibilities. Possibilities of realisation only some orders according to the project	Big technical possibilities. Possibilities of realising most orders according to the project	Very big technical possibilities. Possibilities of realising all orders according to the project
Financial possibilities	Very poor financial condition of the supplier. On the verge of bankruptcy	Low financial condition of the supplier. There is no certainty of order fulfilment	Moderate financial condition of the supplier	Good financial condition of the supplier. The supplier is well protected	Very good financial condition of the supplier. The supplier is very well protected

The proposal to introduce a new system for assessing solution providers puts much higher demands on suppliers. It was proposed to introduce more categories of suppliers' classification and to introduce the status of reserve supplier, which can be evaluated at the next periodic assessment and can become a qualified supplier. Setting a weighting to the criteria and changing the scale of assessment of the evaluation criteria will allow a more accurate assessment of potential suppliers. All of these solutions in the proposed evaluation method will allow the company to make the best choice.

#### 4. Summary

An important element of the logistics system in the enterprise is the supply subsystem. Its primary objective is to secure production by satisfying the material needs of the company while reducing the costs of this process, so as to ensure its flow and avoid stagnation. Due to the fact that regardless of the business profile, all enterprises make purchases of goods on the market, therefore, all purchasing decisions should be taken with caution taking into account the level of costs incurred and profits achieved. The supplier's assessment should be carried out periodically, then the company will be able to pay attention to whether the given supplier continues to meet its requirements, identify the strengths and weaknesses of the supplier and propose corrective actions if any breaches are detected, and introduce improvement actions.

Regardless of the supplier's assessment method chosen, it is necessary to prepare a list of criteria appropriate for the business sector that will be the basis for starting the qualification process. The development of an appropriate supplier assessment method is one of the ongoing activities of continuous improvement in the company.

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