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Implementation of ISO 9001:2008 & Standards for Accreditation at Private University in Bosnia And Herzegovina

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Abstract. Main objective of this work is to provide empirical evidence that implementing ISO 9001:2008 and standards for accreditation required by Agency for Development of Higher Education and Quality Assurance (HEA) is good way to achieve success on the way to improve quality of higher education institution. In analytical part of this paper, mainly descriptive statistics will be used since issue is related to presenting results of measurements conducted by institution over years. List of HEI's (higher education institutions) indicators of quality will be analyzed over years in order to compare institution's performance over years after implementing of ISO 9001:2008 and standards for accreditation required by HEA. Data was collected through annual and semiannual reports of HEI conducted from 2009 to 2014. After comparative analysis of data over years, trend line is obvious in following all quality indicators which is great empirical evidence that implementation of ISO 9001:2008 and accreditation standards required by HEA are good way to improve quality of HEI. Main contribution of this work to science is empirical evidence that implementation of ISO 9001:2008 and accreditation criteria of HEA leads to increase of quality at institution level. Also, it is good stimuli for future research, and it provides potential idea of integrating ISO 9001:2008 and accreditation criteria with aim to create unique quality model for HEIs in Bosnia and Herzegovina.

Keywords: ISO 9001:2008; accreditation; Agency for Development of Higher Education and Quality Assurance (HEA); higher education institution (HEI).

Introduction.

Lack of domestic literature regarding quality in higher education, along with increase in number of private Higher Education Institutions in Bosnia and Herzegovina (B&H) resulted in a need for researching and writing more about this issue. Fact that this paper is writing about Higher Education Institution (HEI) Star, which is young and operating in highly competitive market, and

that it needs not only well implemented ISO 9001:2008, but also standards for accreditation, provides a reason more for selecting this title.

There are three main reasons that give huge importance to this work: First reason is directly related to fact that B&H participate in Bologna process. As stated above, this work is not only important for HEI Star, but also for all other higher education institutions located in B&H. This country is one of the forty seven states participating in the process of creating the European Higher Education Area (EHEA), or Bologna process in other words. It became full member state of the Bologna process since 2003. The main objective of the Bologna Process since its inception in 1999, the EHEA was meant to ensure more comparable, compatible and coherent systems of higher education in Europe (Romanian Bologna Secretariat, 2010). On the way of Bologna, it is extremely important for all participating HEIs to implement ISO 9001:2008, and ENQA standards not only in order to stay competitive, but to contribute to development of education and realization of main Bologna process' goal. As one of those institutions, HEI Star is definitely obliged to have properly implemented ISO 9001:2008 and ENQA standards. This fact gives even more importance to this paper.

Second reason is related to practical value of this paper since situation will be analyzed based on real data of Star University, and provide to institution valuable assessment not only in terms of quality level, but also in terms of implementation of ISO 9001:2008 and ENQA standards. Since this kind of assessment was not previously done in this institution, this work may be the first document of this type.

Third reason is related to accreditation process of HEIs in B&H which is ongoing in academic 2013/14. In fact, Agency for Higher Education Development and Quality Assurance in B&H (HEA) is conducting accreditation process and provided nine criteria to implement. Seven of those criteria are actually ENQA standards provided by European Association for Quality Assurance in Higher Education. Therefore, this paper is important as provider of good preparation plan for accreditation process of not only Star University but all other HEIs in B&H.

Main objective of this work is to provide empirical evidence that implementing ISO 9001:2008, standards for accreditation of HEIs required by Bosnian HEA, is good way to improve quality of HEI, and to make it closer to European Higher Education Area. Specific objectives are to analyze current situation of Star University, to compare situation over years after implementation of ISO 9001:2008 and HEA's standards at Star University.

In analytical part of this paper, comparative analysis based on descriptive statistics will be used since issue is related to presenting results of measurements conducted by institution over years. This paper has two aspects of contribution, theoretical and practical. Theoretical aspect provides contribution for all researchers who want to have insights into ISO 9001:2008 and ENQA in higher education within conditions of Bosnia and Herzegovina. Also, it will contribute in filling the gap in literature when it comes to writing about quality systems in context of implementation in B&H. On the other hand, paper should practically contribute Star University since it will provide empirical evidence of its increase in quality as a consequence of properly implemented ISO 9001:2008 and HEA's standards.

Literature review.

Variety of sources including books, journal articles, conference proceedings, reports, official web pages are used while writing this paper.

Many different definitions of quality are best evidence of its complexity. Therefore, it is not surprisingly that Naomi Pfeffer and Anna Coote (1991) characterized quality as a "slippery concept". They provided several reasons to prove this statement. First one is fact that quality serves different purposes and its meaning changes according to interests that are driving it. Second reason provided by Pfeffer and Coote (1991) is fact that people perceive and experience quality in different ways, and they have different needs and expectations towards it. Third reason is related to outcome of the process of quality assurance which can have infinite number of variables depending on the context. Accordingly, when it comes to definition of quality, authors concluded that it refers to something we all unquestioningly favor (Pfeffer & Coote, 1991). Sallis (2005) mentioned that word quality comes from the Latin *quails* meaning *what kind of*. While explaining quality, he stated that it is an ideal with which there can be no compromise. Quality things are perfect, valuable, with no expense spared and convey prestige to their owners. Authors also stated that quality is synonymous with *high quality* or *top quality*. Since this paper is dealing with quality in HEIs, it is important to provide its definition from this perspective. Very comprehensive and satisfactory definitions of

quality in HEIs compared to definitions of quality in businesses are provided by Koslowski (2006). This author compared definitions of quality in business provided by Garvin (1988) and definitions of quality in context of HEIs provided by Seymour (1993). Accordingly, definitions mentioned by Koslowski (2006) are presented in Table 1 prepared specifically for this paper.

Table 1. Quality Types and Definitions

Type of quality	Definitions of quality in businesses (Garvin, 1988)	Definitions of quality in HEIs (Seymour, 1993)
<i>Transcendent quality</i>	Transcendent quality is defined a result of the producer's expert training and professional standing.	The quality of education is defined a result of the expertise of Academic Staff.
<i>Manufacturing-based quality</i>	Product conforms to specifications and is fit to be used in a manner for which it was designed	HEI can achieve its objectives
<i>Product-based quality</i>	Quality is defined by presence or absence of a specific ingredient	Quality can be defined through assessing increase in students' learning as result of curriculum and faculty.
<i>Value-based quality</i>	Quality is defined as acceptable performance at an acceptable price.	Quality is defined based on rankings, marketing of HEI etc.
<i>User-based quality</i>	Quality is defined by the customer's needs, wants, desires, and preferences	Quality is defined through requirements from customers such are: labor market, government, students etc.

Source: (Koslowski III, 2006).

As this paper is dealing with quality as a part of ISO standards, it is inevitable to mention definition of quality stated by these standards. According to EN ISO 9000:2000 and EN ISO 9001:2008, quality is degree to which a set of inherent characteristics fulfils requirement (BAS EN ISO 9001, 2009).

In the end, it is possible to conclude that due to different types of quality, different types of people and different types of institutions, there are very different meanings of quality among researchers. However, it is possible to create one comprehensive definition of quality in higher education based on other definitions mentioned in previous paragraphs. Such a definition can be expressed as follows: Quality in HEI is increase in learning as one of important objectives of HEI based on satisfying costumers' requirements, realized as consequence of academic and administrative staff's expertise which results in high ranking levels of HEI, gaining reputation and becoming perceived as valuable institution.

The ISO 9000 definition says that quality management is set of coordinated activities to direct and control an organization with regard to quality (BAS EN ISO 9000, 2001). Hoyle (2007) in his book identified these activities as quality planning, quality control, quality improvement and quality assurance. According to Csizmadia (2006), the term quality management refers to the policies, systems and processes which are designed to ensure the maintenance and enhancement of quality within an institution. Quality management, in the higher education context covers quality control, quality assurance and quality improvement. Csizmadia (2006) stated that quality management has made issues about academic standards explicit. This means that academic standards are those expectations which have been established for students to meet, and institutional quality assurance procedures are the means by which institutions can demonstrate to those with an interest in higher education (e.g. students, employers of graduates and government) whether or not they are meeting those standards and expectations. According to Klarić (2005), quality management is managerial approach to quality in business which realize function of managing quality within the quality system in accordance with specific quality policy, quality

objectives and responsibilities, through quality planning, quality control and quality improvement. The most responsible positions for quality managing are top management representatives. However, all levels of management have their own responsibilities regarding quality management.

Lazibat, Sutic & Jurcevic (2009) mentioned definition of quality management system provided by Avelini Holjevac (2005). According to Holjevac (2005), quality management system (as cited in Lazibat et al., 2009, p. 5) refers to improvement system to increase flexibility, efficiency and effectiveness of operations; and any activity that seeks to ensure and create conditions that all the employees together achieve maximum efficiency and effectiveness of one goal: to produce the product and provide service when, where and how customers and consumers want and expect, for the first time and every time.

When speaking about Total Quality Management (TQM), Sabet, Saleki, Roumi and Dezfoulan (2012) said that it is a famous management method developed by Deming in US industry during and before the Second World War. Even though this method has its starting point in USA, it was further improved in Japanese industry. In addition, Sabet et al. (2012) discussed TQM in context of Higher Education and stated that nowadays many universities are using TQM. In this regard, TQM may be defined as a management policy, which becomes a tool for utilization and exploitation of all human, finance and technology resources in educational institutions. Sallis (2005) stated that as an approach, Total Quality Management (TQM) refers to a permanent shift in an institution's attention away from short-term expediency to the long-term quality improvement. Constant innovation, improvement and change are emphasized in this approach, and those institutions that practise it are kind of locked into a cycle of continuous improvement. In other words, they always seek to analyse what they are doing and plan to improve it. When speaking about TQM in context of higher education institutions, Bolton (1995) stated that impact of quality on the reputation is huge in higher education. He stated that since most HEIs are highly complex entities considering both, their objectives and structure, and that TQM provides set of techniques through which the difficult concept of quality can be approached.

In year 2005, European Network for Quality Assurance in Higher Education (ENQA) made first step in establishment of widely shared values, expectations, good practices related to quality and its assurance by institutions and agencies across the European Higher Education Area (EHEA). Standards and guidelines are prescribed in a manner that achievement of those is equal to implementing Bologna process. In other words, if these standards can be achieved, Bologna process can be achieved as well. Main aim of Standards and Guidelines for Quality Assurance in European Higher Education Area (ESG) is to support and encourage development of HEIs, which will foster educational achievements. ENQA developed standards and guidelines regarding internal and external quality assurance for the use of HE institutions and quality assurance agencies working in the EHEA, covering key areas relating to quality and standards (ESG, 2005). More about European Standards and Guidelines will be written under section on Bologna Process in B&H and Accreditation of HEIs in B&H.

Currently, ISO 9001:2008 is well known and recognized as an international standard on best practices in internal quality management. This standard provides series of general requirements that can be applied regardless of the organization's size, activity or ownership (Lazibat, Sutic, & Jurcevic, 2009). As ISO 9001:2008 is one of the essential elements in focus of this Paper, whole section will be devoted to it after literature review.

In fact, ISO 9000 refer to family of three standards: ISO 9000:2005 (fundamentals and vocabulary), ISO 9001:2008 (requirements) and ISO 9004:2000 (guidelines for performance improvement). It is of crucial importance for an organization that wants to be certified with ISO 9001:2008 to buy both standards (ISO 9000 and ISO 9001) and to go through both of them carefully. ISO 9000 has several principles that highly affects implementation of ISO 9001:2008 standard's requirements (ISO 9000 standards, n.d.). International Standardization Organization (ISO) published document in which eight principles are mentioned regarding ISO 9000:2005 and ISO 9004:2009. Those are as follows:

Principle 1 – Customer focus is of great importance for an organization mainly because it depends on the customers. Therefore, organization should understand current and future customer requirements and give efforts to exceed customer expectations.

Principle 2 – Leadership is important mainly because leaders are those who establish unity of purpose and direction of the organization. They should create and maintain the internal

environment in which people can become fully involved in achievement of an organizational objectives.

Principle 3 – Involvement of People is highly important because their full involvement enables their abilities to be used for the organizational benefit.

Principle 4 – Process Approach refers to managing activities and related resources as a processes.

Principle 5 – System approach to management contributes to the organization’s effectiveness and efficiency in achieving its objectives.

Principle 6 – Continual improvement should be a permanent objective of an organization.

Principle 7 – Factual approach to decision making which means that effective decisions are based on analysis of data and information.

Principle 8 – Mutually beneficial supplier relationships since an organization and suppliers are interdependent and mutually beneficial relationships enhances the ability of both to create value (International Standardization Organization, 2012).

ISO 9001:2008 has five main sections. Those are as follows:

Section 1 – Quality Management System

Section 2 – Management Responsibility

Section 3 – Resource Management

Section 4 – Product Realization

Section 5 – Measurement Analysis and Improvement

(ISO 9000 standards, n.d.).

In the end, it is important to understand that while ISO 9000 is informing, ISO 9001 is the one who is implementing into practice. In other words, ISO 9000 contains definitions and terminologies that are being implemented through requirements defined in ISO 9001. Accordingly, these standards are complementary, and it is inevitable for an organization to understand all of them before being certified with ISO 9001:2008.

Very valuable comparison cited by Lazibat, Sutic & Jurcevic (2009) was conducted by Lazibat (2009) in his book entitled „Quality Management“. Author compared ESG, TQM, ISO 9001:2008 and EFQM model (fundamental concepts of excellence) with respect to several categories: quality policy and leadership, customers (stakeholders), workforce and learning, processes, resources, measuring results, improvement. This comparison is presented below in Table 2 (Lazibat T. , 2009).

Table 2. Comparison of QMS Models Applicable in HEIs

	ESG standards and guidelines (internal & external)	TQM principles*	ISO 9001:2008 requirements	EFQM – fundamental concepts of excellence
QUALITY POLICY & LEADERSHIP	- policy and procedures for quality assurance	-management support	- management responsibility - quality manual, policy and goals	- leadership and constancy of purpose
CUSTOMERS (STAKEHOLDERS)	- assessment of students - quality assurance of teaching staff	- customer focus (chain of customers, internal customers, suppliers and internal suppliers) - satisfying all stakeholders needs	- monitoring customers satisfaction - defining criteria for suppliers evaluation	- customer focus - partnership development - corporate social responsibility

WORKFORCE & LEARNING	<ul style="list-style-type: none"> - quality assurance of teaching staff 	<ul style="list-style-type: none"> - participation - team work - all employers included - empowering - continuous learning 	<ul style="list-style-type: none"> - all employers included - education plans 	<ul style="list-style-type: none"> - people development and involvement - continuous learning
PROCESSES	<ul style="list-style-type: none"> - use of internal quality assurance procedures - development of external quality assurance processes - processes fit for purpose - follow up procedures 	<ul style="list-style-type: none"> - processes focus 	<ul style="list-style-type: none"> - define all processes and their interrelationship - define procedures for: control of documents, control of records, internal audits, control of non-conforming products, corrective action, preventive action 	<ul style="list-style-type: none"> -management by processes and facts
RESOURCES	<ul style="list-style-type: none"> learning resources and student support 	<ul style="list-style-type: none"> - partnership relation with suppliers - providing good task instructions, tools they need and good working conditions for productive workforce 	<ul style="list-style-type: none"> - sufficient, professional, competent work-force - good working environment - appropriate infrastructure - partnership with suppliers 	<ul style="list-style-type: none"> - value adding partnerships with suppliers and employers
MEASURING RESULTS	<ul style="list-style-type: none"> - approval, monitoring and periodic review of programmes and awards - information system - public information - periodic reviews 	<ul style="list-style-type: none"> - quality methods and tools - benchmarking 	<ul style="list-style-type: none"> - measurement, analysis and improvement - internal audit requirement 	<ul style="list-style-type: none"> - result orientation

IMPROVEMENT	- reporting - system wide analyses	- continuous improvement (worker suggestions, quality methods)	- corrective and preventive actions requirement - procedure to manage non-conforming product/services - continuous improvement	- continuous learning, innovation and improvement
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Source : (Lazibat T. , 2009).

There are many empirical evidences in literature that proved benefits of different quality management systems in education. It is important to remind that ISO 9000 and often used to refer to a family of three standards: ISO 9000:2005 (fundamentals and vocabulary), ISO 9001:2008 (requirements) and ISO 9004:2000 (Guidelines for performance improvement). Before implementing QMS in an organization, it is important to go through both, ISO 9000 and ISO 9001 because first one explains the principles of the quality management system, while ISO 9001 explains requirements that an organization has to meet in order to get the certification (ISO 9000 standards, n.d.). Accordingly, when speaking about benefits of ISO 9000 for an organization, we speak about the benefits of ISO 9001 and vice versa.

Bolton (1995) concluded that, as QMS focused on individual values, proper way of satisfying demand, quality assessment, reducing costs as important goals within the HEIs, TQM represents great opportunity to improve every aspect of HEI in a systematical manner.

Cheng, Lyu and Lin (2004) presented experiences of introducing ISO 9000 into Taiwan's HE systems. After empirical investigation and case study, authors came to conclusion that ISO 9000 quality systems have positive impact on the education quality. Additionally, authors provided five-stage framework to clarify the role of an ISO 9001 QMS. Quality certification is therefore powerful tool to improve education. Their research is great example of empirical evidence about ISO potential in provision of benefits for HEIs.

Curkovic and Pagell (1999) starting with the fact that despite its widespread international acceptance, ISO 9000 is surrounded by controversy and criticism, authors observed potential of ISO 9000 to result in competitive advantage. Authors concluded that if well implemented, ISO 9000 can result in greater efficiencies, cost reductions, and improved productivity. Therefore, ISO 9000 is a trend in quality management which cannot be ignored.

Gardner (1997) stated that along with ISO 9000, the audit process is recognized as organizational in nature, it is integrated with other key validation methods to help evaluate and determine the effectiveness of the quality system across the organization. Therefore, it is suggested to adopt ISO 9000 because it increases organizational awareness, contributes to organizational TQM, improves expertise of program audit administrator and staff.

Al-Rawahi, Bashir (2011) compared organizational differences and some aspects related to the implementation of ISO 9001:2000. Authors collected data from forty two ISO 9001:2000 certified organizations, and they tested previously mentioned aspects. Results indicated that there is no strong evidence that the motives for implementation, the process and cost of achieving certification, the perceived benefits, and the shortcomings differ significantly according to organization size or sector type. This means that organization should not consider size or sector type when deciding about certification. Accordingly, ISO 9001:2000 standard is beneficial for all types of organizations regardless of their size; sector etc. .

Draguta (2011) discussed contemporary issue of education which is fact that regardless of diploma & university reputation, employment is not guaranteed to graduates. HEI system quality is nowadays issue of not only students, but also their parents. Author concludes that among several programs initiated to improve the quality of educational systems; the most important are international standard EN ISO 9001:2008 and TQM.

Gamboa & Melao (2012) were researching advantages and disadvantages regarding ISO 9001:2000 in educational institutions. Results identified four internal benefits (standardization and

efficiency; dynamics of continuous improvement; provision of strategic focus and foundation for planning; increased participation of people), two external benefits (improved market credibility; promotion of competitiveness), three disadvantages (increased bureaucracy; difficulties associated with its implementation process) and four success factors (quality team; management commitment and support; communication with and involvement of all members; previous level of organization).

Psomas, Pantouvakis, Kafetzopoulos (2013) conducted empirical study on 100 companies certified by ISO 9001:2008 standard, using linear regression to process data collected from quality managers from mentioned companies. Authors aimed to measure impact of ISO 9001 effectiveness on performance of company. Results indicated that ISO 9001 effectiveness has great contribution to performance of service companies. In fact, influence of ISO 9001 to company's service operational performance is direct and significant, while its impact to financial performance is indirect.

Establishment and Development of HEI Star University

Higher Education Institution Star is located in Bosnia and Herzegovina. With aim to provide highest possible opportunities for its students, institution from the very beginning showed its loyalty to following world standards, and it implemented ISO 9001:2008 and started with implementation of standards for accreditation required by HEA.

As one of the obligations regarding implementing standards for accreditation required by HEA, Star University has to prepare annually Self Evaluation Report. This is being done through organization of annual Self Evaluation in which all Academic and Administrative units submit their Self Evaluation Reports to Quality Manager who prepares one comprehensive Self Evaluation Report in the level of HEI.

Within this report, Star university had to prepare list of indicators of quality that will be followed carefully in the level of each department, faculty and finally in university level. Accordingly, this HEI identified following indicators of quality as important to follow:

1. Passing rates
2. Average grade
3. Evaluation of academic staff by students (evaluation of courses)
4. Students satisfaction survey
5. Number of publications

As Star University implemented standards for accreditation and ISO 9001:2008, it is very important to clearly understand both of them. Therefore, in Table 3, comparison and brief explanation of both of them is presented.

Table 3. ISO 9001:2008 & HEA Criteria in B&H

HEA Criteria in B&H	ISO 9001:2008
Criteria 1 - Development and strategy of HEI Criteria 1.1 - Creating strategy through consulting with all actors, formal adoption of strategy and making it publicly available. Criteria 1.2 - Through strategy , mission, vision, strategic goals and relevant plans and activities for each strategic goals must be developed.	0.1. General - QMS needs to be strategic decision of one organization. 5. Management Responsibility
Criteria 1.3. - Institution needs to have effective system and procedures for monitoring and evaluation of objectives' implementation.	4.1. Conduction of monitoring, measurement where possible and processes analysis 5.6. Revision by Management 5.6.1. Generally 5.6.2. Inputs for revision 8. Measurement, analysis and improvement 8.2. Monitoring and measurement

<p>Criteria 2 - Management, internal QA and quality culture Criteria 2.2. - HEI promotes quality culture, develops comprehensive and effective system for QA Criteria 2.3. - Policy and procedures for internal QA Criteria 2.4. - Institution has formal body for quality assurance</p>	<p>4. QMS 4.1. Organization must set up, document, implement and maintain QMS and improve its effectiveness and efficiency 4.2. Documentation requirements - organization must have quality policy, quality manual, procedures and records. 5.3. Quality policy is responsibility of Top Management</p>
<p>Criteria 3. - Procedures for QA of study programs Criteria 3.1. - Procedures for proposing, adoption, monitoring and implementing study programs are set up and they are being implemented Criteria 3.2. - Analysis and regular monitoring of study programs</p>	<p>7 Product realization 7.1. Planning product realization 7.2. Processes related to customers 7.2.1. Determining requirements regarding product 7.2.2. Revision of requirements regarding product 7.2.3. Communication with customer 7.3.4. Revision of design and development</p>
<p>Criteria 4 - Procedures for assessment of students Criteria 4.1. - HEI has and implement procedures for students assessment (grading). Those procedures assure fair, transparent and consistent grading students, and they are enacted via formal act adopted by senate. Criteria 4.2. - HEI regularly collect data and analyze success of students (passing rates) in the level of study program and HEI, and conduct specific activities towards improvement of students' success.</p>	<p style="text-align: center;">-</p>
<p>Criteria 5 - Human Resources Criteria 5.1. - HEI assure enough of qualified Human Resources in order to achieve educational goals. Criteria 5.2. - HEI develops policy of specialisation of staff, and provide them professional development and scientific specialization. Criteria 5.3. - HEI once a year presents publications of its own staff realized in previous academic year. Criteria 5.6. - HEI employes enough of administrative and support staff in order to assure regular implementation of actions, and assure their education, specialization and evaluation.</p>	<p>6.2. Human Resources 6.2.1. Human Resources must be competent. Competence is based on adequate education, training, skill, experience. 6.2.2. - Competence, training and awareness Organization must: a) determine necessary competence; b) assure education, or other actions in order to achieve competence; c) evaluate effectiveness of undertaken actions; d) make sure that staff is aware of relevance and importance of their actions; e) conduct adequate records on education, training, skills, experience.</p>
<p>Criteria 6 – Quality of Physical Resources Criteria 6.1. – HEI assure enough of resource for complete staff and students. Adequacy of these resources is being evaluated regularly through internal evaluations. Criteria 6.2. – HEI plans investment of financial assets in a manner that part of annual revenue is being invested in improvement of physical</p>	<p>6 Resources Management 6.1. Resources Assurance 6.3. Infrastructure – involving buildings, working area, hardware, software, transport, communication, information system etc. 6.4. Working environment</p>

resources. Criteria 6.3. – HEI has adequate IT equipment which improve quality of teaching. Criteria 6.4. – HEI owns adequate library equipped with enough number of units in both printed and electronic form, and adequate space for using of library services.	
Criteria 7 – Information system Criteria 7.1. – HEI collects, analyse and use information relevant for improvement of its activities. Criteria 7.2. – HEI has information systems that enable precise analysis of passing rates of students for each course, year and study program per examination periods, and ratio of teachers and students etc.	8.4. Data Analysis Organization must collect and analyse adequate information in order to improve the QMS. These information are results of measurements and monitoring. Data analysis can provide information about: a) customer satisfactions; b) accordance with product requirements; c) characteristics and trends of processes and products; d) suppliers.
Criteria 8 – Presenting public information Criteria 8.1. – HEI regularly publish objective and real information on all programs and titles it offers, at least through web page. Criteria 8.2. – HEI determines communication strategy Criteria 8.3. – HEI every year before registration of students assure printing of students guide for future students.	7.2.3. Communication with customer Organization must define and implement effective arrangements for communication with customer about the information on product , processing the questions (orders...) and feedback from customer including complaints.
Criteria 9 – International cooperation (relations)	-

Source: Table prepared for this study.

Results.

Considering its strategy, quality policy and priorities when it comes to organization of three main processes at Star University, teaching, research and services, this institution defined five indicators of quality, and carefully monitored it over years.

Passing rates of students

After each semester, Star University prepare reports on passing rates and average grade. Reports are being prepared in Faculty and University level, and they are being adopted by relevant committees and authorities. Based on Reports prepared over years, following table has been prepared (Table 3), and comparison was conducted in graph 1.

Table 4. Passing Rates of Students

Indicator of quality	2009	2010	2011	2012	2013	Scale
Passing rates	68,00 %	70,09 %	89,98 %	82,10 %	88,80 %	0-100 %

Source: reports of Star University.

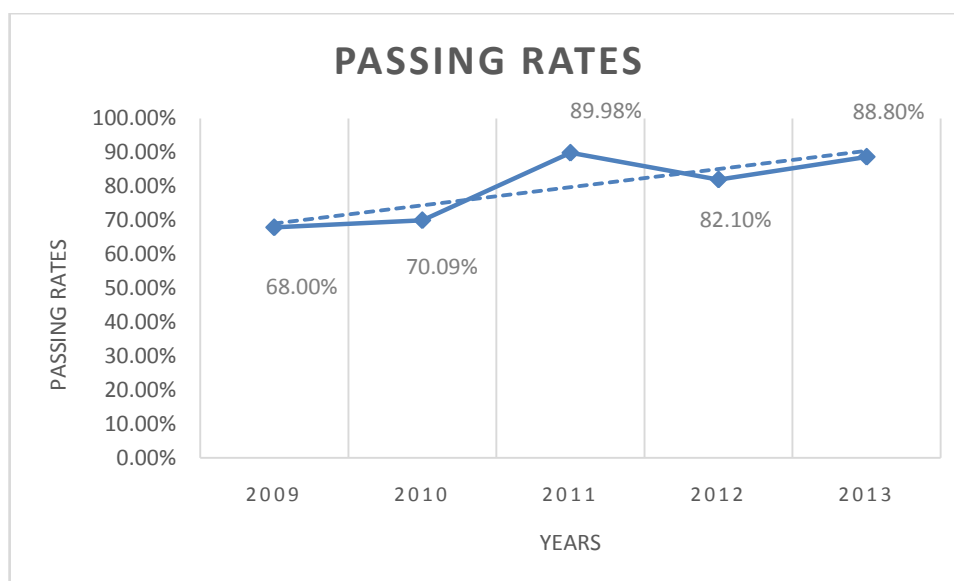


Figure 1. Passing Rates of Students (source: reports of Star University)

It is possible to conclude that Star University conducted great improvement in terms of students' passing rates. Trend line visible in Graph 1 says that there is sustainable growth in passing rates of students. From 2009 to 2013, passing rates increased for 14 %.

Average grade of students

Another very important indicator that must be followed by HEI in order to get accreditation by HEA is average grade of students. Fact that University prepared reports for all years of its existence says enough about how much seriously institution perceive this indicator of quality. Average grade in the level of University Star per years from 2009 to 2013 are presented in Table 5, and compared in Graph 2.

Table 5. Average Grade of Students

Indicator of quality	2009	2010	2011	2012	2013	Scale
Average grade	8,01	8,023	8,45	8,51	8,46	5-10

Source: Reports of Star University

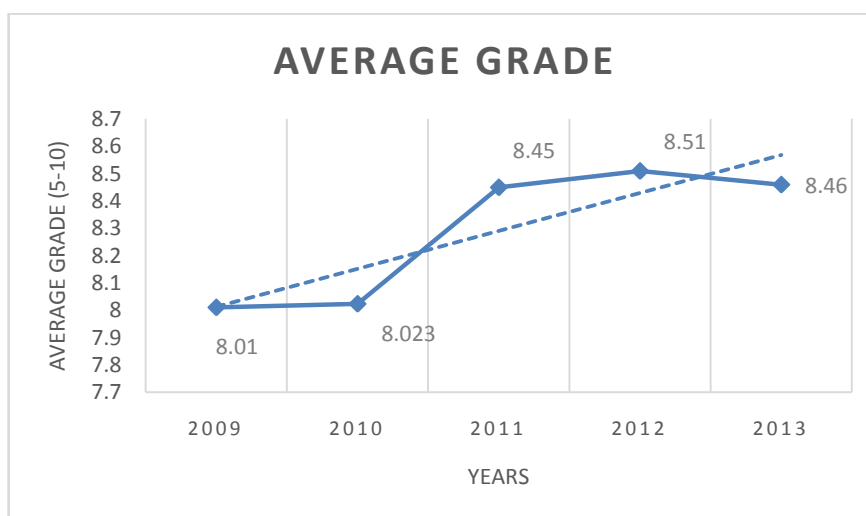


Figure 2. Average Grade (source: Reports of Star University)

Again, trend line visible in Graph 2 indicates that there is sustainable growth of average students' grade in University level. In fact, average grade was increased between 2009 and 2013 for

value of 0,45. Accordingly, one can conclude that by following reports on average grades and conducting corrective measures to eliminate identified problems, HEI Star improved quality in teaching and services which resulted in better results of students in the examinations.

Evaluation of Academic Staff by Students

In order to comply with accreditation criteria of HEA and Law on Higher Education, Star University must conduct after each semester evaluation of academic staff by students. In this way, students have an opportunity to evaluate performance of academic staff member during the year. This is being done through survey that is being activated online. Questions are examining variety of aspects regarding academic staff such are: competence to teach respective course, preparation for lectures, time accuracy, readiness to help his/her students to achieve learning objectives, dedication to serving students while searching for knowledge etc. Accordingly, University Star was carefully following this indicator of quality of academic staff over years and preparing reports. Based on those reports, Table 6 has been prepared. In addition, results are compared in Graph 3.

Table 6. Evaluation of Academic Staff by Students

Indicator of quality	2009	2010	2011	2012	2013	Scale
Evaluation of academic staff by students (evaluation of courses)	2,85	2,89	2,93	2,9	3,02	1-4

Source: Reports of Star University

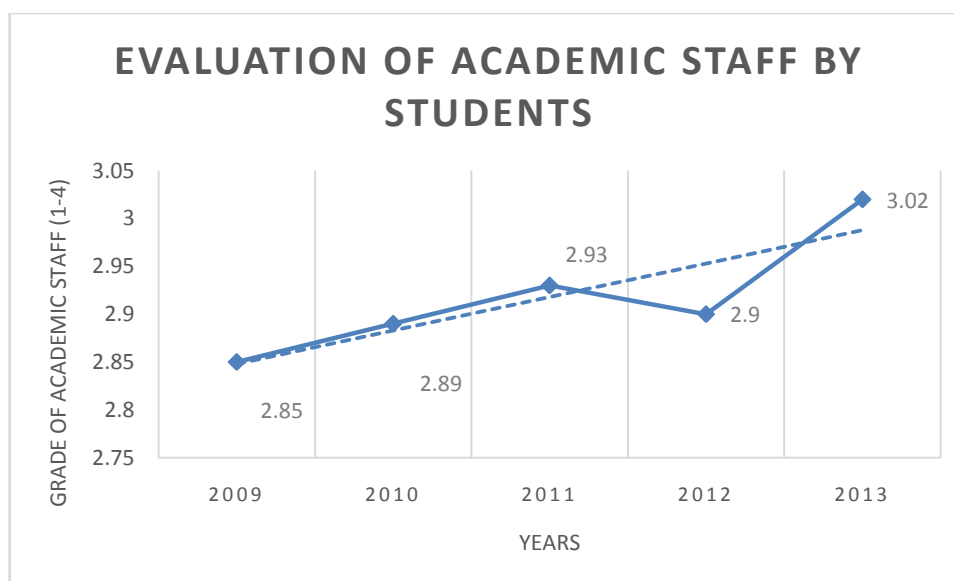


Figure 3. Evaluation of Academic Staff by students (source: Reports of Star University)

Graph 3 indicated great improvement in quality of academic staff in eyes of students at Star University. In fact, in the scale from 1 to 4, starting from 2009 and ending with 2013, students positively changed their opinion about academic staff for value of 0,17. Trend line visible in Graph 3 indicated sustainable growth in grade of academic staff.

Students' satisfaction with University

According to ISO 9001:2008, focus of organization on client (customer) is of great importance for development of organization. Star University is aware of students' satisfaction as most important indicator of quality of its services. Therefore, in annual basis, University conducts research on students' satisfaction which results with Annual Students Satisfaction Report. In this report, institution presents students' satisfaction with University's academic staff, administrative staff, campus, dormitory, study programs, personal development, education facilities, and cafeteria. In order to make this research more objective rather than subjective, University's

students are in charge of doing this research and preparing this report. Table 7 presents average grade of students' satisfaction (Likert's scale 1-7) from 2011 to 2013 year. Results from table are also compared in Graph 4.

Table 7. Students' Satisfaction

Indicator of quality	2009	2010	2011	2012	2013	Scale
Students satisfaction with University	-	-	4,41	4,94	5,63	1-7

Source: Reports of Star University

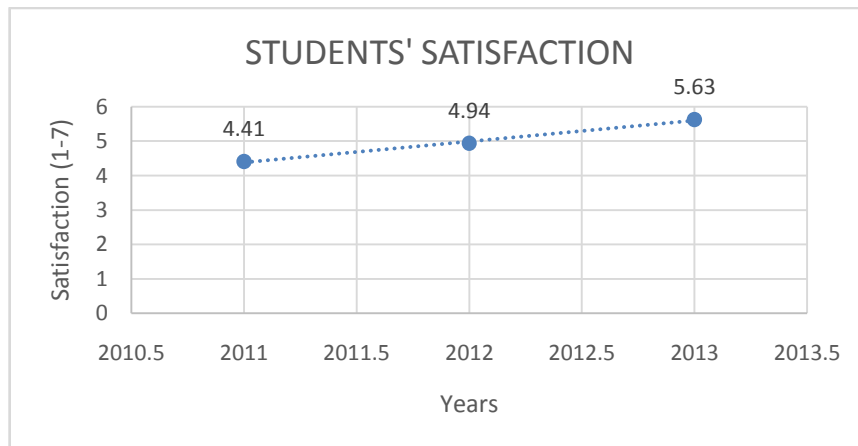


Figure 4. Students' Satisfaction – Average Grade (source: Reports of Star University)

When it comes to data presented in Graph 4, trend line leads to conclusion that students' satisfaction grows over years. From 2011 to 2013, average grade of students' satisfaction with Star University increased for value of 1.22 which is great improvement of this indicator of quality.

Number of publications

Research is one of three most important processes at Star University. Report on number of publications was completed in 2012 and 2013. Unfortunately, this indicator of quality was not followed carefully from the very beginning in the University level. However, data regarding mentioned two years provided important conclusions, and are presented in Table 8 and Graph 5.

Table 8. Number of Publications

Indicator of quality	2009	2010	2011	2012	2013
Number of publications	-	-	-	81	134

Source: Reports of Star University

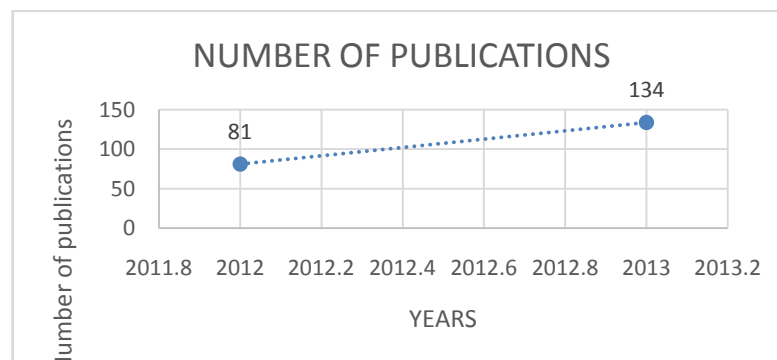


Figure 5. Number of Publications (source: Reports of Star University)

Data regarding number of publications as important indicator of quality based on reports regarding 2012 and 2013 (HEI started to do this report from 2012) provided valuable information about improvement. In fact, number of publications in 2013 was higher for 53 compared to previous year. This indicator of quality is regulated at HEI in a manner that every member of academic staff has obligation to publish number of papers (number defined by management) during the academic year. Every dean is responsible to monitor this indicator in level of his faculty by calculating number of publications for each member of academic staff individually, and comparing them over years in order to see if there is improvement of quality of research conducted by academic staff. Number of publications in institution level is very important indicator which shows that employees of HEI are much more dedicated to research in 2013 compared to 2012.

Conclusion.

Aim of this work was to use case of Star University located in Bosnia and Herzegovina to provide empirical evidence that implementing ISO 9001:2008 and standards for accreditation required by Agency for Development of Higher Education and Quality Assurance (HEA) are good way to improve quality of HEIs in Bosnia and Herzegovina. Having in mind that Star University was conducting reports and following indicators of quality (passing rates, average grade, evaluation of academic staff by students, students' satisfaction, number of publications) as a response to requests of accreditation criteria and ISO 9001:2008 quality management system, it is possible to say that ISO 9001:2008 along with HEA's requests for accreditation are good way to improve quality of Higher Education Institution in Bosnia and Herzegovina. Therefore, this paper provides empirical evidence that ISO 9001:2008 and standards for accreditation required by Agency for Development of Higher Education and Quality Assurance (HEA) are very useful and beneficial for all private universities in Bosnia and Herzegovina on their way to improve quality. Since there is no enough research about this issue in Bosnia and Herzegovina, this work can be good stimuli for new researches that will go more deeply into issue.

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