

PRACTICAL EXPERIENCE OF THE EFQM MODEL IMPLEMENTATION IN THE CONDITIONS OF PUBLIC UNIVERSITY.

Anna NAGYOVÁ, Štefan MARKULÍK

The Department of Safety and Quality of Production, Faculty of Mechanical Engineering, TU Košice

Abstract

Any organization that is concerned in its progress has to use a tool by means of which it can get a feedback on its activities, respectively, results. Performance indicator has been a very popular tool in recent years. Even with the use of performance indicators, it is necessary to take into account certain conditions, the fulfilment of which is essential in obtaining the relevant data from the processes. In this case, we can speak of so-called quantitative evaluation. However, in the long term, it is not possible to evaluate the state of organization unless qualitative aspect is involved in evaluation. Evaluation through Excellence Model, known as EFQM, represents one of the methods that use a verbal assessment. In addition to the assessment of achieved results, it also evaluates the perception of the current status of an organization. This article provides insight into evaluation of the particular public university operating within the territory of Slovak Republic through the use of the EFQM model.

Keywords: self-assessment (self-evaluation), the RADAR card, improvement

Introduction

Organizations now have a variety of tools (e.g. internal audits, review by management, etc.) at their disposal, which provide them with relevant information for decision making in improving processes, products, or the organization as a whole. Most of the self-assessment tools do not use so-called soft tools, such as organizational culture, social benefits, relation to the surrounding environment, alternatively, feedback from the public. According to [1], connection between social and technical dimension is the reason why the EFQM model appears to be optimal for evaluating the status of an organization as regards to quality aspect. To increase motivation and support of organizations in improving their processes and management systems, various quality prizes are awarded annually throughout the world. These reflect organization's performance based on evaluation obtained through application of a respective model. Most renowned quality awards in the world are:

- *The Deming Prize, Japan.*
- *MBNQA - Malcolm Baldrige National Quality Award, USA.*
- *EQA - European Quality Award, Europe.*

In 2012, the Technical University took part in the national competition for quality held annually by the Institute for Standards, Metrology and Testing of Slovak Republic following from the European Quality Award. The competition offers the business sector and public administration organizations the opportunity to highlight their strengths; to evaluate themselves based on the European recognized criteria and to prove their uniqueness. The Faculty of Mechanical Engineering, Technical University of Košice was awarded a prize within the category of "other public sector organizations" for performance improvement. In 2015, it decided to participate in the competition for the National Quality Award as a separate organizational unit.

1. FROM TQM TO THE EXCELLENCE MODEL

Several studies in the EFQM model presentation are based on the core platform that is TQM (Total Quality Management). Historically, according to [6], the so-called TQC (Total Quality Control) is considered to be a predecessor of this philosophy introduced by A. V. Feigenbaum in 1957. This term refers to the effort integration system of various groups within an organization aimed to elaborate, maintain, and improve the quality in order to allow the most economical production, operation, and thus fully satisfy customers. Creating the total quality control function was the primary requirement for the TQC approach. In 1968, Japan began to

use the term CWQC (Company Wide Quality Control) indicating the system of quality control, which differed from TQC in requiring the engagement and input of all employees involved in quality control. It is this concept that becomes the foundation for building a philosophy today known as TQM.

TQM can be defined in various ways, but all definitions highlight its remarkable role in orientation of various activities of an organization. According to [6], one of the most accurate definitions of TQM is a Corrigan definition saying that TQM is "a management philosophy that builds a customer driven and learning company dedicated to total customer satisfaction through continuous improvement of effectiveness and efficiency of the organization and its processes." According to [3], TQM, in its present form, becomes a new and crucial way of organization management where total customer satisfaction is the key criterion, rather than a mere meeting of his requirements.

TQM implies continual review of explicit and implicit requirements and desires of customers. In other words, the external dimension of customer satisfaction is reflected both in the ability to achieve cost cutting, in limiting faulty production, and increasing efficiency, but also in focusing on the proper implementation of everything right the first time. It should be noted that along with an external customer, there is also an internal customer and that customer satisfaction is also about meeting individual needs of employees. However, it is emphasized that this philosophy of quality assurance requires participation of all employees. In other words, this task is not only the responsibility of one department (quality department), but it is the task for all employees at various levels and departments. In addition, the evaluation excellence model known as the EFQM Excellence Model serves to evaluate the level of fulfilment of these requirements, and it is now commonly implemented in manufacturing organizations as well as companies providing services [5].

2. THE EFQM MODEL AND THE IMPLEMENTATION OF SELF-ASSESSMENT

EFQM is a tool designed for all-embracing assessment of an organization and its performance. In the public administration, a modified EFQM model known as CAF is used. It is based on nine criteria, five of which being "Assumptions" and four of them being "Results" (Fig. 1). The model logic is relatively simple. It is based on the assumption that excellence of the organization can be achieved only on condition of maximum satisfaction of their staff and respect of the environment. In other words, it uses a so-called mirror principle: all that the organization aspires to achieve in its assumptions should be reflected in its results.

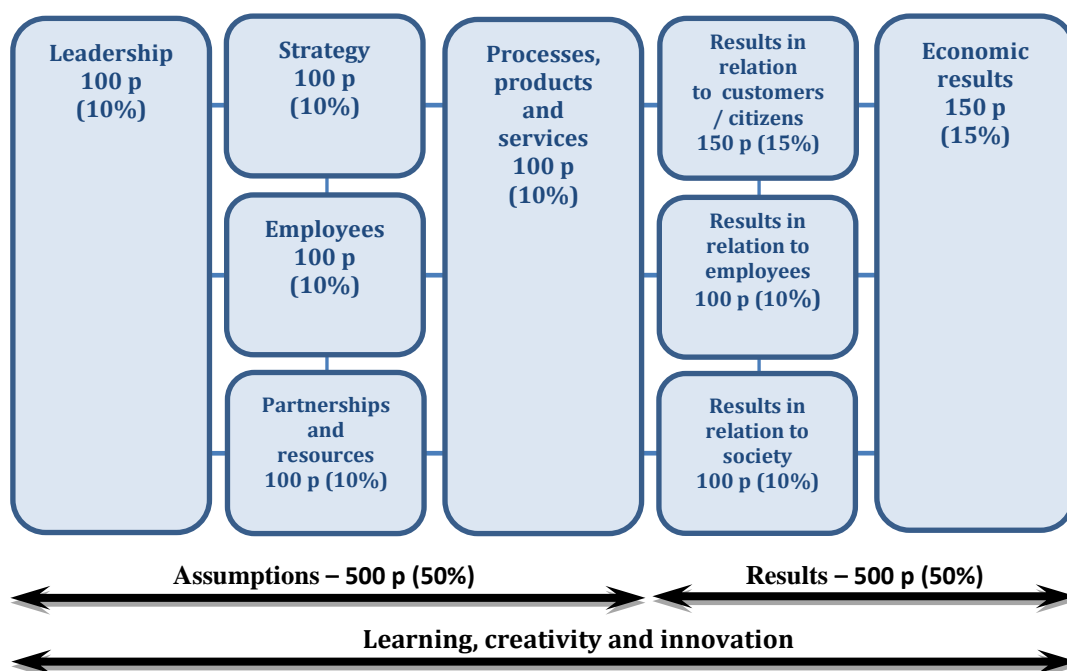


Fig. 1 The EFQM model

Each criterion includes a number of closely specified sub-criteria that explain the criteria requirements as a whole in more detail, in which case the evaluation is performed on their respective level.

2.1 The criteria of assumptions

The criteria of assumptions generally include planning and development of approaches that create preconditions for achieving exceptional results of an organization. In order for an organization to assess the progress in a continual improvement, it must assess and examine approaches, their distribution, evaluation, and improvement. The criteria are listed as follows (Tab. 1):

Tab. 1 The assumption

<i>Criterion</i>	<i>Description</i>	<i>Points</i>
1. Leadership	The criterion refers to leaders from exceptional organizations who build the future and introduce it into life, they act as role models in relation to the values and ethics of the organization and constantly inspire confidence.	100
2. Strategy	The criterion represents outstanding organizations that implement their mission and vision through elaboration of strategy focused on interested party.	100
3. Employees	The criterion is focuses on the exceptional organizations that regard their employees and create a culture that allows mutually beneficial fulfilment of organizational goals and personal goals.	100
4. Partnerships and Resources	The criterion focuses on exceptional organizations that plan and manage external partnerships, suppliers, and internal resources in order to support the strategy, procedures, and effective functioning of processes.	100
5. Processes, products and services	The criterion describes the way in which exceptional organizations create, implement, and improve processes, products and services in order to generate increasing value for customers and other interested parties.	100

2.2 Criteria for results

Criteria for results measure excellence and range of values provided by an organization for the interested parties, as well as effectiveness and efficiency of an organization. The results are collected following from feedbacks from the interested parties, organization's plans, and external benchmarking. They show results, respectively, trends for the period of more than three years. The criteria are listed as follows (Tab. 2):

Tab. 2 Criteria of results

<i>Criterion</i>	<i>Description</i>	<i>Points</i>
6. The results in relation to customers / citizens	The criterion evaluates exceptional organizations that create and approve a set of performance indicators and related outcomes to determine successful implementation of its strategy and supporting practices that are based on the needs and expectations of their customers.	150
7. Results in relation to employees	The criterion focuses on exceptional organizations that create and approve a set of performance indicators and related outcomes to determine successful application of their strategy and supporting practices that are based on needs and expectations of their employees.	100
8. The results in relation to society	The criterion focuses on exceptional organizations that create and approve a set of performance indicators and related outcomes to determine successful application of their social and environmental policy and related procedures, which are based on the needs and expectations of relevant external interested parties.	100
9. Economic Results	The criterion points out what organizations achieve exceptional in relation to their planned performance depending on the purpose and goals.	150

2.3 Self-assessment method

If a self-assessment is to be a relevant measuring system, it is necessary for it to provide relevant data. These relate to the extent to which an organization fulfils the criteria and requirements of the respective model. Assessment can be performed either on a determined points scale or on a percentage scale. In practice, three evaluation option are used as follows:

- a) assessment in compliance with ISO 9004 (primarily used with organizations where Quality Management System in compliance with ISO 9001 has already been implemented),
- b) assessment by applying a questionnaire method,
- c) assessment by means of the RADAR card.

The RADAR card is used for application of the EFQM model. The RADAR card was created in 1999 and it represents a demanding but also objective self-assessment tool. The term RADAR stands for *Results Approach Deployment Assessment & Review*.

Each team member uses the RADAR card for self-evaluation, as well as an external assessor writing a feedback report on external evaluation (evaluation of relevance degree of self-evaluation report). Evaluation is conducted exclusively for attributes in which case each attribute is assigned a percentage rating depending on its actual status.

It is not only the general criterion that is assessed by means of the RADAR card, but also the different sub-criteria. The following procedure is used for conversion to a percentage evaluation rating:

- a) Percentage rating for each of the sub-criteria in the tools and resources section are entered in the table (Tab. 3).

Tab. 3 criteria for evaluation table in the Prerequisites (SC - sub-criterion)

Criterion 1: Leadership		Criterion 2: Strategy		Criterion 3: Employees		Criterion 4: Partnerships and resources		Criterion 5: Processes, products, and services	
SC	%	SC	%	SC	%	SC	%	SC	%
1a		2a		3a		4a		5a	
1b		2b		3b		4b		5b	
1c		2c		3c		4c		5c	
1d		2d		3d		4d		5d	
1e				3e		4e		5e	
Total	%	Total	%	Total	%	Total	%	Total	%
: 4		: 5		: 5		: 5		: 5	
Final evaluation:		Final evaluation:		Final evaluation:		Final evaluation:		Final evaluation:	

- b) The final evaluation of a respective criterion always results from the simple arithmetic average of sub criteria evaluation within the entire criterion. All sub-criteria in the tools and resources section have equal weight.
- c) In the resulting criteria section, the sub-criteria have different weight. The percentages are entered in the following table (Tab. 4).

Tab. 4 The evaluation table for criteria of results (SC - sub-criterion)

Criterion 6: Results related to customers /citizens				Criterion 7: Results related to employees			
SC	%	x weight	% total	SC	%	x weight	% total
6a		x 0,75		7a		x 0,75	
6b		x 0,25		7b		x 0,25	
Final evaluation: %				Final evaluation: %			
Criterion 8: Results related to society				Criterion 9: Economic results			
SC	%	x weight	% total	SC	%	x weight	% total
8a		x 0,75		9a		x 0,75	
8b		x 0,25		9b		x 0,25	
Final evaluation: %				Final evaluation: %			

d) Self-assessment results are measured by the summarization table. Calculated evaluation in percentage of individual sub-criteria is entered in the individual criteria weight section (Table 5).

Tab. 5 RADAR - Example of summarization evaluation table

Criterion:	x weight of criterion	Points
1 – Leadership	x 1,0	
2 – Strategy	x 1,0	
3 – Employees	x 1,0	
4 – Partnerships and resources	x 1,0	
5 – Processes, products and services	x 1,0	
6 – Results related to customers /citizens	x 1,5	
7 – Results related to employees	x 1,0	
8 – Results related to the society	x 1,0	
9 – Economic results	x 1,5	
Total:		

The values calculated for the individual criteria are summed up and their summary value expresses the status of an organization. Based on this result, it is possible to get one of the following types of awards:

Award for participation of organisation in the competition

The award is obtained if an organization starts using the EFQM Excellence Model, or the CAF model, if it takes part in the competition and achieves the score of 200-300 points.

Award for performance improvement of an organization

This award is obtained if an organization starts using the EFQM Excellence Model, or the CAF model, if it takes part in the competition and has been awarded for achievements in the implementation of the EFQM Excellence Model, alternatively, the CAF, and the good practice model. The organization that receives this award achieves the score in the range of 301-400 points.

Awarded finalist

The award is obtained if an organization achieves more than 400 points in the assessment.

Winner of the Slovak National Award for Quality

The award is given to an organization with the highest score in the respective category.

3. THE APPLICATION OF SELF-ASSESSMENT AT THE FACULTY

The Faculty of Mechanical Engineering (FME) is the only of nine faculties that decided to enter the competition for the National Award for Quality in 2015 and to verify its maturity and the level of processes in relation to quality through self-assessment by using the EFQM model.

3.1 The procedure of self-assessment

The process of self-assessment based on the EFQM is not strictly specified, but there is a recommended methodology that organizations can modify based on their needs. Self-assessment at FME was implemented in the following steps:

a) Selecting and preparing a team for self-assessment

The FME management selected a three-member group of employees to guide the self-assessment process methodically. There were also designated gestors for individual criteria (the criteria within the EFQM model). Two methodical coordinators were trained in a specialized course – The EFQM Excellence Model and Self-Assessment.

b) Data (evidential information) collection and selection

The EFQM model is based on proving evidence of various arguments expressed in the self-evaluation report. Therefore, it is very important for any claim to be substantiated by the evidence that proves the described status. It is the kind of evidence, such as existence of individual strategic documents, quantification of specific data, or their trend processing for the last 3 or 5 years. This is a difficult step as for time and work, within which methodological workshops of coordinators with the individual gestors were inevitable. The subject of the meetings was to assess relevance of the data collected and their use in the assessment report.

c) Writing self-assessment report

The writing of evaluation report took a longer time, because it was a summary and the classification of evidence (data) and comments into individual sub-criteria. The illustrative view of major section of one of the criteria is shown in the figure below (Figure 2).

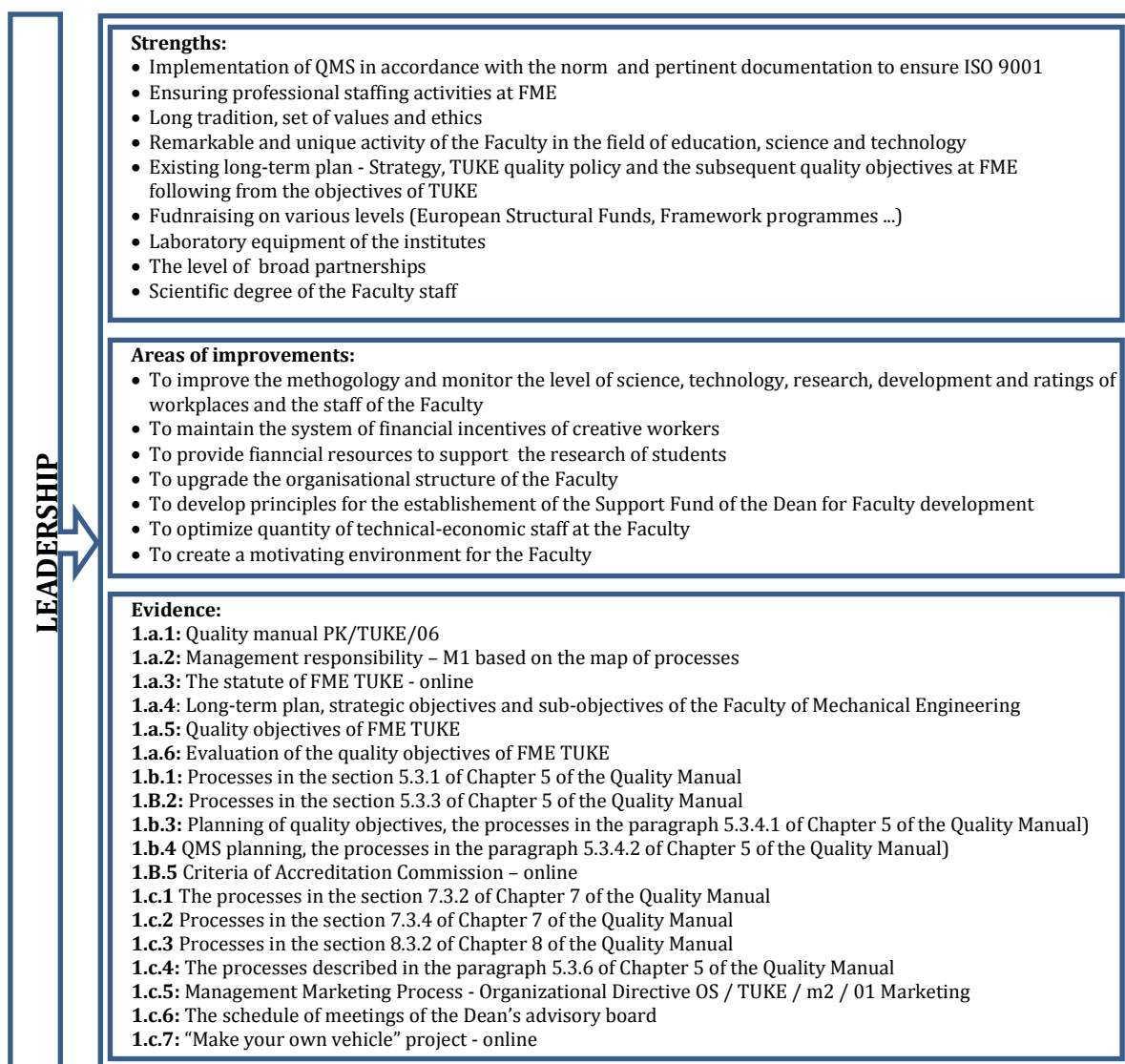


Fig. 2 The Structure of the Leadership Criterion

d) Scoring criteria

Based on the collected evidence (data) and comments, the criteria were given point values by means of the RADAR card. The RADAR card application is briefly described in the section 2.3 of this paper. After obtaining the point scoring, the task of self-assessment was completed. After approval of the final version of the self-assessment report by the FME management, it was sent to the announcer of competition.

e) Evaluation of the report by assessors

Elaboration and sending of self-assessment report to the competition announcer was only the first of two steps. Subsequently, the SOSMT (The Slovak Office of Standards, Metrology and Testing) acquainted itself with the FME self-assessment report and arranged a meeting to verify the data on the site. It took two days to examine the representatives of SOSMT (The Slovak Office of Standards, Metrology and Testing) at the Faculty.

f) Feedback

The group of assessors wrote an on-site report based on information, data, comments, and evidence specified in the report, and subsequent verification of their relevance. It contained laudatory statements, as well as recommendations for further improvement. Total evaluation obtained from the assessors was 469 points (Tab. 6). Top-rated positive criterion was the criterion of "Results in relation to the customers / citizens" and conversely, the "Results in relation to the staff" criterion obtained the lowest rating.

Tab.6 Total evaluation based on the EFQM model

Criterion:	x weight of criterion	Points
1 – Leadership	64 x 1,0	64
2 – Strategy	60 x 1,0	60
3 – Employees	53 x 1,0	53
4 – Partnerships and the resources	64 x 1,0	64
5 – Processes, products and services	53 x 1,0	53
6 – Results related to customers /citizens	43 x 1,5	65
7 – Results related to employees	20 x 1,0	20
8 – Results related to the society	30 x 1,0	30
9 – Economic results	40 x 1,5	60
Total:		469

Having acquired these points, the FME became the winner of the National Prize of the Slovak Republic for Quality in the category C (Public Sector Organizations) in that year. The award was officially handed over to the FME representatives on 7 July 2015.

4. EXPERIENCE FROM PARTICIPATION

Participation in the National Award for Quality competition has brought several lessons that can partially copy the abovementioned self-assessment procedure. However, this is the experience obtained in the process of self-assessment.

a) knowledge of the EFQM model

Knowledge of the model itself, its criteria, and sub-criteria is the first limiting factor of the participation in the competition. It is recommended to attend the training organized by the SOSMT of SR, the competition announcer itself. In as much as coordination of the entire self-assessment process stands on the shoulders of the team of appointed employees, it is advisable that all members attend this training. Self-assessment is not about the role of an individual!

b) participation of the Faculty is essential

Even though this statement may seem as a kind of cliché, participation of the management is inevitable. Without management being involved, it is impossible to write the self-assessment report based on which a successful outcome could be expected. Involvement of leadership should be understood as the whole self-assessment process, which also includes on-site examination.

c) building effective team

Assigning the team is vital. It is convenient to define a coordinator (s) whose role will be data collection process management, data selection and sorting, composing the report structure as well as coordinating the process of self-assessment (using the RADAR card). The team shall further be composed of responsible persons (i.e. gestors) for each criterion since their role is to collect the information and data that may be duly presented in the self-evaluation report.

d) data collection and presentation

The role of the gestors for the individual assigned criteria is to collect data and information, such as graphs; trends presented and commented on in an appropriate way. The role of the coordinators is to guide sorting of the collected data published in the self-evaluation report. It is desirable to use cross-references to the particular pieces of evidence and uniform labelling in the self-assessment report.

e) self-assessment process

Acquainting with the methodology of self-assessment by using the RADAR card is very important for obtaining as realistic picture as possible. The use of the RADAR card for the purpose of self-assessment is based on subjective feelings. On the grounds of fulfilment of criteria (sub-criteria) degree, the guarantor assigns a corresponding rating.

f) on-site assessment

Submission of self-evaluation report is not all. Having studied the submitted report, the evaluators come to examine the real state of the organization (faculty) and have the self-assessment adjusted by the organization (faculty) itself. It is very important to be responsibly prepared for such a meeting during which veracity of that data will be examined, as well as the existence of the evidence to which the self-evaluation report refers. The presence of management at this meeting is inevitable and must be cooperative to the assessors. It is this meeting that gives the assessors the feedback on whether the preparation of self-evaluation report was adopted as a mere task without interest or the leadership has been involved throughout the period of its preparation.

5. CONCLUSION

Participation in the National Award for Quality provided a feedback to the Engineering Faculty of the Technical University of Kosice. This was not about feelings, but about implementation of the internationally accepted model, which in its methodology is cross-sectional. It is focused on the whole spectrum of operation of the Faculty. It is not focused on processes as such, but on the particular areas, such as employees, planning and strategy, customers, environment, and economic results. The result of this self-assessment method application is a figure (in the range 0-1000). This figure represents the level of compliance with the criteria (sub-criteria) of the EFQM model and it can serve to compare with other competitor organizations (faculties). The resulting numerical score is not the main objective. It is to hold up the mirror that as a proven and internationally recognized methodology points to strengths and weaknesses that can serve as a base for further development of the Faculty. Based on the on-site assessment results, the criteria of assumptions were rated higher than the criteria of results. This could be due to the fact that the structured presentation of results according to the EFQM model methodology was a kind of novelty in the conditions of the Faculty.

Publication of this paper

This article was created by implementation of the APVV-15-0351 project " The development and application of risk management models in the conditions of technological systems in line with the Industry 4.0 strategy" as well as the VEGA project no. 1/0150/15 The development of methods of machinery safety integrated systems implementation and verification, machinery systems and industrial technologies.

REFERENCES

- [1] BOU –LLUSAR J. C. et al.: An empirical assessment of the EFQM Excellence Model: Evaluation as a TQM framework relative to the MBNQA Model, *Journal of Operations Management* 27 (2009) 1–22, ISSN: 0272-6963
- [2] FARAJ, R. et al.: Performance Evaluation Based on EFQM Excellence Model in Sport Organizations. *International Journal of Academic Research in Business and Social Sciences* June 2012, Vol. 2, No. 6, p. 451–460, ISSN: 2222-6990
- [3] HRUBEC, J. et al.: *Integrated Managerial System*. 1.eddition Nitra: SPU, 2009. 543 s. ISBN 978-80-552-0231-0.
- [4] MARKULIK, Š. a kol.: *Management Quality System*. 2. edition Košice: TUKE, SJF, 2013. 96 s. ISBN 978-80-553-1521-8.
- [5] NENADÁL, J.: *Management Quality System. What, why and how to measure*. Prague: Management Press, 2016. 224 s. ISBN 9788072614264.
- [6] STYK, P., et al.: *From examination through ISO 9000 to TQM*. Bratislava: EPOS, 1998. 319 s. ISBN 80-8057-094-9.
- [7] SÚTN (Slovak Standards Institute): Online. Available on the Internet: <https://www.sutn.sk/>. Cit.: 06.02.2017

AUTHORS

Ing. Anna Nagyová, PhD. The Technical University of Kosice, Faculty of Mechanical Engineering, Department of Safety and Quality, Letná 9, 042 00 Kosice, email: anna.nagyova@tuke.sk, +421 55 602 2600

Assoc. Prof. Ing. Stefan Markulik, PhD. The Technical University of Kosice, Faculty of Mechanical Engineering, Department of Safety and Quality, Letná 9, 042 00 Kosice, email: stefan.markulik@tuke.sk, +421 55 602 2600

Reviewed by:

Assoc. Prof. Ing. Marek Šolc, PhD.