INNOVATIVENESS OF SERVICE COMPANIES IN FBIH

Scientific paper

Andrijana Ostojić Mihić Danijela Madžar Ivan Madžar

Abstract

Purpose – The purpose of this paper is to explain importance of innovation in service companies. Service companies comprise a significant part of the overall economic activity and give a crucial contribution to the economic growth and employment. Despite their economic importance, their innovativeness has not been taken into account for a long time nor has it been considered that innovation in services exists.

Design – It can be said that it is insufficiently researched in relation to the innovation in production companies. Increasing environmental pressure causes the need for innovative behaviour of companies.

Methodology – The aim of this paper is to examine the innovativeness of the service companies which operate in Bosnia and Herzegovina by applying Croatian Innovativeness Quotient methodology for the assessment of the condition and activities which are undertaken with the purpose of building the innovative capacities, and the assessment of perception of innovativeness on the company level.

Approach – It could be said that only the change is constant and that increasing demand for speed, flexibility, product and services quality require the companies to be innovative and proactive.

Findings – Although innovation in production companies is easily recognizable since there is a material product, it cannot be said that innovation in service companies is any less important.

Originality – The originality of this model is that if a company is unable to innovate, it risks a standstill state in relation to its competitors, who may take over the leadership by changing their offer.

Keywords service companies, changes, innovations

1. INTRODUCTION

Companies are forced to change and adjust quickly to new business conditions if they are to survive in a changeable environment. One of the possible methods for companies to survive is to introduce innovations. The study focused on service companies because they constitute a considerable share of the economic activities and give an essential contribution to the economic growth and employment. Despite the economic importance of service companies, insignificant attention is paid to studying their innovativeness. It could be said that very little is known about innovations in service companies, and only in the early nineties of the 20th century did the studying of innovations in service companies register considerable progress.¹

The focus on technological innovations was slightly increased by recognising the importance of non-technological innovations in the elements of services within the companies themselves. It became evident that, in addition to technological skills, human and organisational skills are very important too. Most authors who studied innovativeness of service companies agree that innovations in service companies differ in character from those in the field of production² and that service companies are not only passive recipients of innovators from the field of production.

The study focuses on the innovativeness of service companies operating on the territory of FBiH, by applying the methodology of the Croatian innovation quotient set by Croatian scientists and tested on Croatian companies is planned for 100 service companies which are covered by the research to calculate the composite innovation indexes, wherein summary indexes for the innovation capacity categories, innovation processes and strategies, and the innovation outcomes are to be previously calculated. The work is aimed at determining the level of innovativeness of service companies based on the composite innovation indexes.

2. THEORETICAL FRAMEWORK OF THE STUDY

Innovativeness is generally defined through a successful implementation of creative ideas in an organisation. Due to their specific characteristics, service activities include certain aspects which should be considered when defining innovations in services. In this process, the product and the innovation process are often made equal. The reason for this is a simultaneous production process and consumption of services.

Barras was one of the first authors who introduced new knowledge about the implementation of innovations in services. He noted that not the same patterns are used with regard to respective innovations in services and production, and pointed out that the traditional approach to innovations in services was wrong.³

According to Gallouj and Weinstein⁴ the difference between an outcome and the innovation process in services has not been clearly defined. If we take into account the fact that services are non-material, heterogeneous and interactive, we shall realise how difficult it actually is to measure innovations in services. Another important

¹ Den Hertog, P., "Knowledge-intensive business services as co-producers of innovation", International Journal of Innovation Management, 2000, 4 (4), taken from: Vos, A. H., Service Innovation: Managing Innovation from Idea Generation to Innovative Offer, University of Twente, Faculty of Management and Governance, Exser, Dutch centre for service innovation, August 2010, pp. 21

Bernardt, Y., De innovativiteit van de Nederlandse dienstensector, EIM, Zoetermeer, 2000, pp. 19.

³ Barras, R., Interactive Innovation in Financial and Business Services: The Vanguard of the Service Revolution, Research Policy; 19, 1990, pp. 215-237. ⁴ Gallouj, F., Weinstein, O., "Innovation in services", *Research Policy*, 26.,1997, pp. 537-556.

characteristic of innovations in services is the role of human resources. However, mechanisms for measuring their innovative conduct are limited.

The reason for the lack of interest in studying innovations in services lies in the fact that services have been considered a "traditional" field, with no technological progress or creativity.

Software bloom in the 1980-ies considerably helped the service sector to become recognisable by its measurable innovative potentials.⁵ Despite an ever increasing interest in this area of research, the studies about innovations in services still rely on qualitative cases in which a phenomenon is studied and explained from many different angles and where rigid definitions do not prevail. Unlike the production sector in which technology is of primary importance for the implementation of innovations, innovations in the service sector are rather social and organisational in nature and mainly triggered by a practical experience. Furthermore, innovations in services are often limited by size and results of the existing services.

While studying the reference materials about innovations, Reichstein and Salter⁶ found that even 37% of authors were researching innovations of products, while less than 1% of authors were dealing with innovation of processes. They define innovation of processes as "new elements introduced in the company production or provision of services". According to Stipanović⁷, dealing with innovations in business activities leads to:

- new products and business procedures and processes, modified and new products which are better than the existing solution;
- new models of production from the company's point of view, but not for the market as well;
- a new view of the future business dealings, reconception of business wherein knowledge and intellectual capital are duly recognised;
- steps forward in the civilisation development due to new perceptions, new production technology or new structure of human needs.

Complexity and varieties in the service sector and difficulties in the measurement of innovations and non-material changes in services, are the primary cause of the lack of studies. Therefore, services must be critically assessed primarily by the offering country, which is a precondition for their qualities, competitiveness and lasting expansions based on economic principles.⁸

⁵ Hjalager, A., "A review of innovation research in tourism", *Tourism management: research – policies – practice*, Vol. 31, No.1., 2010, pp. 1-12.

⁶ Reichstein, T., Salter, A., "Investigating the sources of process innovation among UK manufacturing firms", *Industrial and Corporate Change*, Vol.15(4), 2006, pp. 653-682.

⁷ Stipanović, C., Koncepcija i strategija razvoja u turizmu - Sustav i poslovna politika, Fakultet za turistički i hotelski menadžment, Opatija, 2006, pp. 47.

⁸ Bartoluci, M., Upravljanje razvojem turizma i poduzetništva : turistička politika, razvoj i poduzetništvo u turizmu, Školska knjiga, Zagreb, 2013, pp. 36.

After a long period of ignorance and underestimation of the issue of innovations in services, the time has finally come for them to be seriously elaborated in economic theory and public policy as well.

Innovations in service companies are a very important topic to discuss, not only for entrepreneurs, but for economy in general. Services constitute a strategic part of many countries' economies, and this is so with regard to the Federation of Bosnia and Herzegovina as well. However, there are no sufficient data about the implementation of innovations in the service sector in it.

3. METHODOLOGY

3.1. Research method

The aim of the research is to measure the level of innovation of service companies through the analysis of the state of innovation capacities, strategies, procedures, processes that lead to the creation of innovation. HKI provides companies the tools which can help increase competitiveness by changing business organization and in that way increasing the level of innovativeness of companies. The intention is to emphasize the importance of innovation and creating an environment that will induce the release of innovation within the company. The work consists of theoretical and empirical parts, which requires different approaches. Detailed methodological procedures include the following:

- *compilation method* (taking over the already existing results of the scientific-research works);
- *description method* (simple description of facts processes and objects and their characteristics);
- *comparison method* (comparing and finding similarities between certain incidences and entities);
- *classification method* (systemic division of complex entities to simpler ones);
- *analysis method* (splitting already known claims, conclusion, models, etc. to their integral parts);
- *synthesis method* (connecting simple claims and conclusions into complex and general claims, conclusions and models);
- *generalisation method* (development of general conclusions applicable to the relevant research);
- *statistic method* (definition of a statistic mass to be studied and collection of data and information about the statistic mass units. This is followed by an analysis and charted and graphic presentation of results based on which conclusions may be rendered).

A survey questionnaire was the main instrument for gathering primary data on innovativeness of service companies in Bosnia and Herzegovina within the scope of the research.

3.2. Sample and sources of data

Empirical research was conducted within the population of micro, small and medium service companies in FBiH. Classification of companies by size was performed pursuant to the Law on Accountancy and Auditing in the Federation of Bosnia and Herzegovina. A survey questionnaire was the main instrument for gathering primary data about innovativeness of service companies in Bosnia and Herzegovina within the scope of this research. Starting points for content-related structuring of the questionnaire were the aims and expected results of the research and the requirement of comparability with some other relevant researches of innovativeness of companies. Hence, a questionnaire developed by a consulting house Sense Consulting, a top Croatian business weekly magazine *Lider* and the largest private university in Croatia, the University of Applied Sciences VERN, and designed to assess innovativeness at the level of Croatian companies - Croatian innovation quotient, was used in this research. It researches and measures the level of innovativeness of companies by analysing the status of their innovation capacities (10 questions), strategies, procedures (10 questions), processes and models (9 questions), which lead to innovations. At the time of global economic crisis, when only a few companies are in focus for additional investments, HKI provides the companies with instruments which, by a different organisation of business dealings, may help with increased competitiveness, income, profit - all of this by increasing the innovativeness of companies. The methodology under which the quotient of innovativeness of companies is determined is authentic and it uses experiences of other researches on similar topics $- \exp$. European Innovation Scoreboard and Global Innovation Index – and many other national and international researches of innovations. The questionnaire developed was dispatched to the addresses of 100 micro, small and medium service companies in FBiH, while the questionnaire feedback was received from 35 companies.

Branch of business activities	Number of companies	
Financial mediation	2	
Administrative and auxiliary service activities	2	
Education	3	
Transportation, warehousing and communication	2	
Travel agencies and tour-operators	4	
Trading	10	
Catering	12	

Table 1: Structure of sample companies from the aspect of classification of activities

Source: the author's research

Table 2: Structure of company owners

Type of ownership	Number of companies
Public	0
Private	21
Private co-ownership between several persons	14

Source: the author's research

Research on innovations in service companies faced a lack of understanding. The reason for that may be attached to an "ideological paradigm according to which production is a dynamic moving force of economy" and a widespread opinion that services do not have innovations or at least that innovation of services are rare.

4. RESEARCH RESULTS

4

5

2001

2009

Companies included in the study provided answers to 29 questions. The answers reflected their views on the level of innovation through analysis of the state of their innovation capacities, strategies, procedures, processes and models in the three-year period from 2010 to 2012. The previously described innovation methodology of HKI was applied to calculate the overall innovation and innovation of each of the three categories for all of 35 companies. Instead of "Name of the Company" we entered company's identification numbers in order to protect the identity of the company.

Under the quotient of innovation, the best assessed company in this research gained 71 of possible 116 points and it is a trading business. Of the companies covered by the research, more than 50% of them state that innovations are not specifically defined as priority in their business dealings, however, they pay due attention to them. Not a single company covered by the research considers itself rather innovative, while 31% of them believe that they are innovative to a certain extent, claiming that their partners, customers and suppliers consider them as such. Analysing the three categories constituting the quotient of innovation, we reached the following results:

2,40

2,80

1,89

2,90

No.	Year of company foundation	Innovation capacity	Innovation processes and strategy	Innovation results	Composite index for all three categories	
1	2004	1,10	0,70	1,00	0,93	
2	2000	1,00	0,30	0,89	0,73	
3	2009	1,40	0,70	1,44	1,18	

1,90

1,50

2,06

2,40

No.	Year of company foundation	Innovation capacity	Innovation processes and strategy	Innovation results	Composite index for all three categories
6	2006	1,40	1,10	0,44	0,98
7	1992	0,60	0,10	0,00	0,23
8	2004	1,50	1,40	0,78	1,23
9	1980	0,80	0,60	1,00	0,80
10	2003	1,60	1,40	1,44	1,48
11	2010	1,70	2,00	1,22	1,64
12	1989	1,40	0,90	0,89	1,06
13	2005	1,30	1,30	0,89	1,16
14	2001	0,80	0,30	0,33	0,48
15	2008	1,00	0,80	0,89	0,90
16	1999	1,20	1,00	1,33	1,18
17	2006	1,30	1,30	1,78	1,46
18	2003	1,20	1,50	1,22	1,31
19	2004	1,20	1,50	1,00	1,23
20	1993	1,00	0,20	1,11	0,77
21	2006	1,20	0,60	1,22	1,01
22	2002	1,40	1,20	1,33	1,31
23	1994	2,20	2,40	2,00	2,20
24	1998	2,40	1,90	1,67	1,99
25	2003	0,70	0,40	0,78	0,63
26	1999	2,30	2,30	1,78	2,13
27	2005	1,40	1,60	1,44	1,48
28	2001	1,60	1,20	1,56	1,45
29	2004	0,90	0,70	1,00	0,87
30	2000	1,00	0,30	0,80	0,70
31	2009	1,40	0,70	1,44	1,18
32	2001	1,70	2,40	1,89	2,00
33	2009	1,50	2,90	3,00	2,47
34	2006	1,30	1,10	0,44	0,95
35	1992	0,70	0,10	0,00	0,27

Tourism and Hospitality Industry 2014, CONGRESS PROCEEDINGS Trends in Tourism and Hospitality Industry

Source: the author's research

In order for innovation potentials to be fully developed, the innovation system which is based on innovative employees, innovation procedures, processes, organisation, culture and innovation strategy, should be permanently upgraded and strengthened. Stated are several questions by which the *innovation capacity* of companies was identified:

- Are the sources of ideas in companies primarily internal or external?
- In which way are ideas developed and presentation of employees' ideas encouraged in the companies covered by the research?
- How many of your employees have a university degree or finished a college of higher education?
- What is the most frequent way in which ideas and innovativeness are formally recognised in your company?
- Is there an individual or a team in charge of innovations in your company (formally or informally)?
- What do you think has contributed to commercialisation of new services over the last three years?

Half of the polled companies state that they do not have an organised system for stimulation and getting employees' ideas, instead, the ideas are offered spontaneously. However, spontaneous ideas are frequently not exactly what the company needs in a certain field of operation, therefore, motivation of employees should result in getting ideas related to a certain problem. Furthermore, 46% of companies do not take into account employees' innovativeness during the recruitment process. With regard to innovation capacity of the companies from the aspect of financing the development of innovations, 86% companies covered by the research finance the development of innovations from their own resources and loans.

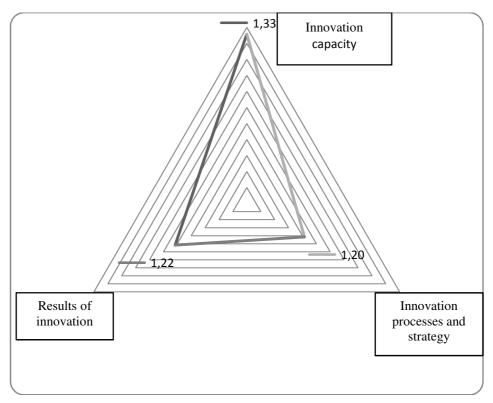
The introduction of a rewarding system would offer employees additional motivation and they would be more willing to offer new ideas and participate in the development of corporative culture which values innovativeness. According to the research, one fourth of the companies reward innovativeness only by increasing salaries, larger bonuses or one-off money prizes. Practice shows that offering new ideas and creation of organisational culture which stimulates creativity and innovativeness in all parts of the company are best supported by a combination of material and non-material prizes. Such a system is used by 25% of companies. The *innovation process* and *innovation strategy* are closely related and indicate the manner in which a company develops innovations, whether innovations are part of thinking about business dealings or if they are something which happens by chance. While the innovation processes secure a transparent and organised system within the organisation, innovation strategy provides the company with guidelines and a strategic framework for a systematic development of innovativeness, securing in the process a better performance in reaching the innovation results, that is, implementation of innovations.

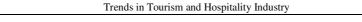
More than half of the companies stated that they conducted researches on their own. In 17% of the companies involved in the research, innovation-related meetings aimed at thinking-out innovations and promoting business processes are held on a monthly basis, while none of the companies stated that their meetings for promotion of business processes were held on a weekly or a more frequent basis. Fourteen companies state

that innovations are neither managed in their companies, nor are decisions on their implementation made, and that innovations are spontaneous. 51% of the interviewed companies stated that they did not have an innovation development strategy in place. Considering the *innovation results*, it is worth noting that investments in innovations are long-term, however, they will eventually provide specific results in the form of new or considerably better products/services, processes, procedures or business methods in various business areas and organisational aspects. Based on the research, it is evident that the companies hope to achieve success "by chance". Many researches indicate that companies which invest in research and development have better competitive advantages, larger profit and market share, as well as safer survival in the market. Every company's resources are limited and it is the management which renders decisions on the projects in which to invest.

A question was raised during the research as to whether the companies commercialised new or considerably improved the existing services over the last three years, because the path from an idea to commercialisation is uncertain and risky, and success cannot be predicted. The foregoing is also confirmed by the studies which emphasise a high level of failures between initial ideas and market success, and the level of failures ranges between 80 and 90%. The results of the research indicate that 57% of companies have developed two or more new/considerably improved existing services, while 23% of them commercialised more than 4 new/considerably improved the existing services. 43% of companies covered by the research state that a share from income resulting from new/considerably improved existing services in the total income of the company amounts to up to 20%, and only two companies stated that the amount reached 70%and more. In response to the question as to whether they introduced marketing and organisational changes over the last three years, even 88% of companies claimed that they had introduced some of the referenced forms of marketing changes concerning their services, including organisational changes. Based on the received answers, the conclusion may be drawn that the companies do not have feedback from the market with regard to the results of innovations they introduced. Finally, they were asked if they consider their respective companies innovative. Only 14% of the interviewed companies consider their companies innovative, while the remaining companies declare to be innovative to a larger or smaller extent.

Results of all three studied categories may be presented through a graph showing individual companies. Graph 1 shows the composite innovation index by categories, including average values for all three categories.





Tourism and Hospitality Industry 2014, CONGRESS PROCEEDINGS

Graph 1: Composite innovation index -average value for all three categories

Every company is unique and it operates in its specific environment. By increasing company's innovation capacities and promoting innovation processes, preconditions for the development of a larger number of services are created, thus providing a better chance for their commercialisation.

5. CONCLUSION

Companies operating in the territory of FBiH must implement multiple adjustments with regard to their competitors from the developed Western countries: FBiH and the region are still in the transition process which has not ended yet. At the same time, new global trends and challenges impose themselves, such as globalisation, business internationalisation, individualisations in production, offering services and the approach to customers in general, and similar. Adjustment to newly emerged circumstances is crucial for all companies and particularly for those facing all of the foregoing problems. Transition is a long-lasting process which ended the previous system of values and ways of running businesses, while the new one has not been built yet. Adjustment to new economic standards requires certain rules and norms which are

Source: the author's research

preconditions for economic reform. The development of companies in the 21st century is based on knowledge and innovations in defining new development strategies, products and/or services. When talking about innovations, the first idea that comes to mind are new products, however, the innovation of processes and services have an equal strategic role. Innovations in service companies differ considerably from those in the manufacturing companies. Many innovations in service companies are not radical and are often already known in the market, although their implementation is new to the company itself. It may also be concluded that innovations in service companies do not require research and development as is the case with production companies. Innovations in service companies require a different approach compared to those in production companies, exactly for the reason of specificities of services referred to in the work. Innovations in service companies mainly refer to the incremental changes in processes and procedures. Having to face risks and uncertainties related to innovations, many companies may be "forgiven" for not being innovative. However, such approach will threaten their chance for survival on a long-term basis. The dynamic and changeable environments in which companies operate require their quick adjustment of services to the new market requirements, regardless of their specific characteristics: impalpability, indivisibility of production from consumption, that is, utilisation, heterogeneity, and similar. The ability to adjust to the new market conditions becomes a fundamental advantage of companies, and one of the best ways of reaching a competitive advantage is to implement innovations. By delivering innovative services, companies may become prominent amongst their competitors, and may increase their market share, improve user satisfaction and generate new income. According to the obtained results of the research, it may be concluded that FBiH companies have enough room for improvement of their innovation capacities and strategies which shall eventually result in the implementation of innovations. Regardless of whether the companies will look into the future and strive to prepare for the oncoming changes or whether they will lead these changes themselves, it is unquestionable that the future is uncertain and that it will bring an innovation race.

REFERENCES

Book:

- Bartoluci, M., Upravljanje razvojem turizma i poduzetništva : turistička politika, razvoj i poduzetništvo u turizmu, Školska knjiga, Zagreb, 2013.
- Bernardt, Y., De innovativiteit van de Nederlandse dienstensector, EIM, Zoetermeer, 2000.
- Ettile, J. E., Managing Innovation: New technology, New Products and New Services in Global Economy. Oxford: Eklsevier Butterworth – Heinemann, 2006.
- Prester, J., Menadžment Inovacija, Sinergija nakladništvo d.o.o., Zagreb, 2010.
- Nordin, S., Tourism Clastering & Innovation Path to Economic Growth & Development, *ETOU* Utredningsserien Analys och Statistik, 2003.
- Stipanović, C., Koncepcija i strategija razvoja u turizmu Sustav i poslovna politika, Fakultet za turistički i hotelski menadžment, Opatija, 2006.

Journal Article:

- Amabile, T.M., et al., "The work preference inventory: assessing intrinsic and extrinsic motivational orientations", *Journal of Personality and Social Psychology*, Vol. 66, No. 5, 1994, pp. 950-967.
- Antoljak, V., Mitrović, V., et al., "HKI Završni izvještaj s rezultatima i preporukama", *Poslovni tjednik Lider*, Zagreb, 2011.
- Barras, R., "Towards a theory of innovation in services", *Research Policy*, Vol. 15, August, 1986, pp. 161-173.

- Barras, R., "Interactive Innovation in Financial and Business Services: The Vanguard of the Service Revolution", *Research Policy*, 19, 1990, pp. 215-237.
- Den Hertog, P., "Knowledge-intensive business services as co-producers of innovation", International Journal of Innovation Management 4 (4), 2000, pp. 491-528.
- Djellal, F., Gallouj, F., "Services and the search for relevant innovation indicators: a review of national and international surveys", *Science and Public Policy*, Oxford University Press, Vol. 26(4), 1999, pp. 218-232.
- Gallouj, F., Weinstein, O., "Innovation in services", Research Policy, 26, 1997, pp.537-556.
- Hipp, C. Et al., "The incidence and effects of innovation in services: Evidence from Germany", International Journal of Innovation Management 4, 2000, pp.417-453.
- Hjalager, A., "A review of innovation research in tourism", Tourism management: research policies practice, Vol. 31, No.1, 2010, pp. 1-12.
- Howells, J. et al., "Innovation in services", Report of the expert group on innovation in services, DTI UK, 2007.
- Hsieh, P. H., Mishra, C. S., Gobeli, D. H., "The return on R&D versus capital expenditures in pharmaceutical and chemical industry", *IEEE Transactions on Engineering Management*, 50 (2), 2003, pp. 141-150.
- Johne, A., Storey, C., "New Service Development: A Review of the Literature and Annotated Bibliography", *European Journal of Marketing*, 32, 3/4, 1998, pp. 184-252.
- Koch, A., Strotmann, H., "Absorptive capacity and innovation in the knowledge intensive business service sector", *Economics of Innovation & New Technology* 17 (6), 2008, pp. 511-531.
 Miles, I., "Innovation in Services", *The Oxford handbook of innovation, Oxford University Press*, New York, 2005, pp. 433-458.
- Menor L. J., Tatikonda M. V., Sampson S. E., "New service development: areas for exploitation and exploration", *Journal of Operations Management*, 20, 2002, pp. 135-157.
- Menor, L. J., Roth, A.V., "New service development competence and performance: An empirical investigation in retail banking", *Production & Operations Management* 17 (3), 2008, pp. 267-284.
- Menor, L.J., Roth, A.V., "New service development competence in retail banking: Construct development and measurement validation", *Journal of Operations Management* 25 (4), 2007, pp. 825-846.
- OECD, Eurostat, "Promoting innovation and growth in services", Organisation for Economic Cooperation and Development: Paris, 2000.
- OECD, Eurostat, "Oslo Manual-Guidelines for Collecting and Interpreting Innovation Data", *Joint Publication*, 3rd Edition, 2005.
- Reichstein, T., Salter, A., "Investigating the sources of process innovation among UK manufacturing firms", *Industrial and Corporate Change*, Vol. 15 (4), 2006, pp. 653-682.
- öhrl, R., Hüsig, S., Dowling, M., The interaction of R&D intesity and firm age: Empirical evidence from technology-based growth companies in the German "Neuer Markt". *The Journal of High Technology Management Research*, 2081), 2009, pp. 19-30.
- Vos, A. H., "Service Innovation: Managing Innovation from Idea Generation to Innovative Offer", University of Twente, Faculty of Management and Governance, *Exser*, Dutch centre for service innovation, August, 2010.

web

http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.336.7609&rep=rep1&type=pdf http://anzmac2010.org/proceedings/pdf/anzmac10Final00127.pdf http://dl.acm.org/citation.cfm?id=2377226 http://erimrs20020107164515.pdf

Andrijana Ostojić Mihić, PhD, Student

Doctoral study of the Faculty of Economics of the University of Mostar and Faculty of Economics of the University of Split Matice Hrvatske bb, Mostar, BiH Tel.: 00387 36 355455 Fax.:00387 36 355 458 E-mail: ostojicandrijana@gmail.com

Danijela Madžar, Assistant Professor

Faculty of Science and Education, University of Mostar Matice Hrvatske bb, Mostar, BiH Tel.: 00387 36 355455 Fax.:00387 36 355458 E-mail: danijelamadzar@gmail.com

Ivan Madžar, PhD, Professor Faculty of Science and Education, University of Mostar Matice Hrvatske bb, Mostar, BiH Tel.: 00387 36 355455 Fax.:00387 36 355458 E-mail: madzar.ivan@gmail.com