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COMPARATIVE ANALYSIS OF INNOVATION PERFORMANCE IN CERTIFIED FIRMS IN MONTENEGRO AND REPUBLIC OF SRPSKA

Abstract: *Research subjects of this study are certified companies and their commitment to innovation, as well as their own development and implementation of innovation. Certified companies are those companies that have set one or more standards: ISO 9001:2008, ISO 14001: 2004, HACCP, OHSAS 18001, ISO 17025:2006, ISO 27001.*
The research is based on 60 certified companies in Montenegro and 165 certified companies Republic of Srpska. The research was conducted at certified companies from all regions, for every activity and sizes. For this purpose it was used questionnaire with 91 questions and it was filled in like interview.
Keywords: *innovation, standards, certified companies*

1. Introduction

During the last few years, and especially strenghten by the most recent crysis, the model of economic development based on competition and innovation, becomes more important.

Innovation doesn't only refer to creation of high techology products.Nor does it refer to researches which conduct to creation of new products.In the wide meaning,innovation is a new approach to work and the way people work, as well as it is attitude toward business and production process or final products. Furthermore,the new knowledges and ideas don't conduct to the creation of a successful innovation by themselves. Successful interaction between company,academic department and public administration is becoming critically important for the transformation of the new knowledge and ideas into commercial usable products, economic growth and social benefit. The interaction of those subjects is covered by terms "triple-helix" and "innovation system". But, innovation is not confined only to those subjects.

The growing importance of innovation and ability of companies and institutions to innovate has far-reaching consequences on the strategy of the states. Global race and technological development led to the changes of balance of power in the international commercial relation so innovation became critically important determinant of competition and success factor of both developed and developing countries.

The reserach investigates the interaction of quality standards and innovation. The target is to answer the question of whether the consistent application of the eight principles that form the backbone of the quality standards has a positive effect on the

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occurrence of innovation according to the type and degree of novelty. The research aimes to clarify the relationship between quality standards – innovation performance.

2. The influence of Quality Management System on the development of innovations in the organizations

Following the changes that are reflected in the globalization of the market, there is a need for development of uniformity, that is, the standardization of products and systems management. In this sense, the standards for systems management are adopted and periodically, according to the needs, revized. In this way a large number of standards is developed in the field such as standards of quality management system, management system, environmental protection, information security management systems and many others.

Quality Management System (QMS) has now become a recognizable guarantee of trust in certified business system. Sustainable success is based on endeavors for constant improvements, learning and innovations (Krivokapic, 2011). Securing the continuity of success is possible by respecting 8 principles of QMS. Acctualy all other management system standards are based on ISO 9001 standard.

Occurrence of such standards and their revisions, certainly are not formal but essential need for adjustment of the application and resulution of any problems that arise in the application around the world. Implementation of quality management system is certainly essential for sustained success of the organization (Pekovic, 2010; Pekovic and Galia, 2009; Grolleau *et al.*, 2009).

ISO 9000 series of standards, which is particularly highlighted in the new edition of ISO 9004, presents a guarantee or success, efficiency and effectiveness. There are a number of studies that address the gains and losses obtained by the implementation of the quality management system (Pekovic, 2010; Pekovic and Galia, 2009; Grolleau *et al.*, 2009). Majority of research points the actual benefits (operational, financial, customer satisfaction, employee's satisfaction) from the implementation of ISO 9001 what opposed to those who say that the cost of implementing and maintaining QMS - is greater than the profit it achieves (Pekovic, 2010; Pekovic and Galia, 2009; Grolleau *et al.*, 2009). The negative notions are supported by the authors (Abraham *et al.*, 2000; Casadesus and Jimenez, 2000; Romano, 2000; Gupta, 2000; Withers and Ebrahimpour, 2000; Casadesus *et al.*, *2011*) that consider ISO 9001 mainly in terms of managing defects.

Under dynamic conditions of market changes, sustainable and quality management system is very important and brings corporate values to organizations, implementation of tools for improving business performances and development of innovation (Heleta, 2004; Lascelles and Dale, 1991). By the application of quality management systems, many successful companies have encouraged the development of innovation in order to adapt and survive under conditions of challenging business environment and thereby develop very efficient and effective quality management systems that specifically develop knowledge management systems for the purpose of improvements and innovations development (Evans and Lindsay, 1994).

It is important to note that the standard on which the quality management system is based during the audit cycles has moved in the direction of promoting the idea of continuous improvements, innovations and goals, and more, leading to the establishment of sustainable and successful business system. Such attitudes lead to realization of cumulative effect and achievement of significant improvements through small financial investment and gradual improvement of innovation.

However, it should be noted that each implemented QMS does not have to be also effective. There are situations in which the organization does not really pay enough attention to the QMS, but implement it only in order to win a certificate and therefore can hardly expect any significant positive effects. Therefore, the statement is often come across in the literature that only organizations that have the effective and efficient QMS are better predisposed to develop innovation and can expect improvements (Kwai-Sang *et al.*, 2003)**.** With other management szstem standards is the same situation.

3. Goal of the research

The subjects of the research are certified companies in Montenegro and Republic of Srpska, precisely their commitment to innovation, development and implementation of innovation. Under the certified companies we consider those companies which have introduced system of management based on the standards: ISO 9001:2008, ISO 14001:2004, HACCP, OHSAS 18001, ISO 17025:2006, ISO 27001. Why are exactly the certified companies the subjects of the research? Because, on their way to get certificate,they had to arrange way of doing business through distinct and optimized organization,processes and procedures, which is enough to considerthem the most advanced and the most organized companies. The results we get we can consider a benchmark for the other companies in Montenegro and Republic of Srpska.

The best way to perceive the term innovation is through definition of innovation as use of a new and improved idea, procedure, service, process which brings new advantages or quality in the usage.

The most accepted is division given by:

Product/services innovation,

1) Process innovation,
2) Organizational innovation,
3) Marketing innovation.

In past few decades, the World Economic Forum (WEF) is ranked as the most important institution which affirmed the problem of measuring the competitiveness of the national system. Since 2004, WEF, based on annuel review and the methodology improvement for assessing competitiveness, introduced the Global Competitiveness Index (GCI), which is determined by weighting the average of 12 pillars of competitiveness, organized into three parts that are key to the different ways of managing the national economy. The 12 pillars are: institutions, infrastructure, macro environment, health and primary education, higher education and health, goods market efficiency, labor market efficiency, financial market sophistication, technological capacities, market size, business sophistication and innovation.

Table 1. The global competitiveness index for the countries of the former Republic of Yugoslavia

Country/ Economy	**Global Index GCI**		**Basic requests**		**Efficiency Improvements**		**Innovation**	
	Rank	*Note*	*Rank*	*Note*	*Rank*	*Note*	*Rank*	*Note*
Slovenia	56	4.34	39	5.05	55	4.25	36	4.02
Montenegro	72	4.14	74	4.49	74	3.99	69	3.57
Macedonia	80	4.04	71	4.52	84	3.85	110	3.13
Croatia	81	4.04	60	4.68	72	4.01	83	3.39
BiH	88	3.93	81	4.33	97	3.75	99	3.28
Serbia	95	3.87	95	4.15	88	3.83	124	2.96

This work request orientation on the twelfth pillars and displaies position for the republics of the former Republic of Yugoslavia shown in Table 2. In that sense, it shows 7 positions and the impact on innovation.

Table 2. Position indicators XII pillars: Innovation

Former Yugoslave countries / *Indicators of innovation note*	*Slovenia*	*Montenegro*	*Macedonia*	*Croatia*	*BiH*	*Serbia*
Capacity for innovation	31	53	99	72	101	120
The quality of institutions for scientific research	29	54	100	48	72	67
Companies spending for Research and Development	47	63	123	76	90	132
Cooperation with universities	49	60	105	80	48	99
Government procurement of products	106	40	102	129	94	115
Availability of scientists and engineers	84	76	106	86	48	78
Utilization of patents per million inhabitants	23	119	59	33	50	119
XII pillars of innovation	32	60	110	74	80	111

In connection with this review, we establish the main hypothesis of this paper, which is:

H1: The impact of innovation of certified firms in Montenegro is more efficient than in Republic of Srpska, which is directly correlated with the global innovation index.

4. Research methodology

The research in Montenegro was conducted from April 1, 2011 to November 1,2011. Data collection was done using the method of INTERVIEW and that provided the bigger response rate ,larger accuracy and more complete answers in regard to the opinion poll method.The only adversity is that this method costs more and requires some more time.The questionnaire that was used had 91 questions and 33 of them concern innovation (Petrovic, 2011).

In the group of all Montenegro's companies the basic group (statistical group) are all certified companies.

1) Statistical group: 125 certified companies with the valid certificate (with total 168 certificates),from 15 cities of Montenegro.
2) Sample: 60 companies with certificate from 11 cities of Montenegro (that is 48% entity of the basic group);
3) Unit of analysis(entity): small,medium and big certified Montenegro's company;
4) Research instruments: INTERVIEW-filling in the questionnaire by the survey conductor.The interview was conducted with the persons in charge of the quality in the company-managers of quality.
5) Method of choise: Systematic

This sample included 40% of the certified companies from the north of country, 48,68% from the central part and 48,72% from the south. Interviewed companies (60 companies) employ approximately 11 250 employees.

In Republic of Srpska we contacted 418 active business organizations that have passed the certification process. 76 refused to conduct a survey, 52 have confirmed that they are not re-certified, 26 required a conversion of a bona fide written confirmation.

In agreement with the leaders of the quality of the contacted organizations questionnaire was forwarded to the 264 address. Feedback

response number is 165 with a note that 26 questionnaires were rejected due to failure to fill the options. The total number of questionnaires that are credible for the analysis is 139, which is 33.25% compared to 52.65% or contacted in relation to the surveyed organizations.

5. Results of the research

The paper separates part of the results related to elementary and reference areas on the basis of which it is possible to compare results between countries. These are the results shown in Table 3 (Crnogorac, 2013).

Table 3. Results for elementary and reference areas in two countries

Elements			Montenegro	Republic of Srpska
Statistical group			125	378
Sample size			60	139
Standard utilization		One standard	24 (40%)	88 (63,31%)
		Integrated standard	36 (60%)	51 (36,69%)
Firm structure	size	Micro	-	17,27%
		Small	33,33%	36,36%
		Medium	45%	34,53%
		big	21,67%	11,51%
	owership	private	70%	76,98%
		state	21,67%	10,79%
		mix	8,33%	12,23%
Education			36,7%	19,93%
Utiliyation of quality tools			1,66	1,04
Innovation orientation		Small	20%	28,78%
		Medium	71,63%	51,08%
		big	8,3%	20,14%
R&D department			43,33%	21,58%
Relational potencial			83,34%	19,85%
R&D investment			1,62% of income 33,33% no investment	1,64% of income 25,89% no investment
Employee training investment			63,33%	97,12%
Technological investment			95%	93,5%
Networking		partners	16,67%	30,94%
		Research inst.	10%	7,19%
Own inno activities			62%	35,98%
Without research			11,59%	25,89%
Number of commercial innovations			4,7	2,54
Without inno			15%	35,3%
Number of patents			2	2
Without patent protection			66,67%	66,67%
Profitability			85%	-
Profitability improvement			-	19,42%

For comparison relevance, this paper reviews exclude the key quantitative indicators that point out significant differences in the levels of innovation in certified organizations in the two countries. Since the systems differ in the degree of commitment to innovation and the majority of indicators in favor of the organization in Montenegro and the average number of commercialized innovation has almost

doubled compared to the same in the Republic of Srpska. Referring to the data WEF (Tables 1 and 2) Montenegro in 2012 to to 2013 is placed on 60th position in the GCI in a 69-assessments in the indicators column XII Innovation and sophistication which is 30 or 20 positions by higher than in BiH. The differences in the positions just confirmed the results of both the research carried out and associated impacts are certified innovation in Montenegro efficient than in Republic of Srpska. This confirms the hypothesis 1.

6. Conclusion

The innovation performance improvements are the main source of firm. In accordance with that, investment in innovation should become a key element of the strategy of each firm that wants to be competitive and establish good place in the global market. Company which in period of rapid dynamic development and strong competition doesn't see the necessity of constant changes and importance of creating innovation products/services, can lose its market very quickly, which brings it to an inevitable failure. Because of that constant development and investment in innovation must become priority for every company which wants to be competitive and take its position on market.

It is important to note that the quality management system based on ISO 9001 standards has moved in the direction of promoting the idea of continuous improvements, innovations and goals leading to the establishment of sustainable and successful business system. But empirical studies about link between ISO 9001 and innovations present conflicting results. Nevertheless, there are a greater number of empirical studies that prove that the effective QMS actually has the capacity to contribute to innovation in the organization with consistent compliance with the eight principles of quality.

The research presented in the paper is based on 60 certified companies in Montenegro and 165 certified companies Republic of Srpska with aim to make a comparative analysis of innovation performance in certified firms in these two countries. As a a key conclusion we can reffer to the first hypothesis that underlines the superior impact of innovation in certified firms in Montenegro than in Republic of Srpska. This is an indication underlines the basic idea for future research and how we can improve the situation in the Republic of Srpska based on experience in the field of Montenegro.

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