

Between Balanced Scorecard and Quality Management System

Jelena Jovanović¹⁾

Aleksandar Vujović¹⁾

Zdravko Krivokapić¹⁾

*University of Podgorica,
Montenegro¹⁾*

Abstract: *The aim of this research is to analyze parallel implementation of BSC as a strategic management system and quality management system by the principals of ISO 9000 certification. We will analyze advantages and disadvantages of the models. Further more, the research will analyze cumulative advantages of the two systems implementation. The research will present possibilities for BSC implementation in QMS environment, underlining the processes. We will put the accent on improvement of firm's effectiveness by Strategic Management System (BSC) and Quality Management System's implementation.*

Keywords: *Balanced scorecard, ISO 9001, effectiveness, improvement*

1. INTRODUCTION

Each firm has to pay attention on its development and to wide its aims out of financial ones to survive and then to get bigger market share. If the firm with those perspectives defines its strategic direction of development, the next step will be oriented on effective implementation of strategy that orients employees to concentrate their activities on objective realization. Further more, the strategy defined like that will permit to employees to measure activities for long term.

For environment with those needs, experts developed strategic management system - Balanced Scorecard which was in the first place created as a system for measurement, and like this it presented resolution for performance measurement. During the time, this system was transformed from measurement tool into the "strategic management system". This system is used to define strategy as set of activities, which will help firm to adopt its business on market changes.

Furthermore, to improve its business firm adopts also ISO 9000 standards. This standard presents the best business practice in the world. Quality management system by the

principals of ISO 9001 includes realization of well define standards' requirements. This will result by firm's certification as a public "price" for the results obtained. One of the conditions for receiving ISO 9001 certification is the procedure respectation inside the firm.

2. MANAGEMENT SYSTEMS (BSC AND ISO 9001)

BSC is one very complex system for managing which serves for firm's performance measurement using four balanced perspectives (financial perspective, customer perspective, business process perspective and learning and growth perspective) and realises continual improvement of objectives and values reachment. BSC helps firm concerning following direction /1/:

- Effective measurement of firm performance
- Increase of non-material property. It was showed that 75 % of values inside firm were created by non-material property of BSC. Non material property of BSC presents methods for control, noting and

complete use of all basic principles that are necessary for success.

- Implementation of defined strategy.
From the image 1 we can clearly note that BSC presents the core of the management system of one firm, because it balances, supports and provides mutual correlation between key management processes and orient them on defined strategy. Firms today make the business in very dynamic environment, so it is impossible that the strategy that is defined only one time is used for realization of objectives, and that it includes activities with new strategy creation. This single loop process can not be adequate for the

modern firms. Because of that they use strategic feedback- system that will make possible control, strategy changing based on the established hypotheses. This double loop process make possible check up and verification of already established approach, and gives the image concerning the necessary strategy changes on the base of the new approach, monitoring and experience. BSC creates very good system of double loop, with which strategy could be tested, noted and changed. Following this way firm will be directed on every day improvement and measurement of this improvement.

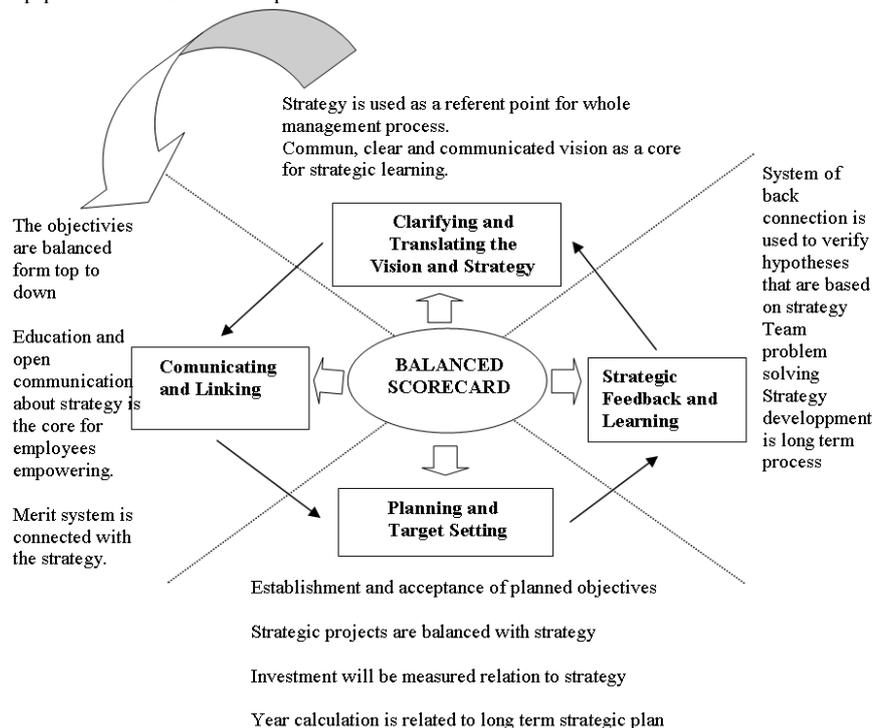


Figure 1 BSC as a management system /2,3,27/

Only way to implement strategy successfully is to assure that all employees understand and act along with this strategy on all levels of the firm. Cascade downing of BASK model presents transmitting the objectives throughout hierarchy of the firm and permitting to all employees to understand in which way their every day activities will help to realization of firm's established strategy. Using this cascade downing of the strategy, firm creates views of all employees concerning their activities that

will help to realization of objectives. During cascade downing of objectives it is very good to use principle /21/. This principle argues that if the lower level objectives are realized, the higher level objectives are also realized-even if usually the objectives from lower levels have no common points with those of higher levels. We can notice that the cascade approach is directly connected with communication process. This process is very important both for

BSC and ISO 9001 certification because it represents good base for development of double loop communication between levels, all aiming to define strategy, but at the same time to improve firm's performance.

On the other side, firm with ISO 9000 certification is seen throughout processes that are necessary to be documented by the demand of standards, and that mutually formulate network by their customer oriented entrance and exists. Firms that are based their business on the ISO 9001 certification receive necessary conditions for flexibility and adoption for new changes.

Many studies are based on the advantages and disadvantages of quality management system inside the firm. Literature review /4, 5, 6, 7, 8,.../ indicates that quality management system underlines too much the importance of documentation and varieties of procedures and does not give too much results relating firm's performance improvement. In this case, the standard could be seen as an obstacle for creativity and innovativeness of employees / 28/.

It is well known /9, 10, 11, 12, 13, 14/ that firm adopt ISO 9001 certification as a marketing advantage, suppliers pressure or customer, but not because of performance and business improvement. There are rappsorts that ISO 9000 adoption represents only the alibi for the managers that they act in direction of business improvement.

Still the majority of researchers /15, 16, 17, 18,.../ indicate the advantages of ISO 9001 certification especially in the part of non-balance. Further more, /19/ imply that ISO 9000 can improve business performance.

Relating to /20/ we can see the advantages of ISO 9001 throughout 4 perspectives identical with those of BSC:

- Employees
- Processes
- Costumers
- Finance

This research indicates that the individual advantages by each perspective equal to 50 % improvement by the standard.

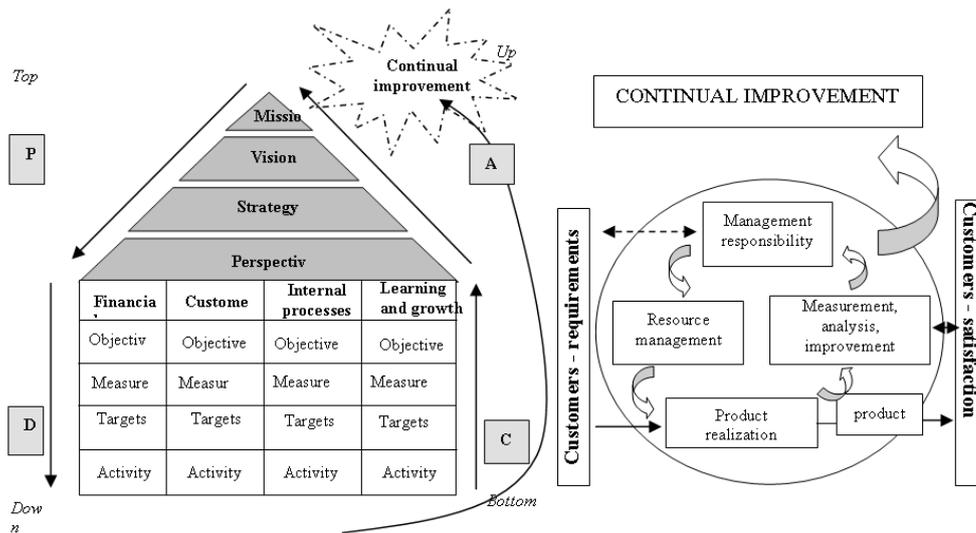


Figure 2 PDCA cycle included in BSC and QMS

Moreover, we can conclude that by respecting the approach of standard one firm can significantly improve performance in all spheres, even in those financial ones. It underlines that the standard increase customer satisfaction and decrease the number of non-balances, what present two points that are

present in their mutual correlation / 23/.

There is no doubt that QMS and BSC have the same objective - the improvement of firm's performance. The way to reach this objective is different for two systems. QMS implementation drives to customer satisfaction and than to whole firm's performance. BSC demand better

understanding of critical success factors with other approach along with measurement in its area /24/.

3. COMPARATIVE ANALYSIS OF BSC AND QMS

Comparison of those two images (image 2) we can notice that Deming's cycle presents the base of both. Moreover BSC is focused on results than QMS, still it is reserved to the question does real strategy implement along with strategic objectives that present core for firm's improvement /32/

BSC is compatible with QMS but from BSC's point of view, QMS has disadvantages concerning managing firm's strategy /1/. **On the other side, from QMS point of view disadvantages of BSC is that it is not enough customer-oriented.**

BSC is compatible with QMS but from BSC's point of view, QMS has disadvantages concerning managing firm's strategy /1/. On the other side, from QMS point of view disadvantages of BSC is that it is not enough customer-oriented. BSC is based on cause-effect value link where the core supposition is that with activities of one part of chain impacts improvement of other segments. Still the most important objectives are related to financial perspective. Cause-effect chain of the firm is defined with strategic map which explain the link between their mutual effect. This link explain how much employees satisfaction is important for process performance improvement. Furthermore, it improves customer satisfaction and all this

linkage impacts positively financial performance of firm. The quality costs are defined, more precisely investment in quality impacts positively financial results.

BSC financial perspective presents objectives and customer perspective is just one part of the value chain, while with QMS customer is always the most important. It does not analyze impact of customer satisfaction on firm's financial objectives, but the motto of firm is "If we invest in development, financial results will come".

Correlation between the major BSC segments and demands of ISO 9001 standards is presented in table 1.

Table 1.

BSC	ISO 9001: 2000
Vision and Strategy	5.3 Quality policy 5.4.1 Quality objectives
Customer perspective	5.2 Customer focus 7.2 Customer - related processes 8.2.1 Customer satisfaction
Internal process perspective	4.1 QMS - general requirements 7. Product realization 8.2.3 Monitoring and measurement processes
Learning and growth perspective	6. Resource management
Financial perspective	Not specifically addressed in the standard.

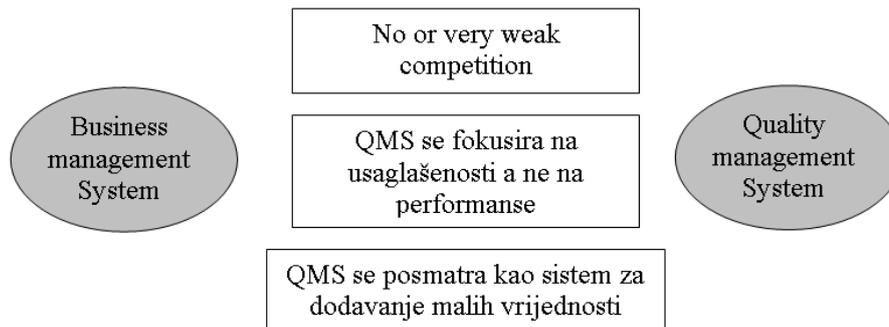


Figure 3. Correlation between QMS and business management system

As we told for BSC, financial perspective is the

most important one and presents the main objectives. The rest of perspectives are defined by financial one, and it is not explicitly defined with standard. BSC is still oriented to administrative points and gives the answer on the question WHAT, and has a great linkage with firm's management that defines strategy, downing cascading objectives from the lowest level, and monitors its realisation to the objective of strategy innovation. Even if ISO 9001 (point 5.4.1 *Quality objectives*) includes that quality objectives have to be defined on the certain functions and levels, QMS can present disadvantages concerning connection with business management system as it is presented in the image 3 /31/.

Effectiveness and efficiency are defined inside the processes. It is often underlined inside ISO 9000 standard that long term improvement of QMS depends on effectiveness and efficiency of the processes /33/, still it is not indicated how it should be measured.

Time for effectiveness is connected with firm's strategy and objectives what is resulted by that strategy. Effectiveness in the firm can be defined as a possibility for strategy realization and achievement of planned results. Effectiveness can be defined as a "relationship between results reached and investment /29/.

Traditional criteria for definition of effectiveness presents definition of financial effectiveness. In the modern literature, using only financial effectiveness is not enough. Financial measures can not completely present firm's effectiveness. Because of this it is necessary to define parallelly measures that impact directly or indirectly on financial results and strategy realisation. The objective is to produce high quality products with optimal costs and customer satisfaction. Firm's effectiveness can be monitored through dimensions of effectiveness that are discussed inside BSC on the image 4 /29/.

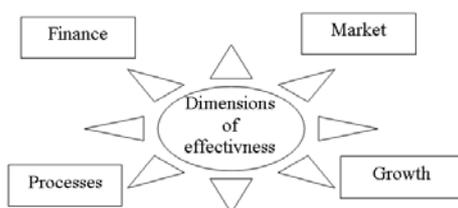


Figure 4 Dimensions of effectiveness

Measures of effectiveness in BSC have to be chosen to present how firm effectively reach defined tasks. The basic control of processes effectiveness throughout BSC is comparison between present and past value measures /22/. Measurement of strategy effectiveness throughout BSC is based on comparison between present and planned value measures and analysis of the reasons of failure. At the same time it is possible to realize also a comparative analysis of value measures relation to one reference firm in sense of benchmarking /29/.

ISO 9001 indicates (point 5.4.1 *Quality objectives*) that "Quality objectives have to be measured and balanced with quality policy". On the other hand, it is well known that in practice, little attention is paid on measurement definition. Because of this BSC as a measure management system can be very helpful to orient QMS in every day decision making on the base of control of measures and objectives. Those measures and objectives are created from defined strategy that includes of course quality objectives. By this way BSC can be very important tool in processes effectiveness and efficiency measurement inside the firm.

4. QMS IMPLEMENTATION IN BSC ENVIRONMENT

Many large firms work with measurement management system like BSC but they usually act like this in QMS environment what presents certain challenge because BSC and QMS can have common basic elements /25/:

- They are based on measurement,
- They are focused on performance improvement,
- They are oriented on changes and activities,
- They are based on principle, learning and feedback,
- Long term success of models depends on management decision for performance improvement,
- Both are concentrated to cause, effect and results.
- Both follow process structure.

Relating to /26/ if firm has already experience with QMS, it is easier for firm to implement BSC and to establish good way to analyse problems concerning customers and

firm's processes. Of course, there is firms that implement first BSC and than they realised the need for QMS.

Firms that are oriented to QMS implementation will significantly improve performance through strategic frame of BSC because it is like introduction for QMS principles in new frame and like that improves effectiveness. In model of BSC, this is defined with special perspective (internal process) while whole QMS is based on process approach and on mutual linkage of in-out processes. BSC can identify which internal processes and in which level of improvement could be more critical for firm's strategic success. Following this method, firm can identify if it has to orient process improvement on cost reduction, quality improvement or time reduction. In many firms, QMS program could impact on financial and customer performance but it is not explicitly proven [1].

Firms that are focused only on quality do not connect those improvements directly with results, concerning customer and financial perspectives, while BSC demands that this linkage has to be explicit and measurable. The elementary support of BSC is viewed as

articulation of quality improvement through profit increase, increase of customer numbers, more precisely through clear results on all perspectives (financial, customer, internal processes, learning and growth).

In the image 5 we present in-out processes elements balanced with QMS. Still it is necessary for each processes to define supplementary objectives of the process balanced with defined strategy. Also, it is necessary to define objectives and linkage between them and other processes and elements of strategic map of BSC. This way makes possible definition of correlation of adequate process with financial objectives, and not only with customer's ones. Moreover, through strategic map with balanced strategic definition firm can identify learning and growth elements that improve significantly processes improvement. Moreover with analysis of strategic map firm can clearly identify in which level firm should improve employees capacity, find necessary resources... to reach necessary quality level, but at the same time to identify whole impact of all elements on firm's financial results.

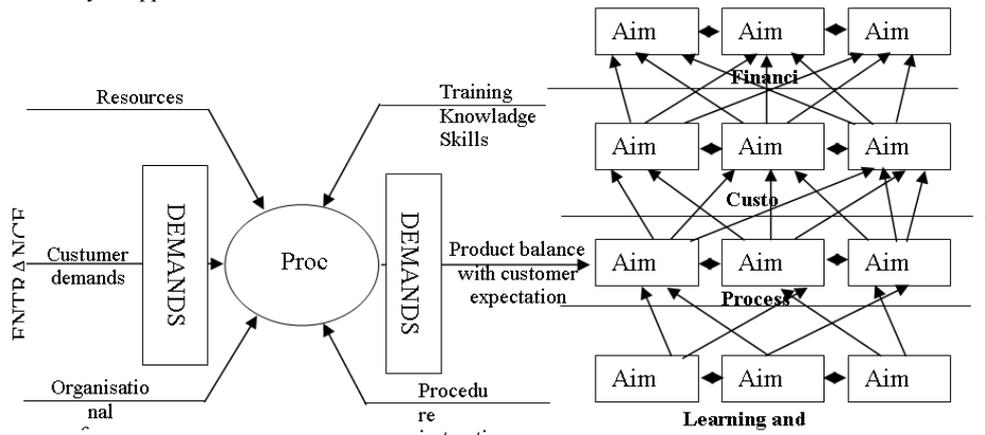


Figure 5 Correlation between Process approach and strategy map of BSC

Definition of measures and objectives for each process is very important improvement approach because things that are not measured and without defined objectives can not be part of systematic improvement. Strategic objectives are connected with key processes. Each processes have to have well defined values, for each measures that are monitored, that are balanced with strategic objectives and that are

going down cascadingly to every actor in certain process.

This way, BSC creates pro-active activities that are oriented to improvement what is very important because some firms can negatively understand ISO 9001 8.5.2 demands. Pro-active activities represent the most important motor for firm's improvement while corrective activities are used for system

maintenance.

On the other hand internal quality audits are established to verify if QMS is implemented and maintained well (ISO 9000 8.2.2b) while the traditional internal audits are focused on already existed processes that are documented by procedures and not in fields that drive to major changes. Many quality procedures are written with not adequate attention on the major role of documentation what from BSC point of view is completely clear. The documentation will be used to protect existing level of performance for any individual measure in improvement direction /30/. By control of BSC, internal audit can realise strong objective, independent feedback with whome it is possible to measure processes effectiveness and efficiency and to define direction of improvement.

ISO 9001 indicates that management has to create all necessary conditions for development improvement following ISO 9001 certification and to maintain this system also after implementation. BSC proves to management that results reached are balanced with investments.

5. CONCLUSION

Both systems BSC and QMS underline the customer perspective and employees satisfaction. Also, learning and growth have certain role in two systems. Of course, both systems improve significantly firm performance, but using the different approaches. BSC can be, without any doubt, tool that include QMS. As how BSC basically

presents strategically oriented system with clearly define measurement objectives, this always can for all activities give the answer Why and in which direction. While QMS defines approach of improvements in all business segments and like this answer the question HOW.

Measure of effectiveness is essential element of QMS process approach and the core for long term improvement. It is realized through process analysis and quality noting relating cost analysis. In the practice, quality cost is rarely or almost never analysed, so like this BSC can be very good tool for noting process of effectiveness of the firm because through strategic map this system can check all elements of firm's development relating to the strategic and financial results. Moreover, not only that BSC makes possible systematic monitoring of firm's success, but more it presents a well established base for value system creation, which represents at the same time the motivation system for all employees.

Even, there exists opinions that implementation of one system will cancel need for implementation of the other system, this research shows through advantages and disadvantages of both systems, the importance of simultaneous use of both systems. The existence of one system inside the firm, decrease significantly the time for the implementation of other system. The reason for this is that those two systems are completely compatible, and each will fill the gap of the other system.

REFERENCES

- [1] Paul R. Niven, Balanced scorecard -Step by step, John Wiley and sons, 2002
- [2] Kaplan, Robert S., Norton, David P.: The Strategy-Focused Organization, Harvard Business School
- [3] Kaplan, Robert S., Norton, David P.: Balanced Scorecard - Strategien erfolgreich umsetzen, Verlag Schäffer-Poeschel, Stuttgart, 1997
- [4] Seddon J., "In Pursuit of Quality: Case Against ISO 9000", Cork: Oak Tree Press
- [5] Wenger E., " Communities of Practice: Learning, Meaning and Identity" 1998, (Cambridge: Cambridge University Press)
- [6] Hossein Bidgoli "Modern information system for managers" Department of management, California State University, Bakersfield, California, 1997
- [7] Terziovski M., Samson D., Dow D., " The business value of quality management systems certification. Evidence from Australia and New Zealand" Journal of Operations Management, Vol. 15, 1997,

- [8] Lima M., Resende M., Hasenclever L., "Quality certification and performance of Brazilian firms: an empirical study", International Journal of Production Economics, Vol 66, 2000.
- [9] Brown A., Van der Wiele T., Loughton K., "Smaller enterprises experiences with ISO 9000" International journal of Quality & Reliability Management, Vol.15 No3, 1998
- [10] Anderson M., Sohal A., "A study of the relationship between quality management practices and performance in small business" International journal of Quality & Reliability Management, Vol.16 No9, 1999
- [11] Casadesus M., Gimenez G., Marto Bronsoms R., "Tipologías de empresas certificadas según la normativa ISO 9000. Análisis de los resultados de un estudio empírico." Paper presented at the IX Congreso nacional de ACEDE, 1999.
- [12] Hughes T., Williams T., Ryall P., "It is not what you achieve it is the way you achieve it" Total Quality Management, Vol. 11 No. 3, 2000
- [13] Martínez C., Escribá A., Balbastre F., González F., "Repercusiones de la implantación de un sistema de aseguramiento de la calidad a partir de la realización de un diagnóstico estratégico and su vinculación con los resultados de la empresa" paper presented at the X Congreso Nacional de ACEDE, 2000.
- [14] Withers E., Ebrahimpour M., "Impact of ISO 9000 registration on European Firms: a case analysis" Integrated Manufacturing Firms, Vol. 12 No.2 2001.
- [15] Casadesus M., Karapetrovic S., "An empirical Study of the Benefits and Costs of ISO 9001:2000 Compared to ISO 9001/2/3 1994: Total Quality Management, Vol. 16, No1, 2005.
- [16] Schenkel A., "Conceptualizing and Exploring the Organizational Effects of ISO 9000: Insight from the Oresund Bridge Project" Total Quality Management, Vol 15, 2004.
- [17] Abraham M., Crawford J., Carter D., Mazotta F., "Management decisions for effective ISO 9000 accreditation" Management decision, Vol 38, 2000
- [18] Casadesus M., Jimenez G., "The benefits of the implementation of the ISO 9000 standard: empirical research in 288 Spanish companies" The TQM magazine, Vol 12, 2000.
- [19] Koc T., "The impact of ISO 9001 quality management systems on manufacturing" Journal of materials Processing Technology, 2007.
- [20] Vloeberghs D., Bellens J., "Implementing the ISO 9000 standards in Belgium" Quality progress – 29(6), pp 43-48
- [21] Akao Y., Kanri H. „Policy Deployment for Successful TQM“, Cambridge MA, Productivity Press Inc., 1999
- [22] E. Marciniak, The usage of the Balanced Scorecard in the quality management according to requirements in ISO 9001:2000 standard, Quality Problems 8 (2002) 8.
- [23] Vujović A, "Poboljšavanje performansi poslovnog sistema na bazi sistema menadžmenta primjenom vještačke inteligencije" doktorska disertacija, Podgorica, 2008
- [24] Mika Hannula, Harri I. Kulmala, Petri Suomala, "Total Quality management and balanced Scorecard – A comparative analysis, Tampere Finland
- [25] www.goldcert.com/html/mm-paper.html
- [26] Armin Barandun, Balanced Scorecard - a promising performance management system for non-profit organisations, www.agrideainternational.ch/fileadmin/10_International/PDF/RDN/RDN_2000/bn1_00_barandun.pdf
- [27] Robert S Kaplan, David P Norton, "Alignment Using the Balanced Scorecard to create Corporate Synergies", Harvard Business School, Boston, 2006.
- [28] Nils Goran Olve, Jan Roy, Magnus Wetter, Performance drivers, John Wiley and sons, Toronto, 2004.
- [29] J. Michalska, The usage of the balanced Scorecard for the estimation of the enterprises effectiveness, Journal of Materials Processing Technology, 2005
- [30] Rody Ryan, Managing Metric Management in ISO 9000, Ireland
- [31] Norma S. Simons, A Cost Effective Way to Develop - A quality Management System, Michigan, 2006
- [32] J. Jovanović, A. Vujović, Z. Krivokapić, M. Perović, Sistem menadžmenta kvalitetom u BSC okruženju, Nedelja kvaliteta, Beograd 2008
- Received: 19.06.2008 Accepted: 23.08.2008 Open for discussion: 1 Year

