Journal of Business and Economics, ISSN 2155-7950, USA
November 2014, Volume 5, No. 11, pp. 1983-1996
DOI: 10.15341/jbe(2155-7950)/11.05.2014/005

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Information Technology and Strategic Management of Universities

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Abstract: The paper presents the importance of development and implementation of appropriate information technology at universities in order to make preconditions for better strategic management of these institutions. Strategic management of the modern universities is based on vision, mission, defined strategy and strategic goals. In Bosnia and Herzegovina (B&H) this is regulated by Law and by Criteria for accreditation adopted by Agency for Development of Higher Education and Quality Assurance. But, after defining the main strategic goals, the universities need indicators to enable monitoring of their implementation. So, universities has enormous obligation to collect, access and analyze data on their key performance indicators. Today, it is almost impossible without quality IT support. One of the main goals of Tempus project "Strategic Management of Higher Education Institutions Based on Integrated Quality Assurance System-SHEQA" was development and implementation of software for KPI (Key Performance Indicators) at all eight public universities in Bosnia and Herzegovina. Through Tempus SHEQA public universities in B&H developed and implemented USKPI (University System of KPI) software that provides a simple and fast method of data collection, calculation and presentation of key performance indicators necessary for the efficient management of the University. Continuous monitoring and analysis of KPI creates a basis not only for strategic planning and management of higher education institutions, but also for accreditation, evaluation, tactical planning, enrolment procedures and so on. The paper presents how USKPI software changes a way of strategic management at some of the B&H universities enabling them better use of their potential and better adaptation to rapid changes in their environment.

Key words: key performance indicators; KPI software; strategic management
JEL code: O330

1. Introduction

Last three decades European higher education (HE) has been included in the much broader Western and Eastern European reforms. Since the late 1990s the rate of change in European HE has accelerated to unprecedented levels, largely based on two key developments: the Bologna Declaration and Lisbon Strategy. Launched in year 1999 The Bologna Declaration has become turning point in the development of European higher education with main goal to make the European HE systems more competitive and attractive. The process originates from the recognition that in spite of their valuable differences, European HE systems are facing common internal and external challenges related to the growth and diversification of higher education, the

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employability of graduates, the shortage of skills in key areas, the expansion of private and transnational education, etc. The Declaration recognized the value of coordinated reforms, compatible systems and common action (EC, 2000). The aim of the Lisbon Strategy, launched in year 2000 by the European Council was to make Europe "the most competitive and dynamic knowledge-based economy in the world, capable of sustainable economic growth with more and better jobs and greater social cohesion" (CoE, 2000). One of the first steps in reaching that goal was reform of the European still fragmented higher education systems into a more powerful and more integrated, knowledge-based economy. In such a context, the European Commission has increasingly emphasized the role of universities in contributing to the knowledge society and economy (EC, 2003, 2005a). "Europe must strengthen the three poles of its knowledge triangle: education, research and innovation. Universities are essential in all three" (EC, 2005b). The Commission found that governments have increasing difficulties to match the rising costs of science and providing quality education and excellent research. Lack of competitiveness has been one of the major challenges for European universities noted by the Commission since 2003. The major criticism lies in European universities failing to use their full potential to stimulate economic growth, social cohesion, and improvement in the quality and quantity of jobs. The European Commission identifies the following problems: the tendency of uniformity and egalitarianism in many national higher education systems, too much emphasis on mono-disciplinarity and traditional learning and learners; and too little world-class excellence. Despite these difficulties the Commission believes that the quality and attractiveness of the European universities need to be increased, human resources need to be strengthened, and the diversity of the European higher education system needs to be combined with increased compatibility (Dill & Vught, 2008). Appropriate governance structures and processes are frequently regarded as a precondition to achieve these goals. The changing role of the state—HE institutions relation has been visible in the form of enhancing institutional autonomy and stressing quality assurance and accountability. This for instance has been convincingly demonstrated in Neave's article on the rise of the evaluative state (Neave, 1988), or Eurydice's 2000 study on two decades of higher education reform (Eurydice, 2008). Globalization, internationalization and privatization have all done much to shape the current situation. Considerable attention has been given to the adoption of more market-type mechanisms and modern types of governance. Keywords like accountability and New Public Management or network governance ("state supervision", "the evaluative state") are gradually replacing the traditional focus on state control and academic collegial governance. State control is giving way to more institutional management in the name of efficiency and responsiveness to society's diverse needs, proven through new processes of accountability including quality assurance. Institutions are being encouraged and some would argue forced to increase their capacity and willingness to become engaged in the production of useful knowledge and relevant teaching.

The notion of "less government and more governance" is strong and supported by several factors (De Boer, Enders & Schimank, 2006). One is financial; high public expenditures for continuously expanding higher education systems demand new steering instruments. Another factor is the ideological shift towards the market as a coordinating mechanism. Today it is evident in Europe that higher education increasingly functions in quasi-markets, where governments still play an important guiding role (Texeira, Jongbloed, Dill & Amaral, 2004).

Within this context three basic governance models could be distinguished at institutional level (Eurydice, 2008):

- Academic model (HE institutions have autonomy in deciding on academic matters such as deciding on research areas, award of diplomas, adoption of curricula, enrolment policy and study programs on offer).

- Managerial model (management of the HE institution has a strong role in defining objectives and deciding on non-academic matters such as financial management, human resource management and budgeting).
- Entrepreneurial model (which entails governance in partnership with other stakeholders outside higher education institutions).

Deregulation in the form of enhancing institutional autonomy has probably been the overarching governance trend in European higher education over the last two decades (Eurydice, 2000, Eurydice, 2008, OECD, 2008). Greater accountability also means that higher education institutions have to redefine the ways in which they inform their stakeholders about their performances. Additional demands are placed on the academic leadership, which in turn requires new modes of communication with and assistance from the decentralized units (faculties, schools, institutes, departments). In many cases this has led to a further rationalization of higher education institution's decision-making structures and in many cases also has implied putting in place new "hierarchies" in which institutional leadership holds a central role (Kehm & Lanzendorf, 2006).

The strengthening of institutional leadership has also had an impact on leadership styles within the institutions. Traditional notions of collegiality and consensus-based decision-making have increasingly come under pressure, making room for "business-like" management and the "professionalization" of administrative structures. Borrowing instruments from the private sector, institutions have tried to enhance their possibilities to streamline the organization in order to cope with an increasingly complex environment. Developing institution—wide polices—strategic planning and "identity-building" are now regarded as essential survival strategies. Higher education institutions are increasingly seen as "corporate actors" that act strategically not only within their own organizations but also pro-actively engage with their external environment (De Boer & File, 2009).

These trends identified in the European Higher Education Area clearly indicate the need for a thought-out, organised and high-quality approach to higher education governance in Bosnia and Herzegovina. These circumstances call for a strategic approach to the harmonization of the higher education governance system within Bosnia and Herzegovina and with the European Higher Education Area.

2. Strategic Management of Public Universities in Bosnia and Herzegovina

Bosnia and Herzegovina as a country in transition and preparing itself for entrance into European Union, showed its readiness to implement the reform of higher education by signing the Bologna Declaration in 2003. But, next four years were spent in arguing about state Framework Law for Higher Education (Framework Law). This Law was finally adopted in August 2007 under high pressure of international community. Since Bosnia and Herzegovina is a country with complex structure, this complexity also reflects on state governance in higher education. Namely, in Bosnia and Herzegovina there is no ministry for education at state level, because education is responsibility of entity Republic of Srpska, cantons in Federation of Bosnia and Herzegovina and District Brčko. Result of such constitutional organization is existence of 14 different ministries and bodies which are competent for education, and of course higher education (10 cantonal ministries in Federation of Bosnia and Herzegovina, Federal Ministry of Education and Science as coordinating ministry in Federation, Ministry of Education and Culture in Republic of Srpska, Department of Education in District Brčko Government and Ministry of Civil Affairs at the state level as the competent authority for international cooperation and coordination).

Consequence of such complex constitutional structure is that the process of implementation of the

Framework Law is proceeding very slowly and has not been fully completed, although Article 63 said "The laws of the Republic of Srpska or cantonal laws in the area of higher education shall be harmonized with the provisions of this Law within the period of six months from its Effectiveness" (OGB&H, 2007). But, the Central Bosnia Canton as a last canton that adopted the Law on Higher Education did that in March 2013 while most of the cantons still have to adopt the supporting legal regulations (e.g., Rule books on accreditation and etc). So, six years after the adoption of the Framework Law, legislation has not been introduced and the functional integration of the higher education institutions has not been implemented.

Although the Framework Law defines the obligation of integration of universities, due to delay in adoption of regulations in higher education, when the public universities in Bosnia and Herzegovina are under question, situation is very heterogeneous. Five of eight public universities were formally integrated, while three are still at the beginning of that process.

Although main trends in European higher education systems are more institutional autonomy, accountability and strengthening of institutional leadership which leads towards shift to more managerial model of institutional governing, the Framework Law effectively allows complete denial of business autonomy of public universities in Bosnia and Herzegovina. Namely, Article 15 of this Law (OGB&H, 2007) allows for all members of the Governing Board (the Rector reports to this Board in business matters under Article 17) to be appointed by the founder of the university (in cases of public higher education institutions, the founders are governments). This means that a higher education institution can be effectively deprived of its rights which are provided for under Article 19 of the Framework Law (OGB&H, 2007), which is completely in contrast to the European trends.

There are substantial differences, not just in approaches related to financing of public universities, but also in quantity of assignment of public money to them. In Bosnia and Herzegovina there is no consensus about the basic indicators for public sector funding and costs, not to mention other sources. Two public universities are even not in budget of their ministries and they are financing through grants.

It is clear that both different ways of institutional organization and approaches to financing directly influence on the way of governance and management of public universities in Bosnia and Herzegovina. The degree of strategic management development at the institutional level is different from university to university. As far as national level is concerned, Agency for Development of Higher Education and Quality Assurance (HEA) developed Criteria for accreditation and standards (OGB&H, 2010) where the first criterion is related to strategic management of higher institutions. In the criteria named "Development and strategy of higher education institution" is said:"(1) higher education institution develops its strategy in the process of public consultation with all the stakeholders, adopts it formally and makes it publicly available, (2) with its strategy, higher education institution defines its vision and mission, strategic goals and relevant plans and activities for each strategic goal, (3) higher education institution has an effective system and procedures for monitoring the fulfillment of its plans and realization of its strategic goals." (OGB&H, 2010). In this document, in criteria related to management, internal quality assurance and quality culture, quality assurance is recognized as an instrument for strategic management of universities—"higher education institution promotes quality culture, develops a comprehensive and efficient internal quality assurance system for improving teaching, scientific research and processes of management and administration" (OGB&H, 2010). But, neither Criteria for accreditation and standards clearly defined Key Performance Indicators (KPI) at the national level nor required its usage at institutional level.

However, it is necessary to stress out that in the last decade, while different educational ministries and agencies struggle with legislative, development and modernization of institutional governance systems were

significantly supported by the international projects in which all public universities in Bosnia and Herzegovina have participated (e.g., "Strengthening Higher Education in Bosnia and Herzegovina" by Council of Europe, Tempus project "From Quality Assurance to Strategy Development"-JEP_41078_2006 and etc.).

Public universities in Bosnia and Herzegovina have observed trends in European higher education and therefore have understood that is necessary to adopt some managerial approach if they want to be a significant key player in the further development of the society. That was the main reason why University of Mostar proposed idea for Tempus project called "Strategic management of Higher Education Institutions based on Integrated Quality Assurance System"—SHEQA. The main aim of Tempus SHEQA is to contribute to the further development and modernization of higher education in B&H in accordance with European standards in EHEA and to further develop a quality assurance system to support the strategic management of HEI in B&H. The specific objectives of this project are (Rezić et al., 2013):

(1) Analyzing the existing key performance indicators (KPI) for quality assurance in Europe;

(2) Defining and implementing key performance indicators for quality assurance in B&H;

(3) Developing and implementing a register of study programmes for B&H Universities;

(4) Contributing to strengthening and developing the strategic management at HEI on the basis of KPI, which are used in the European Area of Higher Education (on the basis of ENQA recommendations);

(5) Strengthening cooperation with the Agency for higher education and quality assurance and authorized ministries of education.

Tempus SHEQA lasted three years, from 2010 till 2013. The first Project task was the analysis of the existing situation in the development of key performance indicators in EU and B&H, the way of collecting and monitoring KPI and the problems that occur to B&H Universities in this area. The result of this analysis was a SWOT analysis (Figure 1) of the existing situation related to strategic management and QA procedures at B&H universities (Rezić et al., 2013).

S	**W**
People trained and educated in QA, cooperation, University QA capacity developed, cooperation, tradition Strategy development Evaluation Accreditation Internationalization Student competencies (graduated)	Lack of the funding for QA Lack of IT system Lack of staff , student and administration interest Resistance of changes Lack of alumni organizations Lack of implementation ECTS system Lack of awareness of management Limited of autonomy
O	**T**
Cooperation with EU universities Cooperation with external and internal stakeholder Accreditation of institutions and study programs EU Funds available Involving of alumni Role in development of the society Establishing of common QA system (HEA, Min. standards, framework) BiH QA experts involved in regional and international processes	Political situation and influence Lack of harmonization of legislation and ministry coordination Lack of budget Lack of national strategy Non fair competition between universities Heterogenic development of HE in BiH Non inclusion of HEA in EU QA organizations

Figure 1 SWOT Analysis of Strategic Management and QA Procedures (Rezić et al., 2013)

SWOT analysis of the existing situation related to strategic management and QA procedures at public universities in Bosnia and Herzegovina, together with comparison positive practices in European higher institutions made prerequisites for development of common set of KPI for public universities in Bosnia and Herzegovina.

3. Development of Common Set of KPI

Activities and results of Tempus SHEQA project has been directed to the development of an integrated QA system as the key mechanism for strategic management of public universities in Bosnia and Herzegovina, but also to strengthening cooperation of public universities in B&H with the Agency for higher education and quality assurance and authorized ministries of education. Namely, development of common set of KPI for all public universities in Bosnia and Herzegovina means that comparable criteria for B&H Universities are developed at the national level. During the process of development of common set of KPIs for public universities in Bosnia and Herzegovina, with European experts help, it was agreed that the KPIs in B&H higher education should have the following characteristics (Rezić et al., 2013):

- Complying with the mission of the university, that is, they should reflect the main activities of the universities, which are education and research;
- Specific, quantifiable and standardized, in order to be able to be compared with different universities or even make internal comparisons between departments;
- Simple and consistent with the activities for which they will be a reference for a decision;
- Acceptable and true, for all those involved in the assessment;
- Bring information about the activities and operation of the universities.

Public universities in Bosnia and Herzegovina reached an agreement on a set of thirty six indicators. The broad underlying principles for the selection of a set of key performance indicators were (Rezić et al., 2013):

- The set should comprise information on institutional input parameters, institutional process parameters, as well as institutional output parameters.
- The set should measure the success of attaining as many as possible of the institutional strategic objectives.
- Each indicator in the set should be clearly defined and easy to understand.

The following set of common KPI was accepted by all B&H public universities (Rezić et al., 2013):

(I) *Management*

- Index of financial resources (total budget, students fees, research projects–domestics/EU, donation) on the basis of current and previous year
- Realization of strategic plan (% of realization annually)
- Total budget per employers and total budget per students
- Visibility of main strategic documents (web, other media, public presentation)

(II) *Education*

- Percentage of students who successfully finished the first year of the first circle
- Percentage of graduates per each generation
- The application/admission ratio
- Percentage of external experts engaged in the teaching process

(III) *Research*

- Number of publications published in the relevant databases
- Number of citations
- The percent of research innovation funding in total university budget
- Number of international research projects
- Number of students included into research projects
- Number of finished doctoral thesis on the yearly basis

(IV) *Cooperation with Society*

- Number of realized lifelong learning courses
- Number of master/doctoral thesis realized in cooperation with society on the yearly basis

V Funding

- Total budget/number of students
- Own incomes/total budget
- Income from economy
- Income from EU project
- Income from students' fees
- Income from research projects
- Total budget/number of graduated

(VI) *Internationalization*

- Number of teaching mobility
- Number of student mobility
- Number of courses given in foreign language

(VII) *Human Resources*

- Workload: Number of classes per week (calculated for each lecturer):

a. Average workload

b. Maximum workload

c. Minimum workload

d. Number of mentorship candidates/number of lecturers

- Student/academic staff ratio: Number of students/number of lecturers (calculated for each programme, even separately for each study year, because 1st year is often with higher number of students)

a. Average student/staff ratio

b. Maximum student/staff ratio

c. Minimum student/staff ratio administrative and technical staff

- Age distribution of all, academic, technical and administrative staff
- Number of staff/academic title
- Number of staff for each gender/ academic title
- Number of full time employed teaching staff/total number of teaching staff
- Total number of teaching staff/number of non-teaching staff Ratio

(VIII) *Student Services*

- Special needs services (access)
- Number of alumni club members per year activities
- Internet access points per student.

The implementation of a common set of KPI at the university in B&H requires that two fundamental conditions are checked beforehand (Rezić et al., 2013):

(a) *Institutionalization*: high degree of acceptance and generalized consensus, by those involved in the process of management control, regarding the use of the indicators previously chosen;

(b) *Standardization*: permanence in time of the same panel of indicators, as well as the use by B&H universities.

The methodology to be used in the implementation of systems of management indicators in the university should have the direct participation of the manager's team. Management structure of universities and key persons responsible for the quality assurance collects access and analyze data on key performance indicators of universities. This process begins by defining the vision, mission, goals and strategy of the university. After defining the basic strategic goals, the university needs indicators to enable monitoring of their implementation. Key indicators should be complete and accurate. Each indicator must be measurable, and its way of measuring is to be clearly defined. It is essential that the definitions of these indicators do not change and are monitored from year to year.

4. IT Support for KPI

Continuous monitoring and analysis of KPIs is almost impossible without qualitative IT support. During Tempus SHEQA workshops basic demands and initial model for development of IT support for monitoring KPI were defined.

Selected and at each B&H public university installed USKPI (University System of KPIs) software provides a simple and fast method of data collection, calculation and presentation of key performance indicators necessary for the efficient management of the University.

USKPI is a web-oriented, i.e., database web centric application developed by using Oracle Application Express tools and it uses Oracle Database 11g Express Edition (XE) as a database.

Basic elements of USKPI software (Figure 2) are as follows (Rezić et al., 2013):

- User interface for maintaining set of master data and definition of indicators.
- User interface for automatic and manual import of data about key performance indicators.
- Reporting on indicator values.
- Administration of security settings.

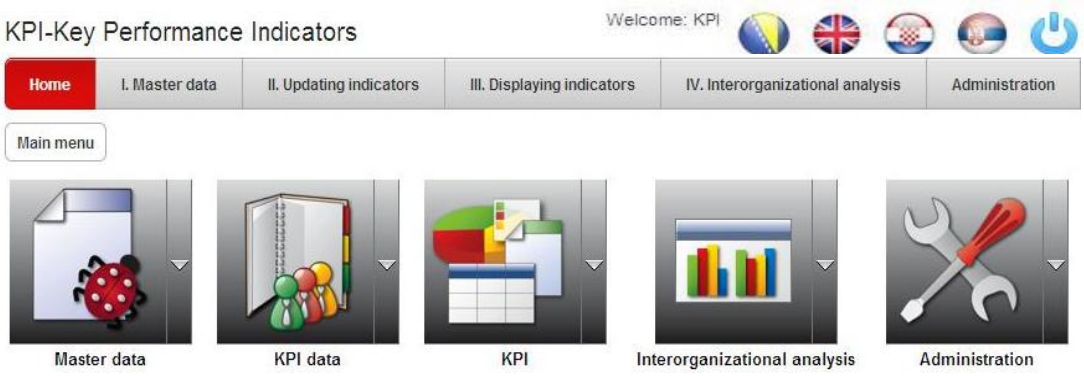

Figure 2 Basic Elements of USKPI Software—Main Menu

The basis of any quality software, among other things, is a high-quality master database. Using link I. Master data (Figure 2), the form, with a links to access the interface for maintaining of the following groups of master data, is activated (Figure 3):

(1) Academic and calendar years

(2) Organisational structure

(3) Academic and administrative staff

(4) Definition of indicators

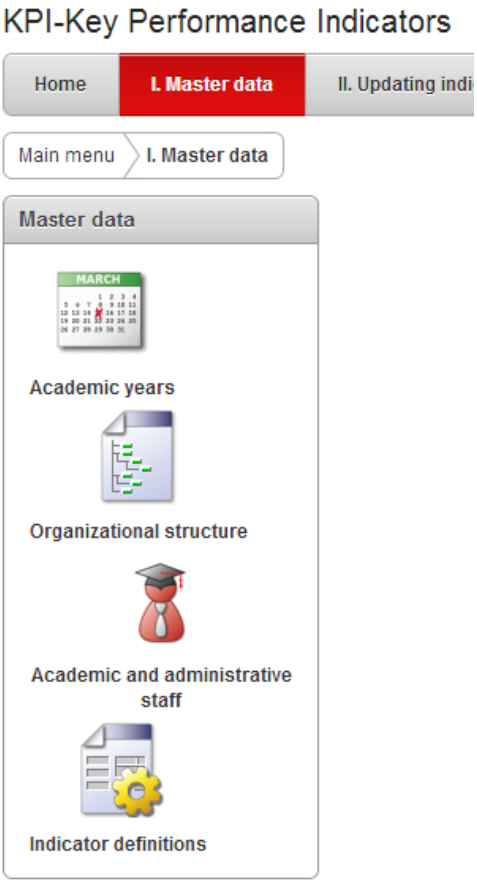

Figure 3 Master Data Menu of USKPI Software

The most important part of the master data is definitions of indicators. This part of the master data must be maintained carefully in order to correctly apply each individual indicator definition data. By selecting the link "Definitions of indicators" (Figure 4) the screen displays a group of indicators that is activated. The indicators are arranged in groups according to their respective affinities in order to facilitate later retrieval and display its values. USKPI software comes with predefined groups for agreed common indicators.

USKPI software is available in all three official B&H languages: Bosnian, Croatian and Serbian. In addition, the English version of the software is also provided.

USKPI software provides the localization of data in a manner that each of the data is entered into the database in all language versions, where initial entry is on language version used by software user who creates the data.

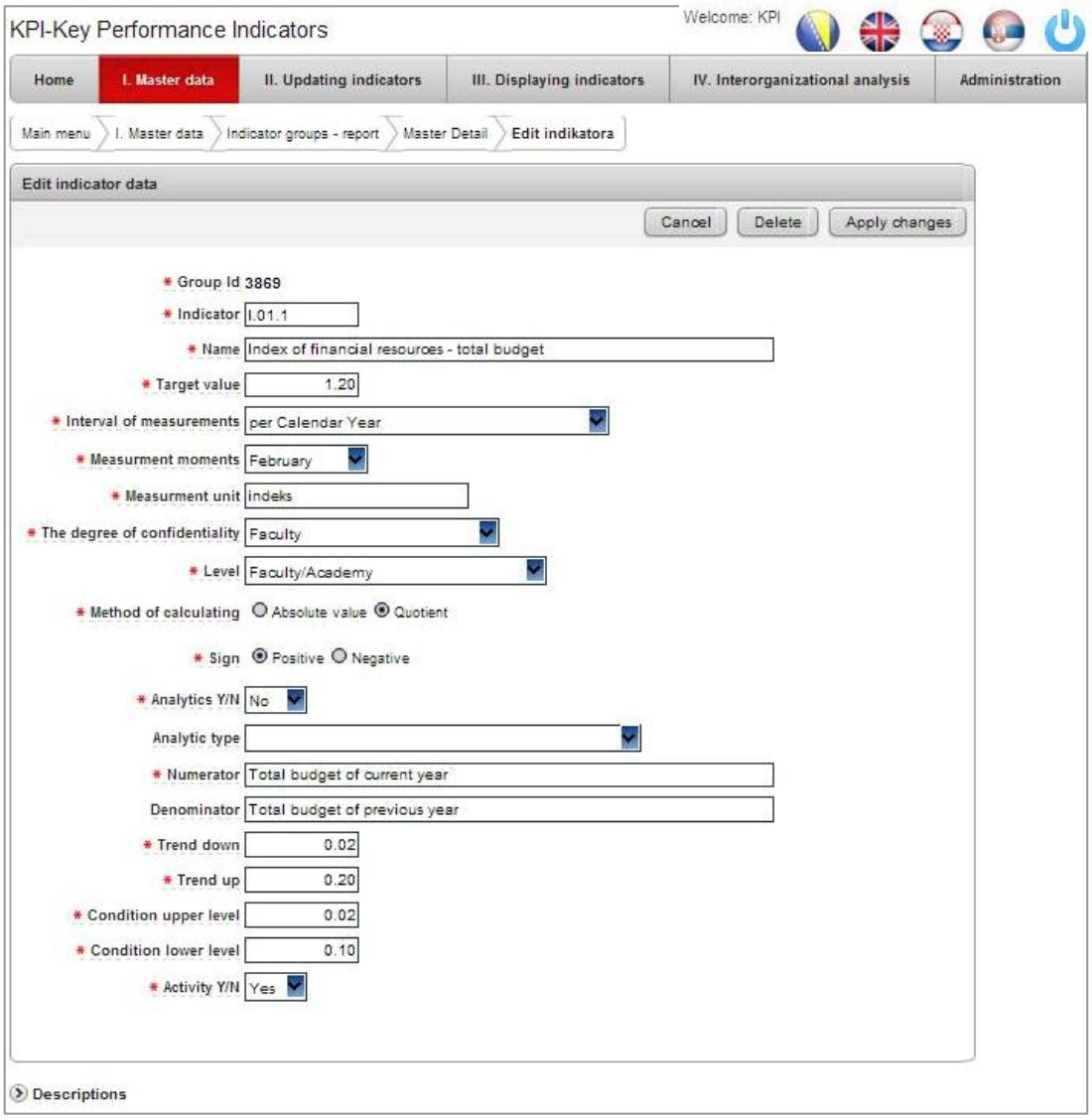

Figure 4 Definition of Indicators in USKPI Software

The main features of USKPI software are following (Rezić et al., 2013):

- *Automatic data acquisition from external sources*
- Generating of excel templates for fulfillment of data necessary for KPI calculation
- Validation procedures for fulfillment of excel documents
- Validation procedures for checking of excel documents before loading into database
- Import data procedures
- Reports related to the process of checking and importing data into system.
- *Manual data entry from external sources*
- Data entry can be done by the person who was given a certain role in the system.
- The person, who works on data entry, can do that at the level permitted by the administrator (University, Faculty, Study group, etc.)
- Validation procedures should control every individual data entry either the control of data domain or logical

correctness of numerical and descriptive data.

- Before writing data in the database validation procedure should provide logical correctness and consistence of entire entry.

- *Searching (browsing) of USKPI database*

- User should choose:
- Data level
- Reference period
- Comparison period(previous year or one before)
- Selection of trend and state indicators overview.
- Data level means: university, faculty, study program ...
- Reference/Comparison period means academic year
- Interface for the KPI indicators overview should provide the user with a possibility to turn on or off the trend indicators or actions which should be taken over in accordance to the expressed values.

- *System Administration*

System users are uniquely defined in the system by the user name which has to contain the following data also:

- Initial password
- Affiliation to a certain organization structure
- E-mail address
- Date of user creation
- Date of the last system access
- Date of the system access expiration
- Activity indicator
- USKPI software enables definition of specific user roles for the access and usage of certain system functionalities:
- Super administration (system administration of users and working rights)
- Administration (generating of KPI indicators definition)
- Editorial (acceptance of data necessary for calculation KPI indicators)
- Analysis (KPI analyses, public and not public ones)
- Guest (public access to application).

5. Strategic Management with USKPI Software

In the framework of Tempus SHEQA project, each B&H public university installed and started with use of USKPI software for gathering and analysis of data for generation of the common set of agreed KPIs.

Seven of the eight public universities (University of Banja Luka, University of Bihać, University of Džemal Bijedić, University East Sarajevo, University of Mostar, University of Tuzla and University of Zenica) in B&H have made significant progress in the installation, piloting and use of the SHEQA software for collection and analysis of KPIs. These universities evidenced their commitment to the continued use of the developed tools after the conclusion of the SHEQA project. All expressed firm commitment and appreciation of the benefits and advantages of these tools for the strategic management of the universities.

The use of KPIs in strategic management is fully integrated into the university's systems with annual reports to the University Board, the University Steering Board and the Senate all being based on data and graphics from the KPI software. The usage of USKPI software has facilitated the population of both pieces of software with accurate data and the acceptance of this approach within the university. Along with the University of East Sarajevo the University of Zenica has engaged in a benchmarking exercise using the KPI data.

All public B&H Universities made Developmental plans of the institutions on the basis of an integrated QA system and with defined: clear and easily understandable objectives, methods and activities for realization of objectives, necessary resources for realization of objectives, (material, financial and human), deadline for realization of resources, authorized person and measurable indicators for the realization of the objectives.

New Strategy of the University of Mostar is completely based on KPI. University uses USKPI software for efficient monitoring of Strategy realisation. University QA coordinator is responsible, together with faculty QA coordinators and administrative staff, for collecting and input necessary data into USKPI data base.

USKPI software uses traffic lights for better visual presentation of KPI value (Figure 5).


KPI: 2012/2013-University of Mostar

Indicator	Year	KPI	KPI (Prev.Year)	Trend	Condition
I.01.1-Index of financial resources - total budget	2012	1.1	-	⇧	
I.01.2-Index of financial resources - students fees	2012/2013	1.03	0	✓	
I.01.3-Index of financial resources - research projects (domestics)	2012/2013	.89	0	✓	
I.01.4-Index of financial resources - EU projects	2012/2013	1.25	0	⇧	
I.01.5-Indexes of financial resources - donations	2012/2013	.68	0	⇩	
I.03.1-Total budget per employers	2012/2013	19070.1	0	⇧	

Figure 5 Visual Presentation of KPIs in USKPI Software

It is obvious from Figure 5 that Index of financial resources—total budget is rising (green light) while index related to student fees is in stagnation (yellow light) and index related to donations declines (red light). USKPI software enables graphical data presentation (Figure 6).

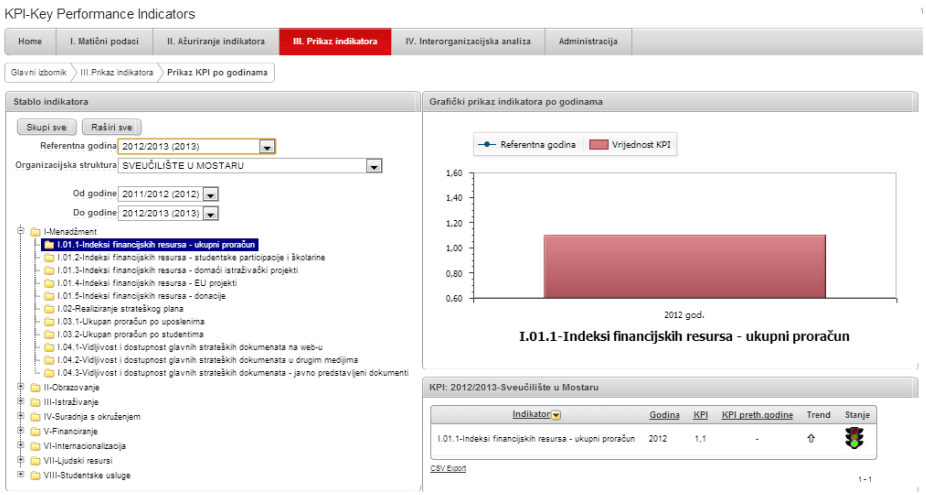

Figure 6 Graphical Data Presentation in USKPI Software

It is obvious that Tempus SHEQA project enabled B&H public universities to develop common set of KPIs and implement USKPI software. The final result is significant advancement in development and implementation of strategic management at those institutions.

6. Conclusion

In a context of limited human and financial resources available, in an ever-changing environment, strategic planning, effective decision-making processes, appropriate governance and management structures and relevant information and management systems need to be established to ensure the proper implementation of the relevant strategies.

The aim of the Tempus SHEQA project was to implement quality assurance as an instrument in the strategic development of B&H universities in close cooperation with the Agency for higher education and quality assurance and the authorized Ministries in charge of Higher Education. Continuous monitoring and analysis of KPI supported by USKPI software creates a basis not only for strategic planning of higher education institutions, but also for planning of higher education done by authorized institutions, both cantonal and state ones. USKPI software implementation could be crucial advantage for B&H public universities in efficient strategic management and monitoring of realization of their strategic goals.

Through the Tempus SHEQA and other projects public B&H universities have shown readiness to do their part of job in order to become more competitive, attractive and socially responsible. In order to reach these goals universities need more autonomy, accountability and internal restructuring towards modern strategic governance.

By developing KPI at the national level universities proposed a tool for stimulating the reform of the higher education structure in Bosnia and Herzegovina. By training B&H University staff for collecting and monitoring KPI and by introducing a University management system based in the first place on quality assurance, Tempus project SHEQA intends to enhance the strategic management of higher education in B&H and to increase the convergence with EU standards.

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