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Process quality management in context of measurement and evaluation of processes` performance in Slovak wood processing enterprises: empirical study

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

Abstract: The article deals with the mapping of process quality management issue in practice of Slovak wood-processing enterprises in context of using measurement and evaluation methods of processes` performance. At primary level of information gathering we used a questionnaire method. The questionnaire targeted 300 most significant Slovak wood-processing enterprises. The ratio of questionnaire return was 47 % that means 141 completed questionnaires. It was found out that the most common methods for measurement and evaluation of process` performance in 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 of quality. These methods should be used more mainly at larger medium enterprises and large enterprises for improving the quality of internal processes.

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

INTRODUCTION

The concept of quality management represents all activities of enterprise management determining targets, responsibilities and quality policy, which are used in the system of quality through planning, quality assurance and improvement. Quality management is an integral part of the overall management of the organization. Process approach in enterprise management is based on an investigation of the company from the point of view of management object expressed through activities, as well as from the point of view of activities carried out through managers *(Závadský, 2004).* Process approach belongs to the basic building blocks in quality management systems. Process approach does not focus on results, but on the causes. The basic idea is that the cause of poor performance of corporate activities are ongoing inefficient business processes that need to be changed in order to be effective and achieve the highest added value for the customer. The process approach is based on the PDCA (plan - do - check - act) cycle *(Paulová, 2014).* Measurement and evaluation of processes include activities which shall provide objective and exact information about running of individual processes. Then they can be continuously operatively managed through process owners, in order to fulfil all requirements which are expected from the process. It is true, what is can be measured, it ca be also filled. It is essential that enterprises have to monitored key indicators; it means those, which reflect creation of value, instead of monitoring the requirements which reflect only what happened (*Lusková, Hudáková, Buganová, 2013).* ***The aim of the presented paper is the mapping of process quality management issue in practice of Slovak wood-processing enterprises in context of using measurement and evaluation methods of processes` performance.***

MATERIAL AND METHODS

If the organization wants to measure and evaluate the performance of processes, the primary task of management in applying any concept of quality management should be to establishing the policy and objectives of quality, performance indicators of organizational units and from them derive appropriate indicators of measurement and evaluation of processes performance *(Malá, 2011).* The principle is that each process in a company, whether main or support, should have defined measurable indicator with which will be the process evaluated *(Biernacka, 2010).* As the authors *Nenadál, et al. (2008)* mention, indicators of measurement and evaluation of processes` performance in quality management can be generally classified into the following categories:

- ✓ ***Universal indicators of process performance***
- ✓ ***Indicators for measurement and evaluation of production processes***
- ✓ ***Indicators for measurement and evaluation of non-production processes***
- ✓ ***Performance measurement indicators according variances***
- ✓ ***The measurement of performance using performance index of processes***
- ✓ ***BSC (Balanced Scorecard)***
- ✓ ***Six Sigma method***
- ✓ ***Benchmarking***
- ✓ ***Model EFQM***
- ✓ ***Process controlling of quality***

The aim of the empirical research was to *find out the level of implementation of methods of process management quality in context of quality evaluation and measurement in practice of wood-processing enterprises in Slovakia.* To meet this objective, firstly it was required to use ***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 wood-processing enterprise practice in Slovakia. At primary level of information gathering we used a questionnaire but also 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 percent in tables. In the final part of the paper we evaluated the obtained results by the ***deduction method*** and defined its assets for practice.

RESULTS AND DISCUSSION

The proposed questionnaire contained 12 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-O8: 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 1-2 present the findings regarding the use of methods of measurement and evaluation of processes` performance in quality management according the character of the business (manufacturing companies and companies providing services) and according the size of the enterprise (small, medium and large).

Tab. 1 The use of methods of measurement and evaluation of processes` performance in quality management in wood-processing practice in Slovakia

YES (%)		Universal indicators of process performance	Indicators for measurement of production processes	Indicators for measurement of non-production processes	Performance measurement indicators according variances
Companies providing services	Small	8,21	0,00	7,96	18,16
	Medium	50,79	0,00	59,84	29,96
	Large	82,43	0,00	83,15	18,13
Manufac-turing 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

Tab. 2 The use of methods of measurement and evaluation of processes` performance in quality management in wood-processing practice in Slovakia

YES (%)		Performance index of processes	Six Sigma	EFQM	Bench-marking	Process controlling of quality
Companies providing services	Small	10,52	0,00	1,22	12,12	0,58
	Medium	38,28	7,45	12,49	46,97	6,63
	Large	42,20	12,59	47,26	62,35	10,82
Manufac-turing 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

The following table summarizes the most common used methods of measurement and evaluation the performance of processes in quality management systems in wood-processing enterprises in Slovakia.

Tab. 3 The most frequently used methods of measurement and evaluation of processes

Enterprise	Companies providing services	Manufacturing companies
Small	performance measurement indicators according variances, performance index of processes, benchmarking	universal indicators of process performance, indicators for measurement of production and non-production processes, performance measurement indicators according variances
Medium	universal indicators of process performance, indicators for measurement of non-production processes, benchmarking	indicators for measurement of production and non-production processes, benchmarking
Large	universal indicators of process performance, indicators for measurement of non-production processes, benchmarking	universal indicators of process performance, indicators for measurement of production and non-production processes, benchmarking

Conversely, the least used methods are EFQM, Six Sigma and process controlling of quality. These methods should be used more mainly in larger medium enterprises and large enterprises for improving the quality of internal processes.

CONCLUSION

As *Závadský, Závadská and Sirotiaková (2013)* state, the use of quality management system stimulates organizations 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 organization. Suitable management of processes will ensure the provision of exceptional value for customers. It creates space for implementing of changes and signifies the basis for future growth and innovation. Enterprises should understand that investing to 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 their friends.

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REFERENCES**:**

1. BIERNACKA J. 2010. The Assortment and Production Technology Progress in Wood Processing in Poland, *In: Conference Yundola.* Yundola, Bulgaria. 2010.
2. LUSKOVÁ, M., HUDÁKOVÁ, M., BUGANOVÁ, K. 2013. *Manažérstvo kvality a rizika integrácia, princípy, metódy*. Žilina: Žilinská univerzita v Žiline, Edis, 2013, 278 s., ISBN 978–80-554-0781–4.
3. MALÁ, D. 2011. Implementácia komplexního manažérstva kvality na slovenskej vysokej škole. *In: Vedecko-odborný časopis Moravské vysoké školy Olomouc - Ekonomika Management Inovace.* Olomouc : Moravská vysoká škola, 2011, s. 2 – 11, roč. III, č. 1, ISSN 1804-1299.
4. NENADÁL, J. et al. 2008. *Moderní manažment jakosti*. Praha: Management Press, 2008, ISBN 978-80-7261-186-7.
5. PAULOVÁ, I. 2014. *Komplexné manažérstvo kvality.* Bratislava: Wolters Kluwer, s.r.o., 2014, 164s., ISBN 978-80-8168-083-0.
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, Z., SIROTIAKOVÁ, M. (2013). Process model and its real application in the selected management areas. *In: E a M: Ekonomie a Management*, 16 (1), 113-127. ISSN 1212-3609.

Streszczenie: *Proces zarządzania jakością w kontekście pomiaru i oceny wyników w słowackich zakładach przerobu drewna: badanie empiryczne*. W artykule omówiono kwestię zarządzania jakością procesu w praktyce słowackich przedsiębiorstw przerobu drewna. Na poziomie podstawowym gromadzenia informacji wykorzystano metodę kwestionariusza. Kwestionariusz skierowano do 300 najważniejszych słowackich przedsiębiorstw przetwórstwa drewna. Wskaźnik zwrotu ankiet wyniósł 47% co oznacza, że wypełniono 141 kwestionariuszy. Stwierdzono, że najbardziej powszechnymi metodami pomiaru i oceny procesu zarządzania jakością słowackich przedsiębiorstw przetwórstwa drewna są uniwersalne wskaźniki wydajności procesu, wskaźniki do pomiaru procesów produkcyjnych i nieprodukcyjnych oraz benchmarkingu. Z drugiej strony, najmniej używane metody są EFQM, Six Sigma i procesy kontrolowania jakości. Metody te powinny być wykorzystywane przede wszystkim w większych średnich firmach oraz dużych przedsiębiorstwach do poprawy jakości procesów wewnętrznych.

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