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APPLICATION OF QUALITY CONTROLLING IN WOOD-PROCESSING COMPANIES

Abstract. In the article, the author continues open up the issues of quality controlling application in the small and medium-sized wood-processing companies of Slovakia. The article is dedicated to the results of questionnaire survey on quality controlling applicatio at small and medium Slovak wood-processing enterprises, undertaken in 2015. The results show actual state of quality management usage and quality management costs monitoring in the Slovak wood-processing industry, as well as ISO standards certificate and process map aquring, showing, in turn, managerial shortcomings and helps to difine directions of futher development. The concept of quality controlling model formation and its step-by-step implementation for the small and medium-sized wood-processing companies has been worked out based at investigated situation at the enterprises.

Keywords: quality management, wood-processing, production, quality costs, quality controlling, Slovakia.

JEL Classification: M21

Introduction andbrief literature review

At times of increasing competiton, controlling is becoming the prerequisite for success as a tool which integrates processes of information processing, analysis of creation of business plans and control (Baran, 2001). It is one of the tools that can ensure, transform and complete the information about business results into a form which would be useful for management.

However, despite of countless advantages, effects and benefits which flow from cuality controlling, nowadays, this modern management tool has not been widely applied to the process management at the small and medium companies and the vast majority of subsidiary firms of foreign companies in Slovakia as well as in companies with foreign capital participation (Sedliačiková, Šatanová and Foltínová, 2012).

Controlling was originally limited to the financial sphere and was gradually spreaded to all business areas, which required regular review and monitoring. Quality controlling arose from the recognition that the

quality along with costs, the time of continuous production, respective delivery time shall be considered as one of the key success factors, so this concept through economic reasoning underpins quality management (Hansen and Kamiske, 2003).

Quality controlling is a sub-system within corporate controlling and also the supporting tool of quality management, aimed at supporting future-oriented management on how to minimize costs, improve process quality and therefore customer satisfaction.

The selection of quality controlling indicators depends on the interests and needs of each company. The task of quality controlling is not only recognize the quality costs over time and calculate indicators, but it is necessary to interpret the results obtained from performance analysis and propose preventive measures in order to improve the overall quality of the company, i.e. quality cost analysis must have explanatory power and must contribute to the overall efficiency of the company.

If to consider a specific wooden industry, it is worth mentioning an investigation of Andrea Sujová, Petra Hlaváčková and Katarína Marcineková (2015) on evaluating the competitiveness of the wood processing industry.

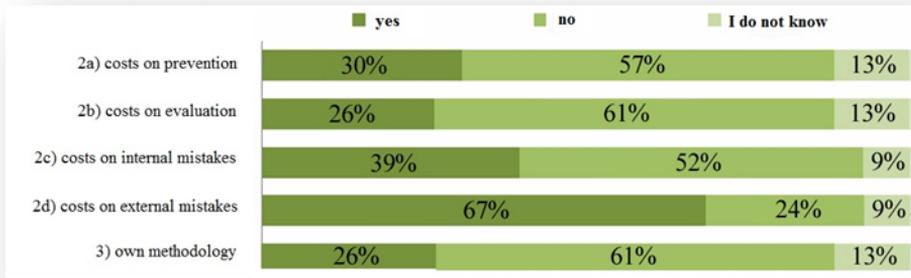
The basic research on the issues of quality controlling and related costs at the Slovak small and medium manufacturing enterprises was undertaken by Anna Šatanová, Ján Závadský, Mariana Sedliačiková, Marek Potkány, Zuzana Závadská, Miroslava Holíková in 2014.

Purpose

The research is aimed at investigation the attitude of management towards quality controlling at the wood-processing companies of Slovakia and to present the concept of quality controlling model worked out as a result of the systemic author research.

Results

Application of quality controlling at small and medium Slovak wood-processing enterprises has been researched as a part of the questionnaire survey in 2015, when 186 wood-processing companies were successfully interviewed (Denis Jelačić, Anna Šatanová, Mariana Sedliačiková, Ján Závadský, Zuzana Závadská, 2015). In the Figure 1, the answers for two questions are presented, namely: 1) Do you deal with monitoring the following groups of quality costs in your company? 2) Do you have your own methodology for evaluation of quality costs?



Horizontal structure of the «yes» answers

| Quality costs | Number of answers | vertical structure, % |
|---------------------------------|-------------------|-----------------------|
| 2 a) costs on prevention | 19 | 19% |
| 2 b) costs on evaluation | 16 | 16% |
| 2 c) costs on internal mistakes | 24 | 24% |
| 2 d) costs on external mistakes | 42 | 41% |
| Total | 101 | 100% |

65% losses from non-quality production

Figure 1. Do you deal with monitoring the following groups of quality costs in your company? Do you have your own methodology for evaluation of quality costs?

Source: Own calculations

Since the fact that the object of quality controlling are particularly costs on quality and its effects, it can be concluded that companies deal mainly with the cost of external mistakes and the cost of internal mistakes, ie losses from poor quality production (65% of responses). Own methodology for the purpose of cost monitoring has only a small group of respondents (26%) and it only concerns scoring reclamations/claims.

Some of the above (minimum) are also dedicated to the remedial measures and monitoring of costs on prevention. This findings are clearly presents in the Figure 1. From the presented results follows that companies are the most interested in costs on external errors and internal mistakes.

Since the ISO standards talks about the field of quality economics, there is a presumption that companies which have implemented quality management system according to ISO standards and created a process map, could also address the area of quality economy, in the higher importance with quality controlling, so from that reason we also looked at this

connection. Hence, in the Figure 2, the answers for two questions are presented, namely: 1) Is your company an owner of ISO standards certificate? 2) Do you have a process map created in your company?

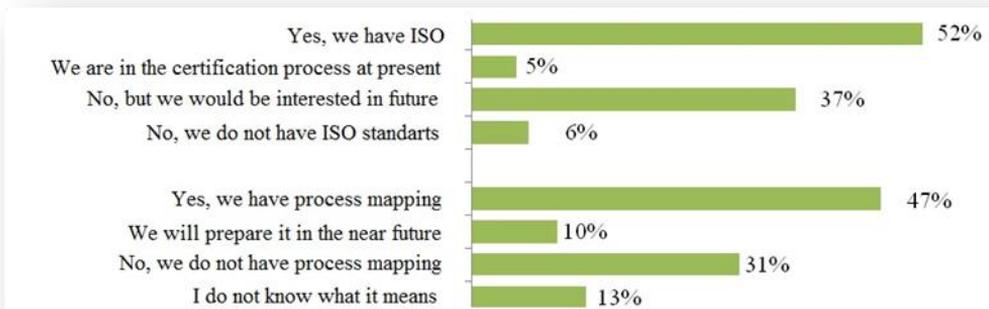


Figure 2. Is your company an owner of ISO standards certificate? Do you have a process map created in your company?

Source: Own calculations

The results presented in the Figure 2 show the following:

- an absolute majority of respondents are certified, resp. they are in the certification process according to ISO standards (57%) and a further 37% are interested in certification in the future,
- also an absolute majority of respondents have a process map, resp. will prepare it in the near term to (together 57%),
- adjacent said, 65% of respondents are concerned with the loss of poor quality production.

Summarizing the results presented, we can formulate the following conclusions from the research carried out: Slovak small and medium-sized companies in quality controlling deal mainly with quality costs, specifically the costs on external and internal mistakes (loss of poor quality production), suggesting that in terms of stage of development quality controlling, they are at an early stage, i.e. quality cost controlling. Therefore, it is essential to link monitoring quality costs with focusing on customers, process-oriented area in the field of quality assurance. The traditional quality indicators need to be complemented by indicators of process performance.

Proposal of a comprehensive model for quality controlling within wood-processing companies

The proposal of the formation of the general comprehensive model for quality controlling within small and medium-sized companies includes following steps:

1. Identification of the quality objectives in the company which is based on what should be quality controlling focused.

2. Identification of the business processes through the compilation of process map.

It is necessary to divide processes into lower levels for purposes of quality controlling, at the subprocesses and the person responsible for the subprocess. It is necessary to identify the quality costs, as well as responsibility for their creation within the sub-processes.

3. The next step is the **classification of quality costs** that will be appropriate and possible to monitor in terms of information availability in a company.

Some quality costs in companies are of a procedural nature and represent subprocesses (eg. education and training employees, conducting internal resp. external audits, selection, approval and evaluation of suppliers, sub-processes verification in manufacturing, etc.). Some costs will overlap across multiple processes - eg. various internal failures of poor quality production, resp. external faults, therefore we propose to monitor them through expenses by nature - material, labor, energy, services, and so on.

4. We recommend **redefinition of corporate managerial income** in its vertical structure for the purpose of a comprehensive understanding of quality controlling and costs on management throughout whole company:

- a review of the content of each analytical account,
- a review between the general ledger accounts of analytical evidence and lines of managerial income,
- a definition the nature of costs - variable or fixed,
- a rearrange of items expense and revenue accounts at the individual level of managerial income,
- processing of managerial income in a stepped breakdown, from the gross sales through gradual adjustment of individual costs/benefit up to a total profit before tax (EBT). Meaning of stepped division is the division of the area that brings company value (post cover to cover fixed costs and profit) and the area where the value is consumed (area of fixed costs and other income and expenses).

5. Identification of the quality costs according to the analytical accounts and resources.

It is necessary to identify the sources of information to identify the quality costs, from which they can be drawn in the company, and it is necessary to define specific analytical accounts and relevant accounting documents. If certain accounting documents are insufficient, we propose to draw data from other special registers.

6. Collection of data on quality costs, i.e. definition of the "workflow" (flow of documents, information, job).

This step is considered essential when designing any concept, because it is important to identify how and if the data and information in the company can be obtained. Therefore, it is necessary to review the content of each selected item of the quality cost for the division (material, labor, energy, services, etc.) and find a way how a controller may get the data, thus how, by whom, when, and where. This stage is also expected to define setups of the quality costs, dials of processes and activities.

7. Identification of quality costs in an environment of managerial income in a close connection to the analytical account.

To avoid separately by targeting the quality controlling only at the quality costs without taking into account their relationship to sales, total costs, the achieved results and the mutual relation between mentioned variables, quality costs should be identified and quantified in an environment of managerial income and giving them revealed level at which these costs may occur.

8. Verification of the proposed concept of quality controlling in the company.

At this stage, it is a compilation of managerial income in the horizontal sequence – reality, the annual plan (budget), perspective (estimate), the determination of variations in each level of managerial income and proposal for of action for the future.

Significant effects of controlling the quality may be considered revealing quality cost savings (in the area of internal failures - unproductive costs of material, energy, work, in external failures - elimination and / or minimization of claims and other related costs – e.g. transport costs and so on) (Nedeliaková, Dolinayová and Gašparík, 2010). External effects of quality controlling are reflected in the satisfaction and loyalty of customers, positive references, and spreading the reputation of a company that might enhance market competitiveness.

Following to the above steps, a model of the concept of quality controlling was made, which in terms of versatility, is generally suitable for small and medium-sized wood-processing companies (Figure 3). The proposed model for quality controlling within small and medium-sized companies is linked to the procedural aspect and accounting terms (identification of individual analytical accounts).

One part of the proposed model is the usage of ABC costing methodology through which it is possible to assign quality costs (resources) through activities (processes) for individual contracts (Potkány, Hajduková and Teplická, 2012). Since the main cost item is a contract, it is interesting to know the quality costs to it. Just so we can get information on which contracts were consumed greatest quality costs and why. This ap-

proach, however, requires the application of the methodology ABC Costing in company-wide management, i.e. the creation and distribution of calculations of the total cost of the contract, as in the evaluation of the facts as well as the planning of orders.

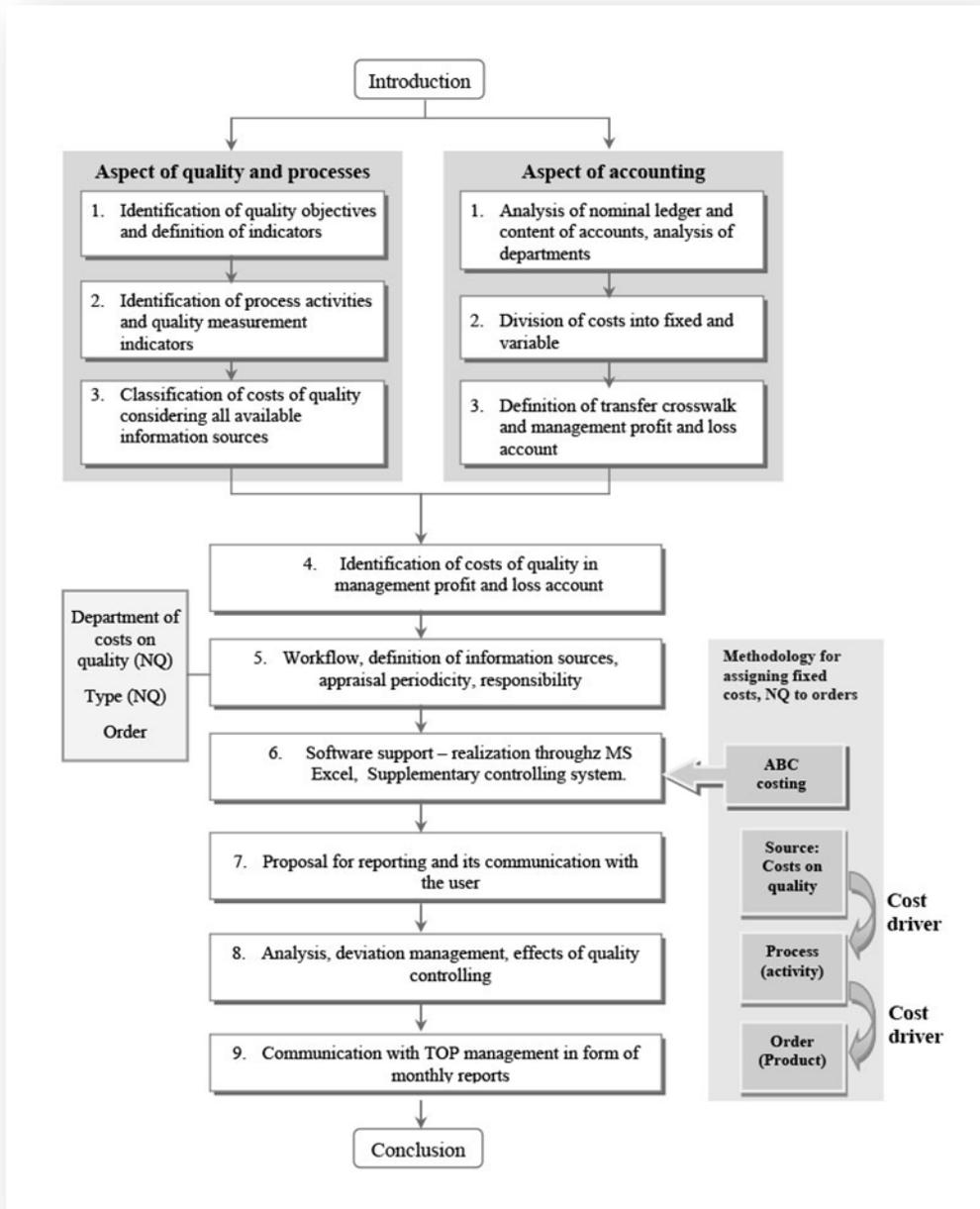


Figure 3. **Proposal of the concept for quality controlling at small and medium wood-processing companies**

Source: Developed by the author

In the same way as the overall plan for a company worked out, the plan of costs in the area of quality should be also determined, based at defined quality objectives.

If it is difficult to define the capacity of individual cost items, however, their percentage setting could be suggested as:

- costs for external mistakes cannot exceed e.g. 0.5 % of revenues,
- internal mistakes can be e.g. max. 5 % of operating costs,
- education in the area of quality from internal/external sources stated in absolute money value (EUR).

Consequently, it is necessary within a year to compare these costs with the plan in structured reports, evaluate the variances and carry out corresponding measures to lower the cost items.

Conclusion

The issues of quality controlling application in the small and medium-sized wood-processing companies of Slovakia need continuous research and practical support.

The results of questionnaire survey on quality controlling application at small and medium Slovak wood-processing enterprises showed lack of expertise or not enough systemic introduction to practise of TQM and ISO standards and process map implementing in the industry. The direction of development is the concept of quality controlling model formation and its practical introduction at the small and medium-sized wood-processing companies.

In order to achieve valuable improvements, it is important to combine effective production and financial management with cadre training and setting precise and achievable goals by the responsible managers.

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