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Performance of processes in quality management of wood-processing enterprises

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Abstract

A measuring and evaluating of quality are critical factors that are responsible for customer satisfaction. This article deals with the issue of measuring and evaluating of processes' performance in the quality management of Slovak wood-processing enterprises. A questionnaire method was used at the primary level of information gathering. The questionnaire targeted 300 most significant Slovak wood-processing enterprises. It was found out that the most common methods of measuring and evaluating of processes' performance in the quality management of Slovak wood-processing enterprises are universal indicators of process performance, indicators for measurement of production and non-production processes and benchmarking. Conversely, the least used methods are EFQM, Six Sigma and process controlling of quality. Based on the analysis of primary and secondary sources, a model for measuring and evaluating of processes' performance in the quality management system for small and medium enterprises as for large wood-processing enterprises was proposed.

Keywords: Quality management, processes, performance, wood-processing enterprises, model.

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1. Introduction

The continuous improvement of the quality of individual processes is essential for the maintenance of the company on the market (Zavadsky, Zavadska & Siritiakova, 2013). To be raising the quality feasible and effective, it is necessary for companies to have created a process map to get aware of differences and specificities of individual processes and sub-processes (Weinstein, Vokurka & Graman, 2009). It is important for the improvement of the quality of processes to select appropriate methods and tools for the measurement and evaluation. Then, based on the obtained results, it is necessary to implement changes and corrections into the monitored processes (Pires, Cociorva, Saraiva, Novas & Rosa, 2008). The changes in the single processes must be in compliance with other processes to create a synergy effect for the business. It is also necessary to implement changes in accordance with the needs and requirements of the market and customers, to be ensured customers' satisfaction and loyalty (Sasse, 2001). Fast and flexible customers' services must be a part of the manufacturing enterprises offer, namely from the point of view of a comprehensive quality perception. Competitiveness of enterprises is a long-lasting process which needs to harmonise all business activities and good quality management system on the basis of address indicators of measuring and evaluating of processes' performance. Because, only this can be managed, what can be measured (Satanova & Potkany, 2004). Measurement and evaluation of processes' performance is necessary to understand as activities which have to provide objective and accurate information about individual processes so that these processes can be continuously managed through the owners of processes, in order to fulfil all the requirements that are desired from them. When the indicators of performance are designed, it is important to define precisely the single indicator, to establish the unit in which the results will be measured as well as the sources from which the information for measurement will be obtained. It is necessary to identify and describe the grading scale for non-financial indicators (Mala & Musova, 2015). The next step is to compare the real and planned values of individual indicators, evaluate the degree of achievement of targets at all levels of the organisation (Zavadsky & Zavadska, 2014). This will give an overview on the current situation in the organisation, the strategy and objectives of the organisation will be visible to all stakeholders and the system of performance management will be developed (Kliestik, Musa & Frajtova-Michalikova, 2015; Uradnicek & Zimkova, 2009). Longstanding experiences of many authors (Al-Dujaili, 2013; Desai, 2008; Eben-Chaime, 2013; Lari & Asllani, 2013; Sasse, 2001; Zavadsky & Zavadska, 2014; Zavadsky et al., 2013) have pointed to the importance of the measurement and evaluation of processes and their performance from the point of view of management of quality. The presented ideas have led to the carrying out of the empirical research on the sample of Slovak wood-processing enterprises and to the consecutive proposal of the framework standardised model for small and medium enterprises (SMEs) and extra for large enterprises.

2. Material and methods

To suggest the model, it was required a use of methods of summary, synthesis and analogy of the knowledge and creation of a short literature review. In the second phase, a questionnaire method to process an empirical study was used, which represents an analysis of the situation in the solved subject matter within the practice of wood-processing enterprises in Slovakia. The aim of the empirical research was the mapping of process quality management issue in the practice of Slovak wood-processing enterprises in the context of using measurement and evaluation methods of processes' performance. Carrying out the empirical research was the starting point for the proposal of the model for measuring and evaluating of processes' performance in quality management for wood-processing enterprises. At the primary level of information gathering, we used a questionnaire but

also the basic methods of theoretical research such as analyses, synthesis, induction, deduction, analogy and comparison.

The questionnaire targeted 300 most significant Slovak wood-processing enterprises. The ratio of questionnaire return was 47% that means 141 completed questionnaires. The questionnaire was evaluated by a description method, numerically and in percentage in tables. In the third phase, we designed the model for SMEs and extra for large enterprises. The sequence of steps of the model was established based on the literature review in the area of quality management, based on standards ISO 9000 and based on the controlling principles of enterprise management. In the final part of the paper, we evaluated the obtained results through the deduction method and defined its assets for the theory and practice.

3. Results and discussion

3.1. Results of empirical research

The proposed questionnaire contained 13 closed questions, what means, that it was possible to select only one of the offered answers. The questionnaire was divided into two parts:

a. A1–A4: Character of the company
b. O1–O9: Process quality management

The found out facts have been transformed into a table evaluation, which was prepared on the basis of multiplicities of respondents' answers through conversion to the percentage value. The following Tables 1 and 2 present the findings regarding the use of methods of measuring and evaluating of processes' performance in quality management according to the size of the enterprise (small, medium and large).

Table 1. The use of methods of measuring and evaluating of processes' performance in quality management in wood-processing practice

Yes (%)		Universal indicators of process performance	Indicators for measurement of production processes	Indicators for measurement of non-production processes	Performance measurement indicators according to variances
Wood-processing companies	Small	24.71	51.73	25.61	22.63
	Medium	38.87	89.22	81.27	28.98
	Large	60.01	100.00	100.00	17.41

Table 2. The use of methods of measuring and evaluating of processes' performance in quality management in wood-processing practice

Yes (%)		Performance index of processes	Six sigma	EFQM	Bench marking	Process controlling of quality
Wood-processing companies	Small	10.84	2.33	1.86	13.19	0.96
	Medium	40.29	12.14	13.12	52.79	9.86
	Large	49.78	34.33	58.63	79.31	12.43

It was found out that the most common methods for measuring and evaluating of processes' performance in the quality management of Slovak wood-processing enterprises are universal

indicators of process performance, indicators for measurement of production and non-production processes and benchmarking. Conversely, the least used methods are EFQM, Six Sigma and process controlling of quality. These methods should be used mainly at larger medium enterprises and large enterprises for improving the quality of internal processes.

3.2. Model for measuring and evaluating of processes' performance in the quality management system

Enterprises have to use appropriate methods for measurement and evaluation of processes and these have to demonstrate the ability of processes to achieve planned results. Empirical results of research present that the practice of SMEs as of large wood-processing enterprises in Slovakia do not dispose of with appropriate and sufficient methods of measurement and evaluation of processes' performance in quality management. So, based on these findings, it was proposed the framework standardised model for SMEs and extra for large enterprises which will be used with partial modifications (which take into account company specifics) in any company of wood-processing industry. Our proposed model (Figure 1) consists of methodologies divided into two parts: an aspect of quality and aspect of book-keeping.

The model on the left side provides a segmentation of indicators for measurement and evaluation according to the focusing of processes and subsequently provides appropriate methods and tools used for the implementation of quality in each process. The aspect of book-keeping is developed on the right side of the model, which is a supporting tool from the point of implementation of the quality management system. The model is a guide for companies that have decided to build the system of quality management or upgrade it.

The fundamental benefits of this model are:

- a detailed acquaintance of processes, sub-processes and activities of the company (process map),
- quality described in a quantifiable form using indicators of measurement and evaluation of processes' performance,
- communication with customers using questionnaires (personal interviews) and determination of their satisfaction or dissatisfaction with the provided products,
- improvement of customers' satisfaction and loyalty,
- effective implementation of corrective actions based on the use of methods and tools mentioned in the proposed model.

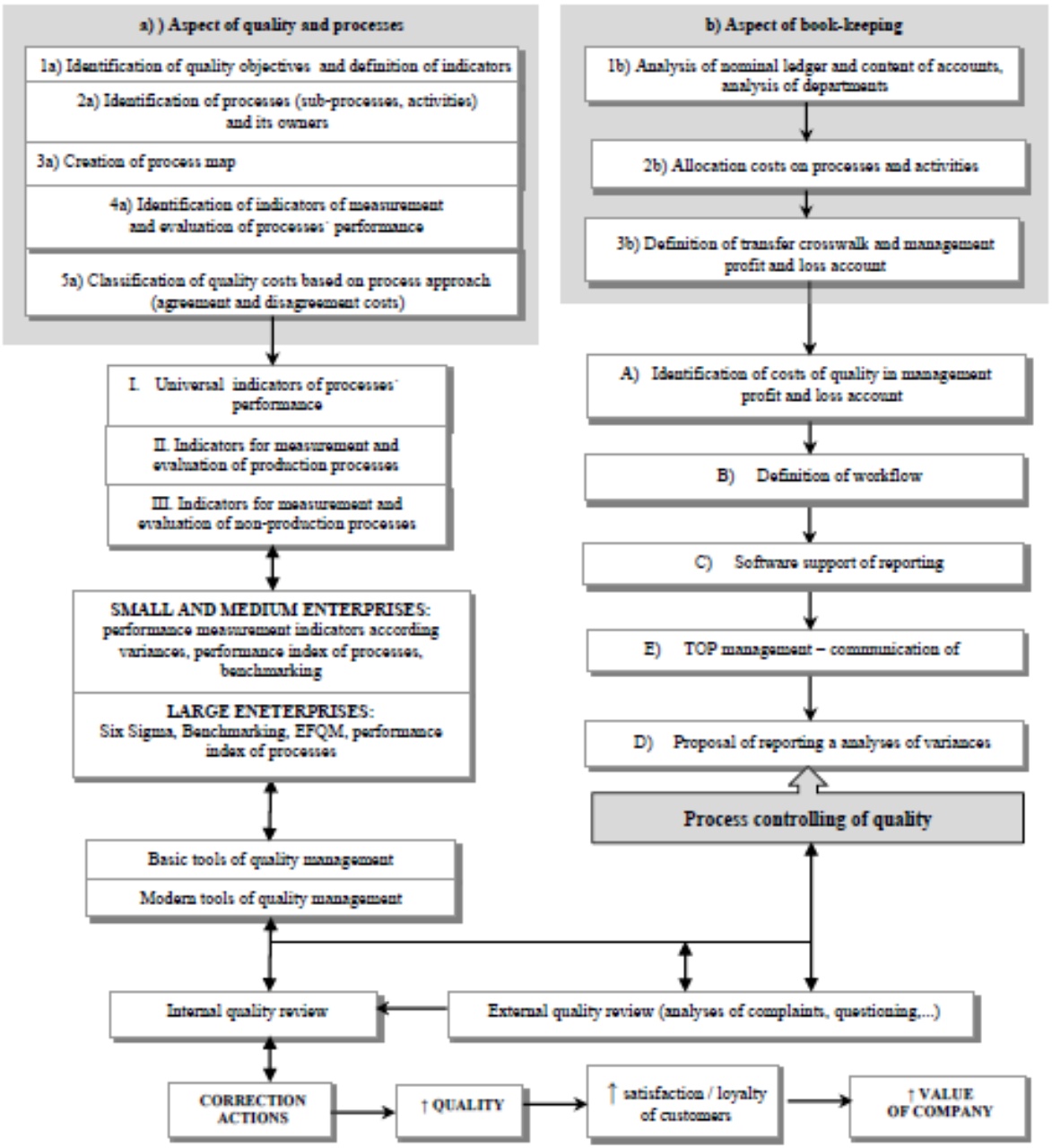

Figure 1. Model for measuring and evaluating of processes' performance in the management of quality

4. Conclusion

As Al-Dujaili (2013) state, the use of quality management system stimulates organisations to analyse customer requirements, to define the processes that contribute to the creation of customers' acceptable products and to keep these processes under control because effective processes belong to

the most valuable assets of any organisation. Suitable management of processes will ensure the provision of exceptional value for customers. It creates space for implementing changes and signifies the basis for future growth and innovation (Eschenbach & Siller, 2011). Enterprises should understand that investing in the establishment of these methods, monitoring of process and their continuous improvement enhances the quality of their offered products. This results to the customers' satisfaction which is the main prerequisite for the economic success and long-term growth of the company. Satisfied customers repeat purchases, increase enterprise income and positively inform about products to their friends (Chen & Yang, 2003). From the above mention, it can be concluded the need of orientation of enterprises on customers' satisfaction with focusing on providing high-quality products. After the implementation of this model into the practice, it is expected the improvement of efficiency of individual processes, the increase of customers' satisfaction and loyalty and significant changes in the efficiency of these enterprises and consequently, the increase of their market value.

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