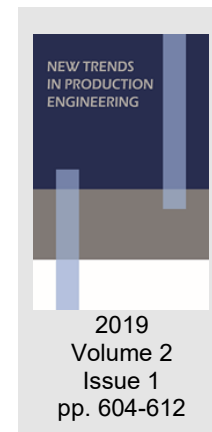


Suppliers and their role in modern enterprise – Case study

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INTRODUCTION

For each manufacturing company, the process of selecting and evaluating suppliers is a very important aspect. The selection of suitable suppliers has an impact on the quality of final product, which is offered to customers, as it is the suppliers of components that contribute to the quality of final product.

The PN-EN ISO 9001:2015 (PN-EN ISO 9001:2015) standard requires that the organization conducts assessment and selection of suppliers, taking into account their ability to provide a product consistent with the organization's requirements. The quality management system emphasizes the importance of cooperation with suppliers, including the qualification of suppliers, because the quality of received details translates into the quality of final product. Ensuring high quality components by suppliers is the basis for achieving success in the form of a manufactured finished product in accordance with customer expectations. The material delivered on time, in accordance with the specification, enables smooth production and sales processes. Customer satisfaction maintained at a high level are the basis for well-functioning businesses. Standardization of processes and partnership cooperation can effectively minimize the losses resulting from conflicts between the customer and the supplier when taking joint actions (Zapewnienie jakości dostaw, 2004, Molenda & Ratman-Kłosińska, 2018, Sitko, 2015, Bołoz, 2018) .

In many companies, purchases are a place to reduce costs and not a factor to build competitive advantage. The key success indicator most frequently used in this area is the cost of purchase, which affects frequent changes of suppliers, and thus short duration of contracts. This in turn prevents building positive relations with suppliers and improving operations. At this point, it is important to pay attention to one of the principles of quality management contained in the PN-EN ISO 9001:2015 standard, which refers to mutual beneficial relations with interested parties, i.e. suppliers. Therefore, modern organizations should redefine the role of purchasing department from the traditional view of purchasing as a reactive and passive purchase of products and services to meet

the current needs for proactive demand management in the organization. Then the purchasing activity is not realized by a narrow group of purchasing specialists, but becomes a process in which all processes in the organization are involved (Łuczak, 2015, Midor, 2014, Palka, 2017).

THE IMPORTANCE OF SUPPLIER SELECTION FOR A MODERN ENTERPRISE

According to the authors of this paper, the simplest approach is the one proposed by R.W. Griffin, who describes the supplier as an organization that provides resources to other organizations (Griffin, 2004).

The supplier has an important function in the supply chain; the increasing needs and demands of customers and increasing competition have a major impact on the development and change of logistics system management, and therefore the partnership between suppliers and customers is so important.

Organizations belonging to the group of suppliers are (Biesok & Jezusek, 2015):

- service providers (e.g. logistics, transport, marketing services, accounting services),
- suppliers of raw materials,
- suppliers of products sold under the customer's brand name,
- entities cooperating within the scope of outsourcing,
- social economy entities,
- after-sales service companies,
- recyclers, waste treatment companies,
- wholesalers, distributors, retailers,
- franchisees,
- network partners,
- any other entity cooperating with the company.

One of the most important challenges facing the purchasing department is to choose the right suppliers. Choosing a supplier is related to the purchase of goods, it is a process of obtaining offers from potential contractors, comparing and evaluating received offers, and selecting the best supplier on the basis of specific conditions.

Selection of a supplier is a strategic decision for company, because the quality and price of products or punctuality and reliability of deliveries depend on the supplier of components. Choosing the right source of supply purchases is a part of the supply logistics tasks. Different rules and criteria are used to select suppliers of raw materials. The best supplier is one that meets all or at least most of customer's requirements. The selection procedure should be simple and ensure that the best decision is made, i.e. the best offer is selected (Bendkowski & Radziejowska, 2005). The concept of selecting a supplier usually takes on the importance of assessing the qualifications and level of performance of a potential supplier and checking whether it is able to ensure compliance of the quality and time requirements of its production with ours. The assessment parameters must include the efficiency of delivery channel, including delivery reliability (Krawczyk, 2001). The concept of supplier selection is related to the

purchase of goods; it should be remembered that a product with the same characteristics can be offered by many suppliers. Supplier selection is one of the most important and difficult decisions to be made, it is a complex process, in which multiple criteria have to be taken into account.

Supplier selection is composed of several tasks (Krawczyk, 2001):

- Identification of needs and specifications
- Formulation of assessment criteria
- Request for quotation, terms and conditions
- Qualification of the bids submitted
- Final evaluation and selection of the supplier
- Ongoing evaluation of the supplier

Most often, the process of selecting a supplier begins with determination of needs. The next step is to develop criteria for measuring potential suppliers, then the purchasing company invites suppliers to submit offers. Supplier selection is based on collected information. During the cooperation, current monitoring of the supplier is carried out.

CHARACTERISTICS OF THE RESEARCH SUBJECT

The entity that was used in this paper as a case study to analyze the supplier selection procedure is the automotive company, which is one of the largest suppliers of lithium-ion batteries in Europe. The company has leading technology and provides durable and safe products. The company designs and manufactures batteries for power tools that are widely used. These are high power batteries for electric and hybrid vehicles, as well as small volume and low power batteries for industrial and medical use. The company is flexible in order to be able to react quickly to customer needs.

The analyzed company cooperates with about 100 suppliers, who supply various types of components, from which after assembly a power supply battery for power tools is received. The company's suppliers are divided into key suppliers and other suppliers who are approved. Only key suppliers are evaluated as a part of periodic supplier evaluation. This division is based on the components provided. Suppliers providing plastic enclosures, connectors, bundles, electronic boards, certified packaging, cells are key suppliers to the company, while suppliers who supply chemicals (two-component adhesive, lubricant), tin, labels, screws, adhesive tapes are approved suppliers. The company has a list of approved "ASL" suppliers (Approved Suppliers List), which are approved as a source of supply. The current database includes suppliers who were selected at the turn of the last years of the company's activity as expected within the specific projects, but the procedure was not structured.

The list of approved suppliers is contained in Excel and includes information such as:

- name of the supplier,
- supplier code,
- information whether the supplier holds ISO 9001 certification,
- information on whether the supplier holds ISO TS certification,

- remarks,
- what kind of components a given supplier may supply (e.g. plastics, cables, etc.),
- division into key and approved suppliers.

The company's selection procedure at key moments for the company did not fulfil its tasks as it only included individual key suppliers of components who, for natural reasons, were not able to fulfil their orders in exceptional situations. For a company operating in a market as dynamic and demanding as the automotive industry, such a situation was unacceptable. Therefore, it was decided to verify the supplier qualification procedure for the company's key components.

PROPOSED CHANGES IN THE QUALIFICATION OF SUPPLIERS IN THE COMPANY IN QUESTION

Knowing the importance of supplier selection for the final quality of products offered in the company, it was proposed to implement changes in the selection and qualification of suppliers, which would aim at extending, in addition to price, the criteria for selection of suppliers, as well as standardization and repeatability of the standard of supplier qualification in the company, and complete the list of up to a few qualified suppliers for key components.

In order to identify directions for improvement of the supplier qualification process, the company interviewed such employees as: purchasing manager, purchase ledger clerk and supplier development engineer. Each employee presented what should be improved and supplemented with the current supplier selection process. The interview results were presented in Table 1.

Table 1 Results of the interview with the company's employees

| No. | Purchasing Manager | Purchase Ledger Clerk | Supplier Development Engineer |
|-----|--|--|---|
| 1 | Implementation of the supplier qualification process | Extension of the current database of accepted suppliers with information on: the latest supplier evaluation, audit evaluation. | Implementation of risk analysis and classification for components |
| 2 | Development of a questionnaire for potential suppliers | | |

After the analysis of interview, the company's management decided to implement all the employees' proposals. Due to the limited form of this paper, the author presented only solutions concerning the supplier qualification process in the company.

IMPLEMENTATION OF NEW SOLUTIONS IN THE SUPPLIER QUALIFICATION PROCESS

As the first task in carrying out changes in supplier's qualifications, the place of storing information obtained from the supplier was determined in order to provide everyone with access to the collected data. In the next step, the database of approved suppliers was extended to include information such as:

- evaluation of suppliers for the last period,

- evaluation of the potential audit,
- whether a confidentiality agreement has been signed,
- possibility to qualify the supplier for new projects.

Thanks to expanding the list with this data, all the necessary information was gathered in one place, which allows for a quick assessment of the situation when the need for a new product arises. Then to the current process of selecting a supplier, the supplier qualification process was added, which consists of:

- completing the questionnaire by the supplier,
- signing the confidentiality agreement,
- positive result of the potential audit according to VDA 6.3 standard.

There has been developed a database of potential suppliers in Excel, to which the data of potential suppliers should be entered. Each new supplier must pass the qualification, and in case of a positive result of the qualification, the supplier will be added to the list of accepted suppliers. As a first step, the new supplier receives a confidentiality agreement with the supplier's questionnaire from the purchasing department. The Supplier Self-Assessment Questionnaire (Table 2) was developed as a part of the process improvement in order to ensure that the information collected from suppliers is reproducible.

Table 2 Developed Supplier Self-Assessment Questionnaire
SELF-ASSESSMENT QUESTIONNAIRE FOR POTENTIAL SUPPLIERS

| SELF-ASSESSMENT QUESTIONNAIRE FOR POTENTIAL SUPPLIERS | | | | | |
|---|-----|-----|---------|----|--------------|
| PART I – GENERAL INFORMATION | | | | | |
| Full company name | | | | | |
| Address | | | | | |
| Address of the manufacturing site | | | | | |
| Phone | | | | | |
| National Business Registry Number / Tax Identification Number / National Court Register Number | | | | | |
| E-mail | | | | | |
| Website address | | | | | |
| Scope of activity, type of production or services | | | | | |
| PART II – TRADING CONDITIONS, ORDER PROCESSING, DELIVERY CONDITIONS | | | | | |
| What is the method of delivery? | | | | | |
| What is the standard delivery time? | | | | | |
| What is the minimum volume of production/batch? | | | | | |
| Is the supplier able to respond to changes in demand? If so, to how many “%” maximum | | | | | |
| Contact details of the person in charge of current order processing | | | | | |
| What is the standard payment term? | | | | | |
| The currency in which the commercial invoice is issued | | | | | |
| Who is involved in the transport of goods? | | | | | |
| Scoring principle | | | | | |
| The operation is defined in the Quality System | yes | no | yes | no | yes/no |
| The operation is effectively implemented in practice | yes | yes | mostly* | | no |
| Score | 5 | 4 | 3 | 2 | 0 |
| *The word “mostly” means that in about 70% of cases there is compliance with the requirements and no risk to the quality of product. For 32 questions the supplier can receive a maximum of 160 points (max. 5 points for one question). | | | | | |
| Part III | | | | | |
| Actions to be evaluated | | | | | Score |
| 1. Supervision of documentation and records | | | | | |

| | | |
|---|---|--|
| 1.1 | Are there written procedures for quality control? | |
| 1.2 | Is there a time limit for storing quality records? | |
| 1.3 | Is there a written procedure to supervise the documentation and records? | |
| 2. Manufacture of products | | |
| 2.1 | Is there a specific procedure for supervising and implementing changes to a given project? | |
| 2.2 | Is there an evaluation of suppliers? | |
| 2.3 | Is there a list of qualified suppliers? | |
| 2.4 | Is supply control documented? | |
| 2.5 | Does production take place after the customer has accepted the designs? | |
| 2.6 | Are corrective actions taken in relation to suppliers? | |
| 2.7 | Are there any plans for control of the production process? | |
| 2.8 | Are process parameters supervised in the production process? | |
| 2.9 | Are the control and measuring instruments used for measurements covered by supervision (legalization, calibration, checking)? | |
| 2.10 | Is it ensured that materials (products) used in production will not be used or processed without prior quality control? | |
| 2.11 | Are there any product control plans applied? | |
| 2.12 | Are the product quality control results documented? | |
| 2.13 | Is there a system ensuring that products not meeting specific requirements (non-compliant) are not provided to the recipient? | |
| 2.14 | Is the method of handling the non-compliant product specified? | |
| 2.15 | Is it ensured that all activities specified in the control plan are carried out independently? | |
| 2.16 | Are the records constituting the proof of performing the required control activities prepared and stored? | |
| 2.17 | Is the identification and separation of non-compliant product ensured? | |
| 2.18 | Does the equipment used allow the necessary measurements and tests to be carried out? | |
| 2.19 | Is the equipment used in the production process supervised (exchange, repair, maintenance plans)? | |
| 3. Measurement, analysis and improvement | | |
| 3.1 | Are there statistical methods used for product inspection and capacity testing of the production process? | |
| 3.2 | Is the customer satisfaction measured? | |
| 3.3 | Are customer complaints and claims considered and dealt with in accordance with customer expectations? | |
| 3.4 | Are there measures taken to eliminate the causes of non-compliance in order to prevent their recurrence? | |
| 3.5 | Is there a defined process of problem solving, leading to identification of the main cause? | |
| 3.6 | Is the corrective action supervised? | |
| 3.7 | Are there procedures in place to perform internal quality audits? | |
| 3.8 | Are audit plans drawn up? | |
| 3.9 | Are internal audits documented? | |
| 3.10 | Is there documented corrective action taken in relation to irregularities detected during audits? | |
| Total number of points obtained | | |
| Result in % | | |
| REMARKS AND COMMENTS: | | |
| | | |
| DETAILS OF PERSONS FILLING IN THE SELF-ASSESSMENT [NAME AND POSITION HELD] | | |
| | | |
| DATE AND SIGNATURE(S) | | |
| | | |

Source: (Czarnecka, 2019)

The questionnaire was divided into three main parts:

- the first part concerns general information on the supplier,
- the second part contains questions related to business terms and conditions, order processing, and delivery terms and conditions,
- the third part contains 32 questions, which are divided into questions concerning: supervision of documentation and records, production of the product and measurement, analysis and improvement.

The person who collects the feedback is obliged to check the questionnaire and in case of a lack of all the required information, ask the supplier again to complete the missing data.

Once the “NDA” confidentiality agreement is signed and the supplier information is collected, the supplier is verified on the basis of obtained information.

The supplier must obtain 65% in the questionnaire to be qualified for further analysis. After a positive evaluation of the supplier’s self-assessment questionnaire, the Supplier Potential Analysis Audit according to VDA 6.3 will be planned. Following the analysis and evaluation of the potential audit report, the supplier will receive an e-mail message of acceptance or rejection. Companies that pass the qualification will be added to the list of approved suppliers. At this point, the supplier will be asked to present offers that will be considered in case of emerging demand.

CONCLUSION

Selection of appropriate suppliers has an impact on the quality of final product, which translates into the company’s future. The choice of supplier nowadays should not cause us any problems in the future.

The PN-EN ISO 9001:2015 standard requires that the organization conducts the assessment and selection of suppliers, taking into account their ability to provide a product consistent with the organization’s requirements. Ensuring high quality components by suppliers is the basis for achieving success in the form of a manufactured finished product in accordance with customer expectations. Customer satisfaction maintained at a high level is currently the basis for the company’s functioning, especially in the automotive industry. Standardization of processes and partnership cooperation can effectively minimize the losses resulting from conflicts between the customer and the supplier when taking joint actions.

The changes implemented in the process of selecting suppliers within the company in question, consisting in supplementing their qualification process, allowed for the expansion of database of qualified suppliers for cooperation with the company, which will significantly reduce the process of selecting a supplier when the demand for a new product arises and will ensure a constant, repeatable quality of the final product and timely execution of orders.

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Abstract.

For each company, the process of selecting and evaluating suppliers of both the components needed for production and the implementation of production process is a very important aspect of their business, as the selection of appropriate contractors has an impact on the quality of final product, which is offered to customers. Dynamically changing situation in the company's environment causes that success is achieved by those companies which implement new solutions and tools in their relations with suppliers. One such solution may include the PN-EN ISO 9001:2015 standard, which requires the organization to evaluate and select suppliers, taking into account their ability to provide a product compliant with the organization's requirements. This paper presents a proposal to supplement the procedure of supplier qualification in a selected company. Attention was drawn to the fact that it is necessary for the modern organization to have access to database of qualified suppliers, who at the time of arising demand are able to meet the requirements set for them. It is also important for the enterprise to have at least two qualified suppliers for the same component in its database. Such an approach results from the current market requirements. The paper is based on a case study as a recognized method of analyzing and discussing authentic situations applied in management sciences.

Keywords: quality, suppliers, supplier evaluation, ISO 9001 standard