

## **Model for measurement and evaluation of processes` performance in the quality management system for small and medium wood-processing enterprises**

MARIANA SEDLIAČIKOVÁ – JARMILA KLEMENTOVÁ  
Department of Business Economics, Technical University, Zvolen, Slovakia

**Abstract:** The article deals with the issue of measurement and evaluation of processes` performance in system of quality management. From the analysis of primary sources in practice of Slovak small and medium wood-processing enterprises it can be stated that some companies do not know or do not use or only partly use appropriate methodologies to measure and evaluate the performance of individual processes. So from this reason, a proposal of model of measurement and evaluation of processes` performance in the quality management system of small and medium wood-processing enterprises was the subject of this paper, which was based on advanced knowledge of the theory and analysis of practice. 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.

**Keywords:** quality, process, quality management, quality measurement and evaluation, wood-processing enterprises

### INTRODUCTION

The continuous improvement of quality of individual processes is essential for the maintenance of the company on the market (*Biernacka, 2010*). 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. It is important for the improvement of quality of processes to select appropriate methods and tools for the measurement and evaluation. Then based on the obtained results, it is necessary implement changes and corrections into the monitored processes (*Šatanová, 2008*). The changes in the single processes must be in compliance with order 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 (*Závadský, 2004*). Fast and flexible customers` services must be a part of manufacturing enterprises offer, namely from the point of view of a comprehensive quality perception. Based on the results of the analyses which was aimed to the mapping of used methods and instruments of measurement and evaluation of processes` performance in the area of quality management in the wood-processing practice in Slovakia, it ***was designed a comprehensive standardized model for small and medium wood-processing enterprises***, which is presented in the this paper. This model can serve as a methodological support for companies that decide to implement the quality management system in practice, but also for those that already have applied the philosophy and quality policy.

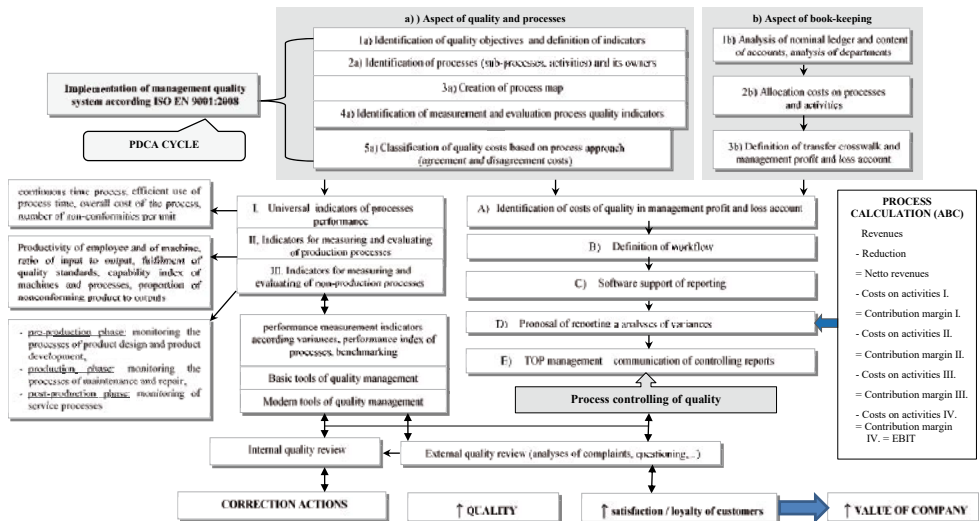
## MATERIAL AND METHODS

*Small and medium enterprises (SMEs)* create an essential part of the economic potential in most countries of EU. The same applies in the case of Slovakia in all sectors of the economy, not excluding the wood-processing industry. Under the impact of economic crisis, Slovak wood-processing SMEs have fought with decreasing customer demand and loss of competitiveness. In most cases, they try to deal with this situation through the reduction of cost items and reduction of employees. However, in advanced economics in times of recession, mainly the effort for the application of modern methods of effective enterprise management dominates, among which includes *process management of quality*. Building of SMEs' competitiveness is a long lasting process which needs to harmonize all business activities and good quality management system on the basis of address indicators of measurement and evaluation of processes' performance. Because, only this can be managed, what can be measured. 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 fulfill all the requirements that are desired from them (Šatanová, Holíková, 2005). When the indicators of performance are designed, it is important to define precisely the single indicators, 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 (Malá, Minárová, 2008). 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 organization (Závodský, Závodská, 2014). This will give an overview on the current situation in the organization, the strategy and objectives of the organization will be visible to all stakeholders and the system of performance management will be developed (Paulová 2014).

*Based on the analysis in practice* of Slovak wood-processing enterprises, it can be stated that many of them do not know and do not use the appropriate methodologies to measure and evaluate the performance of processes in the area of quality management. So from this reason, a proposal of model of measurement and evaluation of processes' performance in the quality management system of SMEs of wood-processing industry was designed, which was based on advanced knowledge of the theory and analysis of the practice condition. The sequence of steps of the model was established based on *literature review* in the area of quality management, based on *standards ISO 9000* and based on the *controlling principles of enterprise management*.

## RESULTS AND DISCUSSION

SMEs have to use for measurement and evaluation of processes appropriate methods and these have to demonstrate the ability of processes to achieve planned results. So, it was proposed *a framework standardized model which will be used with partial modifications* (which take into account company specifics) *in any SME of wood-processing industry*. To the creation of this model we were motivated through the fact that SMEs have fewer sources for the implementation of costly methods of measurement and evaluation of processes' performance. Therefore, those methods and procedures were incorporated into the model which are time and costly saving. Then the management of SMEs can achieve the improvement of quality of processes through the increase of products' quality, subsequently the increase of customers' satisfaction and loyalty, and finally the increase the market value of the company. Figure 1 presents the proposed model.



**Figure 1** Standardized framework model for measurement and evaluation of processes' performance in management of quality for SMEs

**The fundamental benefits of this model are:**

- 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,
- finding of all complaints and (dis) satisfactions of customers,
- improvement of customers' satisfaction and loyalty,
- effective implementation of correction actions based on the use of methods and tools mentioned in the proposed model.

## CONCLUSION

The key to the success of any business is to build long-term customers' relationships. Changeful customers provide the company only an insignificant amount of income. From above mention it can be concluded the need of orientation of enterprises on customers' satisfaction with focusing on providing of high quality products. After the implementation of this model into the practice of small and medium wood-processing enterprises, 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.

### Acknowledgement

This paper was processed in the frame of project No.1/0527/14 – Process management of the quality and performance measurement of the processes as the result of authors' research at significant help of VEGA agency, Slovakia.

This publication is the partial result of the project APVV-14-0506 – Lowering of formaldehyde emission from wood based panels by environmental progressive modification of polycondensation adhesives with biopolymers from leather waste, natural nanofillers, additives and activators.

### REFERENCES:

1. BIERNACKA J. 2010. The Assortment and Production Technology Progress in Wood Processing in Poland, *In: Conference Yundola*. Yundola, Bulgaria. 2010.
2. MALÁ, D., MINÁROVÁ. M., 2008. Linking the EFQM Excellence Model and Balanced Scorecard. In: Zborník z 6. medzinárodného vedeckého sympózia Problémy marketingového manažmentu v podmienkach globalizácie. Banská Bystrica : TRIAN, 2008, ISBN 978–80-89382-00-2.
3. PAULOVÁ, I. 2014. *Komplexné manažérstvo kvality*. Bratislava: Wolters Kluwer, s.r.o., 2014, 164 s., ISBN 978-80-8168-083-0.
4. ŠATANOVÁ, A. a kol. 2008. *Manažérstvo kvality*. Zvolen: TU vo Zvolene, 2008, 353s., ISBN 978-80-228-1928-2.
5. ŠATANOVÁ, A., HOLÍKOVÁ, M. Uplatnenie controllingu kvality v podnikovej praxi. [online] 2005. [cit. 10.4.2015] Dostupné na internete: <http://www.casopiskvalita.eu/casopis/rocnik-2005-pdf/casopis-kvalita-2-2005>.
6. ZÁVADSKÝ, J. 2004. *Procesný manažment*. Banská Bystrica: Ekonomická fakulta Univerzity Mateja Bela, Bratia Sabovci, s. r. o., 2004, 145s. ISBN 80-8083-010-X.
7. ZÁVADSKÝ, J., ZÁVADSKÁ. 2014. Utilisation of business process models in managerial practice: An empirical study in Slovak companies certified to the ISO 9001 standard. *In: Total Quality Management and Business Excellence*. Vol. 25(3-4), p. 319-337. ISSN 1478-3363.

**Streszczenie:** *Model do pomiaru i oceny procesów` w systemie zarządzania jakością dla małych i średnich przedsiębiorstw przerobu drewna.* W artykule omówiono kwestię pomiaru i oceny procesów w systemie zarządzania jakością. Z analizy źródeł w praktyce małych i średnich słowackich przedsiębiorstw przetwórstwa drewna można stwierdzić, że niektóre firmy nie umieją lub nie używają wogóle lub tylko częściowo wykorzystać odpowiednich metod pomiaru i oceny wyników poszczególnych procesów. Z tego powodu propozycja modelu pomiaru i oceny procesów w systemie zarządzania jakością w małych i średnich przedsiębiorstwach przetwórstwa drewna jest przedmiotem tego artykułu, opartego na zaawansowanej wiedzy z zakresu teorii i praktyki. Po wdrożeniu tego modelu w praktyce, oczekuje się poprawy efektywności poszczególnych procesów, zwiększenia satysfakcji i lojalności klientów, istotnych zmian w efektywności tych przedsiębiorstw, a w konsekwencji wzrostu ich wartości rynkowej.

#### Corresponding Authors:

Assoc. prof. Ing. Mariana Sedliačiková, PhD.  
Department of Business Economics  
Faculty of Wood Sciences and Technology  
Technical University in Zvolen  
T. G. Masaryka 24

960 53 Zvolen  
Slovakia  
mail: sedliacikova@tuzvo.sk  
phone: 00421-045-5206420

Ing. Jarmila Klementová, PhD.  
Department of Business Economics  
Faculty of Wood Sciences and Technology  
Technical University in Zvolen  
T. G. Masaryka 24

960 53 Zvolen  
Slovakia  
mail: klementova@tuzvo.sk  
phone: 00421-045-5206434