Supplier Evaluation System in the Management of Quality

Jindřich Fuka, Dagmar Bednářová, Otto Martínek

Abstract: The right choice of suppliers is one of the key roles of management. For securing the quality of products is important to have effective processes and also good resources from suppliers. Supplier evaluation system represents an effective tool for eliminating inappropriate choices of suppliers. Inappropriate supplier would bring to the company not only additional costs but also bad reputation amongst customers.

Assessment of supplier evaluation system was carried out in a medium-sized engineering company. Preliminary evaluation of the supplier provides information on whether the supplier is able to meet specific requirements. Ongoing evaluation of suppliers provides information about their current level of fulfilling specific requirements for their deliveries.

For the selected company were created following suggestions that should make supplier evaluation system more efficient: Evaluation of suppliers (More categories for suppliers according to the results of their evaluation), Preliminary evaluation of suppliers (Require supply samples before selecting the supplier, Always visit the supplier during the evaluation audit), Ongoing evaluation of suppliers, Carry out continuous assessment on a quarterly basis and take into account the development during the year, Conclude an agreement with suppliers about the level of quality and assign greater weight to the quality.

Key words: Supplier evaluation system · Quality management · Suppliers · Quality

JEL Classification: M0

1 Introduction

The importance of quality management is nowadays more significant than ever before. Enterprises are using the quality management more and more to improve their market position, their processes and overall performance to gain competitive advantage.

One of the specific parts of quality management system is a supplier evaluation system which is especially important for manufacturing companies because manufacturing is the main purpose of their existence.

Implementation of supplier evaluation system ensures that contracts for supplies will be signed only with those suppliers that are able to meet set requirements and ensure high quality of deliveries so the company can produce quality products and services.

It is, therefore, evident that it is important to have an effective system for supplier evaluation, which will help to ensure satisfaction of final customer by quality products and services thanks to smooth production.

The main goal of this paper is to analyze supplier evaluation system in selected medium-sized engineering company and suggest ways to make it more effective.

2 Literature review

Hutyra (2007) and Veber (2007) writes that the term “quality” is a term which is related to products, services, processes and other aspects of the business. The resulting quality is assessed according to the level of agreement between the way that processes were designed and the way they are running in the reality. Therefore it is possible to define quality as the fulfillment of specific demands.

Quality is nowadays one of the critical factors of the success in the business. Without management of quality is impossible to success on the market because customers can be in these days satisfied only by quality products which they want just in the right time and for a reasonable cost. Thus, managers and owners of companies are implementing
quality standards which are helping them to succeed in the market amongst the other competitors. (Spejchalová, 2012; Janiček, Marek & al., 2013).

Hutyra (2007) points out that there are many other definitions of quality, such as:

- suitability for use,
- compliance with specific requirements,
- how customer defines quality,
- minimalization of losses

Bednárová (2013) agrees with these definitions of quality and she is pointing out that all of them are focused on the customer. Because it is possible to define quality in different ways Hutyra (2007) believes that it is necessary to create one universal definition of quality which would be valid worldwide. This kind of definition can be found in the norm ISO 9000:2005, which defines quality as the degree of compliance with the requirements set by inherent characteristics. Requirements are needs or expectations, which are set by the final customer or by the company. Inherent characteristics are the internal attributes of the object (product, service, process, source or system), which are also called quality features.

2.1 Quality management

Quality management is applied throughout the whole organization. Thus it is not focused only on production, but also on sales department, research and development, human resources etc. (Spejchalová, 2012).

Quality management is according to ISO 9000:2005 defined as coordinated activities for determining the direction of the organization and managing it with regard to the quality. (Palatková, 2011)

Quality management is a continuous never ending process which requires intense effort. This effort results in creation, stabilization and application of high-quality products and services that customers and other stakeholders expects and it contributes to the improvement of business processes and also to the improvement of relationships with stakeholders of the company eg. suppliers, employees, customers etc. (Armstrong, 2007). Charvát (2006) further suggest that cooperation and participation of all employees are the fundamental part of quality management.

Armstrong (2007) writes that one of the main reasons for implementing the quality management system is to spread awareness amongst the employees about the fact that quality is irreplaceable and highly important for the success of the company and its future development. Implementation should lead to a transformation of the company on a unit that exists primarily to satisfy needs and desires of customers in the best possible way. Dolezal, Máchal and Lacko (2012) then adds that another reason for implementing the quality management system is to ensure that needs and desires of customers are transformed into usable information that will allow the company to provide quality products and services and use all available resources efficiently.

Another reason for implementing the quality management system is an improvement of company image. Products and services with poor quality are one of the main reasons for loss of the customers and for lower revenues. Therefore certified quality management system serves as assurance of quality products and services and in current and potential customers of the certified company creates greater trust in production and company itself. (Spejchalová, 2012).

2.2 Importance of purchase

Vávrová (2007) states that the purchase has a significant role in the success of the enterprise from operational and also strategic perspective. The purchase represents every activity that is concerned with the acquiring necessary resources and their further use in the enterprise. The purchase is therefore understood as:

- function - a task in the context of other corporate activities,
- process – sequence of actions that results in the acquisition of the necessary resources
- organizational unit – a set of activities grouped into one department focused on purchase

Companies are not able to acquire or produce by themselves every material, stock, component etc. that they need for the products and services they are offering to customers. Especially big companies are focused on strategic activities and therefore they have to buy material, stocks, components etc. from suppliers. Purchase process has become one of the most important processes. Through purchase process is company systematically securing raw materials, services and information so that the production and operations can resume in the normal way and meet customer requirements in terms of quantity, quality, time and place of delivery (Nenadál, 2006).

Before purchasing itself it is necessary to set requirements for suppliers. These requirements are depending on the type of product or service or size of business. (Lévay, 2013). The company must establish and implement a specific way of inspection and other activities to ensure that the purchased material, stocks, components etc. meets the specified requirements for purchased goods. Therefore it is appropriate to establish a system for the evaluation and selection of suppliers based on these requirements (Lévay, 2013).
2.3 Suppliers and relationships with suppliers

Vochozka, Mulač et al. (2012) reported that relationships with suppliers are one of the basic principles of quality management and represent an important factor in the implementation of ISO standards (especially series 9001). Relationships with suppliers also play an important role in continuous improvement of business performance. Open and effective communication between business partners and their mutual cooperation is very important for improvement of their relationship.

Good customer-supplier relationship leads to higher quality of deliveries and suppliers are more able to meet the requirements of the purchaser. That’s why today’s quality management is about true mutually beneficial relationships with suppliers. Therefore, the current trend is to elevate traditional relationships with suppliers to partnerships (Nenadál, Noskievičová, Petříková, Plura & Tošenovský, 2008).

Bednarová (2013) writes that the choice of supplier is one of the key activities of quality managers. For a properly functioning system of quality, it is necessary to have not only quality processes but also quality resources from suppliers as inputs into these processes, to achieve quality outputs. Therefore, the quality of suppliers and their deliveries is extremely important for the company.

2.4 Requirements for deliveries

Setting requirements for the supply is important activity within the purchase process. If the buyer underestimates the importance of defining clear and comprehensive requirements on demanded supplies, then the supplier will not be able to satisfy these requirements. As a result, there is an excessively large number of complaints, additional costs and therefore increasing mistrust among partners (Nenadál, 2006).

Bednarová (2013) and Nenadál, Noskievičová, Petříková, Plura and Tošenovský (2008) writes that every customer has a right to determine his own requirements on his suppliers and deliveries, which he buys from them. Hutyra (2007) points out that on the other hand, the buyer is obliged to define requirements on his supplier in time and clearly communicate these requirements. According to Tomka and Vávrová (2014), the purchase process doesn’t end after acquiring the deliveries because after that follows the evaluation of suppliers by the enterprise’s own criteria. Evaluation of suppliers is the basis for creating a solid customer-supplier relationship. Evaluation of suppliers should be simple, fast, and it should be carried out regularly and also whenever the customer deems appropriate (Hutyra, 2007).

2.5 Supplier evaluation

Pre-selection evaluation of the supplier

Nenadál, Noskievičová, Petříková, Plura and Tošenovský (2008) are suggesting that the main goal of supplier evaluation is to choose at least one supplier that will be able to meet specific requirements for supplies for a long-term period. It is possible to understand supplier evaluation system as prevention before unreliable suppliers.

Gordon (2008) is stating that analysis of suppliers for the purpose of their evaluation is not easy. It needs a great deal of information for the purpose of analyzing supplier but access to these informations is often restricted. Supplier evaluation system is limited not only by the lack of the information but also by the fact that some activities of suppliers are difficult to measure. As a result of these limitations should company own, develop or buy tools, that will allow to overcome these limitations. Another option for overcoming these limitations is just asking the supplier for needed information, which should not be a problem, if there are good relationships, or outsource the evaluation of suppliers to the specialized external company. In any case, the basic for supplier evaluation should be the creation of their database.

Each organization usually creates its own database of potential suppliers. From this database are chosen suitable suppliers. Selected suppliers will be under detailed evaluation until there is only one (or a small group) that is suitable to make deliveries for a specific contract. The output of pre-selection evaluation of the supplier is a list of suppliers which are able to meet company requirements (Nenadál, 2006).

The purchasing department, or another part of the company which is responsible for the purchase, needs to specify desirable characteristics (attributes) of wanted supplies and the importance of each characteristic. The importance of each characteristic depends on the nature of manufactured products (Kotler & Keller, 2007).

Ongoing evaluation of suppliers

Until this time there has been mentioned only process of pre-evaluation of suppliers. Hutyra (2007) states, that in addition to this evaluation it is also important to do another form of evaluation and that is ongoing evaluation of suppliers. According to Svozílová (2011) systematic monitoring and evaluation of suppliers helps to lower the risk of defects of own products. Thanks to that there is a lower possibility that the customer will receive a product (or service) which is not 100% ok which helps to avoid possible dissatisfaction of customers. Hutyra (2007) states that results of the ongoing evaluation are communicated with suppliers immediately after the completion of the evaluation process. They can comment the results. Any shortcomings are then consulted with them. If the supplier has a negative evaluation and doesn’t remove the shortcomings in agreed time, then the contract with the supplier is terminated.
Lévay (2013) suggests that doing evaluation of suppliers on a regular basis is a very effective tool which allows the company to manage suppliers. Managing suppliers effectively saves time, costs and it helps to avoid potential problems with them.

Optimal outcome of supplier evaluation is a finding that the status of deliveries, on which company agreed with suppliers, has been achieved. This compliance is ensured by the joint planning of quality of deliveries. This planning is most effective when it is planned together with the supplier. (Nenadál, Noskievičová, Petříková, Plura & Tošenovská, 2008).

Selection of suitable suppliers

The main goal of supplier selection process is to select a suitable business partner that will be beneficial for the company. His selection is a strategic decision that should not be rushed but thoroughly thought through. The supplier should be selected on the basis of a long-term strategy and not on immediate enthusiasm or excitement. The main tool for selecting the right supplier should be the supplier evaluation process (Kucera, 2014).

3 Methods

The main goal is characterizing the current supplier evaluation system in the selected company and create suggestions which should make it more effective. Monitoring of the supplier evaluation system was carried out in a medium-sized engineering company. The company was visited for several times and individual processes were observed with a focus on the buying process. The buying process is the most important process for the purpose of this paper because the evaluation of suppliers is part of the buying process. To obtain necessary information to analyze buying process and the current system of evaluation of suppliers were used following methods:

- a semi-structured interview which brought the knowledge of the current situation of the supplier evaluation system. This kind of interview was executed several times with different managers. During these interviews were asked open questions and they were further developed during the interview to obtain as much information as possible;
- the observation that was used for monitoring the normal operations and activities of the quality manager;
- analysis of the internal documents which was the key source of information about the quality system in the enterprise and its application in the supplier evaluation system. Mainly were analyzed the cards of suppliers where the results of the evaluation are recorded and quality manual and results of audits.

4 Research results

Selected engineering company is certified by ČSN EN ISO 9001: 2009. Currently, it also meets the requirements of ISO 14001 and ISO 18001, but these standards are not certified yet. The current goal is to get the company certified according to ISO TS 16 949, which would allow the company to enter the automotive industry.

4.1 Costs of quality management system

The quality of the production is ensured by tools of top quality, professional measuring instruments and with the latest production technology and qualified personnel. Enterprise is focused not only on the quality of internal processes but also on the quality of employees, from which the enterprise requires a significant commitment to the quality. All employees must be aware that any poor quality will affect not only the company but also them. The quality of materials is important because it is not possible to produce a quality product with materials that have bad quality. Therefore, the supplier evaluation system is considered for very important part of the effective quality system.

<table>
<thead>
<tr>
<th>Table 9 Maintenance costs of quality management system (source: internal documentation)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recertification audit (1x in 3 years)</td>
</tr>
<tr>
<td>Small audit (2x in 3 years)</td>
</tr>
<tr>
<td>Auditor (1x in a year)</td>
</tr>
<tr>
<td>Mandatory training of employees (1x in a year)</td>
</tr>
<tr>
<td>Total maintaining costs of quality management system for 3 years</td>
</tr>
<tr>
<td>Average yearly costs of maintaining quality management system</td>
</tr>
</tbody>
</table>

Source: authors
The decision to implement certified quality management system according to ISO norms was made in 2005. The basic version of quality management system was already established in the company but it matched the requirements of ISO norms approximately around 60%. Therefore the system had to be altered to fully match the ISO standards.

One employee was working for one year at adjustments and implementation of the quality management system according to ISO standards. During this time he analyzed processes, documentation and other aspects of quality and he was adjusting that it would match requirements of ISO standards. Costs of his work were approximately 300 000 CZK. These 300 000 CZK are considered as a single initial investment.

After this single initial investment, there is only one additional group of costs and that is costs of maintenance of the system. The maintenance of the system basically consist of repeating mandatory audits. The process of auditing consists of three parts and it is repeated every three years. Each part is performed once in the three years. Average yearly costs of maintaining are 191 000 CZK. Description of each part of auditing process is in table 1.

4.2 Benefits of quality management system

It is difficult to quantify benefits of quality management system but it is possible to divide them into categories. These categories represents the main benefits which come from the quality management system. Categories are:

- **Position on the market** – certified quality management system creates a better market position for the company. Mainly due to the higher quality of services and products and therefore more satisfied customers.
- **Lower costs for defective products and services** – quality management system should increase the effectivity of company processes and thanks to that there should be less defective products and services. That means that the costs for defective products and services should be lower, especially in production where is this kind of costs highest.
- **The higher commitment of employees** – every employee has to know, that it is important to do his job perfectly and with maximum effort, because every product, service, process etc. which he carries out in poor quality can affect him and the whole company. Employees which understands that wants to be more involved in the quality management system and they are a bigger asset for the company.
- **Evaluation and selection of suppliers** – for the company whose main activity is production it is one of the biggest benefits. Quality supplies are a necessity for production. An effective system of selection and evaluation of suppliers lowers the risk of bad supplies and complication in production.

4.3 Suppliers

Suppliers are registered in a company database. They are categorized into groups according to their importance for the company and nature of supply. The most important group are suppliers of metallurgical materials because without this type of materials would be the production impossible. The company has 23 active suppliers and currently is not seeking for new ones. The company is trying to build long-term relationships with suppliers and tries to further develop these relationships through regular evaluation of the suppliers. Relationships with suppliers are also developed through mutual participation in developing products, rationalization and mutual advisory services. This usually leads to the product improvement and therefore to greater customer satisfaction.

4.4 Requirements for supplies

Requirements for supplies are based on the customer requirements for the product. After customer defines his requirements for the product, the company can define specific requirements for needed supplies and therefore also requirements for suppliers. Suppliers have to be able to deliver supplies on the time, in the demanded quality and quantity. Each delivery is checked before the takeover. The completeness of the delivery is checked and there is also inspection of the packaging. In the case of damaged packaging must be the whole content of package checked.

After these controls, the deliveries are accepted and stocked or, in the case of problems, file a complaint with the supplier. If there are excessive amounts of complaints at one supplier, then the evaluation of supplier is revisited. The main goal of complaint process is to acquire supplies in the agreed state or, in case if it necessary, appropriate financial compensation. Procedures mentioned above are defined by the buying process which is one of the main processes in the company. Inputs for the buying process are:

- definition of the final product by customer,
- financial resources of the company,
- results of evaluation of related suppliers.

Outputs of the buying process are:

- realized supplies,
- protocols, certificates and evaluation of supplier which is used for decision about further purchases from the supplier.
Sales department is responsible for the stated buying process.

4.5 Supplier evaluation system

An important step is to choose a supplier that can meet the requirements for the supplies in the long-term period. Supplier evaluation system in the monitored company consists of pre-selection evaluation and ongoing evaluation of the suppliers. This system is described below.

4.6 Pre-selection evaluation of the supplier

In the case that a new supplier is needed the company uses mainly references from its current suppliers or customers to choose a new supplier. If these references are satisfactory, then company performs audit at supplier to check if the supplier has effective quality system. After that company seeks additional informations about supplier’s ability to fulfill the terms of the specific contract. Part of the evaluation of new supplier is the assessment of the first two deliveries. Those first two deliveries are checked for the right quantity, quality, completeness of documentation and integrity of the packaging. On the basis of quality of first two deliveries it is decided about the future cooperation with supplier.

4.7 Choosing the supplier

Choosing the supplier, whether new or existing for further cooperation, always precedes process of supplier evaluation. The new supplier is selected on the basis of pre-selection evaluation. In the case of choosing one of the current suppliers is supplier selected on the basis of his annual evaluation. This evaluation asses his ability to fulfill his commitments during the year, his quality system and level of cooperation.

4.8 Ongoing evaluation of suppliers

Ongoing evaluation of suppliers take place at the end of the year. The supplier is assessed for his performance in the last year by specific criteria in four categories as follows:

- evaluation of quality system;
- evaluation of quality of deliveries;
- adherence to deadlines of deliveries;
- evaluation of cooperation.

In each category can supplier achieve 100%. Each supplier has an evaluation card, where are written results of assessment of each category. Obtained percentages are used for the final overall evaluation.

a) Evaluation of quality system

Company is assessing the quality management system that is implemented at the supplier. The system should be certified while different kinds of certifications are rated differently. If the system is not certified than the company assess the supplier’s quality system through following types of audit:

- performing audit of supplier by company’s own employees,
- retaking results of audit made by another company which is considered as reliable,
- retaking results of audit made by external auditing company.

Percentages obtained on the basis of evaluation results of different kinds of quality management system are displayed in the table 2.

<table>
<thead>
<tr>
<th>Obtained percentages</th>
<th>Type of certification / audit</th>
</tr>
</thead>
<tbody>
<tr>
<td>100%</td>
<td>ISO TS 16 949</td>
</tr>
<tr>
<td>90%</td>
<td>ISO 9001</td>
</tr>
<tr>
<td>results of audit</td>
<td>audit made by company’s own employees or retaken results of audit from another company</td>
</tr>
<tr>
<td>74%</td>
<td>without certification / audit</td>
</tr>
</tbody>
</table>

Source: authors

b) Evaluation of quality of deliveries

The quality of deliveries directly affects the quality of final products. It is assessed whether the delivery matches ordered quality, quantity and if the documentation is complete and integrity of the packaging. Final evaluation is made with following formula:

\[
QS = 101 - \frac{\sum W1 + 1 + \sum W2 + 5 + \sum W3 + 100}{\sum WE}
\]
where deliveries are categorized into the following groups:

- WE1 – Delivery without deviation, with complete documentation in prescribed and undamaged packaging, size and quality corresponding to the requirements of the customer.
- WE2 – Delivery is not 100% correct, there are some deviations from the requirements of the customer but it is possible to release conditionally the material for further processing.
- WE3 – Supply does not meet the requirements of the customer and it can not be released to the production.
- WE – all deliveries

c) Adherence to deadlines of deliveries

This is an important factor that affects the continuity of production. It prevents additional costs of downtime in production. Basic criteria for evaluating this category is ration between deliveries on time and all deliveries. For deliveries on time are considered all deliveries that are delivered three days earlier or three days later. Final evaluation is made with following formula:

\[
DD = \frac{\text{Deliveries on time}}{\text{All deliveries}} \times 100
\]  

(2)

d) Evaluation of cooperation

Collaboration is evaluated on the basis of communication with the supplier and experiences which company has with the supplier. Enterprise is assessing mainly following:

- Initiative of the supplier
- Style of communication
- Corrective actions
- Reaction on problem
- Self-improving
- Abiding of quality agreement

In the table below are displayed percentages and criteria that supplier must fulfil to obtain them.

Table 11 Criteria for evaluation of cooperation

<table>
<thead>
<tr>
<th>Obtained percentages</th>
<th>Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>100 – 90%</td>
<td>Supplier is willing and helpful, he is initiative and he is suggesting improvements, he is active in solving problems, he is presenting corrective actions, he is constantly working on his self-improvement and he is fully abiding quality agreement.</td>
</tr>
<tr>
<td>89.9 – 75%</td>
<td>Supplier is fulfilling his responsibilities but he is dos not do anything extra without asking him, he is not initiative, he is maintaining his system on the same level without any effort to improve, he is reacting on problems reluctantly, he is abiding quality agreement with some exceptions.</td>
</tr>
<tr>
<td>less than 75%</td>
<td>There are troubles with supplier, he reacts late on problems, he does not want to make corrective actions and improve his system, he does not abide the quality agreement</td>
</tr>
</tbody>
</table>

Source: internal documentation

Evaluator on basis of his experiences with the supplier evaluates the cooperation with the supplier. This category is subjective and depends on the approach and expertise of the evaluator. There is a bigger likelihood of errors.

4.9 Overall evaluation of suppliers

Overall rating is influenced by the results in individual categories. Each category has different importance. Some are more important than others. Because of that has each category different weight to express its importance. See table 4.

Table 12 Weights of categories

<table>
<thead>
<tr>
<th>Category</th>
<th>Weight of category</th>
</tr>
</thead>
<tbody>
<tr>
<td>evaluation of quality system</td>
<td>0.20</td>
</tr>
<tr>
<td>evaluation of quality of deliveries</td>
<td>0.30</td>
</tr>
<tr>
<td>adherence to deadlines of deliveries</td>
<td>0.30</td>
</tr>
<tr>
<td>evaluation of cooperation</td>
<td>0.20</td>
</tr>
</tbody>
</table>

Source: internal documentation

Final evaluation of supplier is calculated as summing of multiples of obtained percentages in each category and weight of appropriate category. The formula is as follows:
Final percentage rating = 0.20 * % obtained for quality system + 0.30 * % obtained for quality of deliveries + 0.30 * % for adherence to deadlines of deliveries + % obtained for cooperation

On the basis of final percentage rating is supplier assigned to a certain group of suppliers. There are three groups which are named simply A, B and C. The percentage ranges with corresponding groups are displayed in the following table.

Table 13 Percentage range for grading in each category (source: internal documentation)

<table>
<thead>
<tr>
<th>Percentage range</th>
<th>Grade in categories</th>
</tr>
</thead>
<tbody>
<tr>
<td>100 – 90%</td>
<td>A</td>
</tr>
<tr>
<td>89,9 – 75%</td>
<td>B</td>
</tr>
<tr>
<td>less than 75%</td>
<td>C</td>
</tr>
</tbody>
</table>

Source: internal documentation

These groups indicate the extent to which the supplier is able to meet company’s requirements during the year.

There are some additional rules for classification of suppliers:

- „A“ – Suitable suppliers
  Suppliers in this group can not have less than 75% in any category. Simultaneously he has to have at least 90% in two categories and one of them has to quality system or quality of deliveries.
- „B“ – Suitable suppliers with objections
  Into this group belong suppliers that don’t meet the requirements for “A” group and simultaneously they do not obtain less than 75% from each category except the cooperation.
- „C“ – Unsuitable suppliers
  Suppliers that obtained in at least one of the categories, except the category of cooperation, less than 75% are categorized as “C”.

Final results of evaluation of suppliers is communicated with them. Suppliers from group “B” and “C” has to work on improvement. If the supplier is in the “C” category for a long time period or if he does not work on his improvement than the contract with him is terminated.

5 Conclusions

Selected enterprise is already applying the concept of quality for several years and it is continually working on improving its processes. The current of suppliers evaluation, which is a part of enterprise’s quality system, provides sufficient information for the selecting and assessing suitability of potential and current suppliers, however there is some room for improvements. On the basis of conducted analysis have been identified following proposals for improvement of supplier evaluation system.

a) Overall evaluation of suppliers

Extension overall evaluation for category „D“. Suppliers are categorized in three groups (A, B, C). The main objective of these categories is to motivate suppliers to achieve a better rating. The proposal is to tighten up the evaluation of suppliers by creating fourth group of suppliers. By creating the fourth “D” category would some suppliers be reclassified to lower category. Individual categories and percentages which supplier has to obtain to be assigned to them are displayed in the table 7.

Table 7 Suggested extension of overall evaluation

<table>
<thead>
<tr>
<th>Category</th>
<th>Percentage range</th>
<th>Final evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>100 – 95%</td>
<td>Suitable suppliers</td>
</tr>
<tr>
<td>B</td>
<td>94,9 – 85%</td>
<td>Suitable suppliers with rebuke</td>
</tr>
<tr>
<td>C</td>
<td>84,9 – 75%</td>
<td>Suppliers with conditions to improve</td>
</tr>
<tr>
<td>D</td>
<td>less than 75%</td>
<td>Unsuitable suppliers</td>
</tr>
</tbody>
</table>

Source: internal documentation

Creation of fourth category would enhance the effort of suppliers to improve. It would also make easier to identify their individual shortcomings. Suppliers in category “C” would need to make immediate corrective actions.

b) Pre-selection evaluation of the supplier

- Demand supply samples before selecting a supplier. Part of the pre-selection supplier evaluation system is assessment of quality and other aspects of first two deliveries. It would be more effective to request samples of supplies for the preliminary examination and approval. This would help to avoid the problems that would arise
in the case of low-quality raw materials in the first two deliveries. The proposed procedure would increase the quality of supplier selection before the beginning of cooperation.

- **Always visit the supplier during the evaluation audit.** In pre-selection phase is supplier always subjected to audit to explore and verify level of his quality system. However, in some cases are used results of audits performed by another trustworthy supplier’s customers or results of audits made by external auditing company. The recommendation is to stop using results of audits made by other companies and always perform audit by company resources to become more familiar with the potential supplier.

c) **Ongoing supplier evaluation**

- **Perform evaluation quarterly.** Evaluate suppliers quarterly would allow creation of fifth category in supplier evaluation system, concretely „Development of supplier evaluation“. This category would better reflect the ability and willingness of suppliers to improve.
- **Conclude quality agreement with suppliers.** At this time the selected company does not have quality agreement with any supplier. It would be appropriate to conclude quality agreement with suppliers. In the agreement would be determined mutual goals of quality, customer requirements and other circumstances of mutual cooperation.

This paper deals with supplier evaluation system in selected medium-sized engineering company. Brief literature review is located at the beginning of this paper. Then follows analysis of the supplier evaluation system and at the end were suggested proposals for improvements that should make the system more efficient.

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**References**


