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## POSSIBILITIES OF IMPLEMENTATION OF THE BALANCED SCORECARD METHOD IN HIGHER EDUCATION

**Abstract:** This paper describes the application of the BSC to the existing strategy of the university. With its application an unbalanced strategic state is translated to the balanced state on the way of equal engagement of all resources and segments of functioning of HEI. After the estimated needs for the establishment of a BSC, existing strategic goals of HEI are translated into KSF, and later in the KPI, on which basis is the proven original use of the BSC, and that is translating strategy into an understandable set of indicators. On that way the number of original KPI is reduced on the acceptable number for monitoring and decision making. Creating a strategy map is a simplified picture of the strategy and provided a contribution to the effective implementation of the strategy through the understanding of key parameters of all relevant perspectives of functioning.

**Keywords:** Balanced Scorecard, Key Success Factors, Key Performance Indicators, Higher Education Institution

### Abbreviations:

BSC – Balanced Scorecard

HEI – Higher Education Institution

KPI – Key Performance Indicators

KSF – Key Success Factors

## 1. INTRODUCTION

Balanced Scorecard has emerged as a proven and successful tool in the effort to intangible assets translate into real value for all interested members of an organization, and to facilitate the successful implementation of their various strategies. This so seemingly simple methodology, developed by Robert Kaplan and David Norton [1], translates the strategy of an organization to the goals of efficiency, measures and initiatives in four balanced perspectives: financial, customers, internal processes and learning and growth. Organizations around the world have adopted and implemented this method of achieving benefits in the form of financial return, greater consistency with the overall objectives, enhanced cooperation, focus on strategy, and the like. However, in order to fully achieve the benefits of the organization must have the tools necessary to create a successful BSC [2]. There is an extremely large number of definitions of BSC, however none of them can not include everything that BSC brings to an organization.

However, what is generally accepted is that the BSC time since its appearance in 1992 as a system of measurement has evolved to a strategic management system in 1996 to over strategically focused organization in 2001 grew into an integrated management system in 2008. Each stage of the BSC has its own story and its stronghold in organizational functioning.

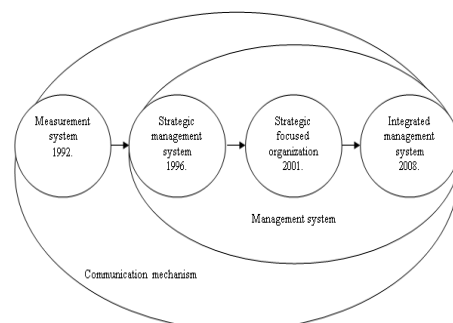


Figure 1 - Balanced scorecard evolution

In the last decade BSC was implemented in the public and nonprofit sector although originally labeled as a means to achieve the

objectives in profit organizations. One of the barriers to its effective implementation in the public sector is the difficulty in defining a transparent strategy. Public and non-profit organizations usually its mission based on reducing their costs, improving quality and take effective actions, and hence a significant difference between for-profit, and public and non-profit organizations in the fulfillment of its mission [3].

BSC represents such a management system that can be suitably used for improving the accountability of higher education institutions. This approach can help universities to translate their vision, mission and strategy in a series of measurable indicators that can lead the organization to success. Each university has its own specific key success factors that enable him to lead the institution in accordance with the new vision. The key success factors lead an organization to commit their goals. In implementing the strategy, the universities often encounter problems generally come from the employees. Such barriers include resistance to change, lack of loyalty, or fear of liability. Mapping strategies used BSC to a university focused strategy to overcome the aforementioned barriers [4].

Higher education should emphasize more academic measures than financial measures. Measurement in higher education is often highlighted those academic variables that are easy to quantify. Such measures are related to the number of students, different relationships of employees and students, student pass rate, the number of output of students, graduation rates, employment, teaching loads, research publications, statistics on physical resources and the like.

Through the BSC, universities are trying to track and monitor their current performance and efforts to providing high quality teaching process, learning and research activities, improve customer service, improve key processes, to provide an environment in which employees are motivated, and to improve their information systems.

## 2. DEVELOPMENT OF THE MODEL OF APPLICATION BSC

Taking into consideration many definitions, the BSC can be implemented in different ways in HEIs. Not all organizations

will introduce the BSC for the same reason, because BSC represents a broad term and includes several mechanisms that can be used for different purposes. Originally, the BSC has been developed to balance the financial indicators of the state institutions with non-financial. Later, its use has grown its original condition and strategically positioned it.

The goal of the research presented in this paper is the translation of the existing strategy in steady state and comprehensible set of indicators, which is the most important characteristics of the BSC. The study was conducted at the University of East Sarajevo, where the main object of the study was strategy of development for the period 2007-2013. During the implementation of these strategies, in the direction of studying the efficiency and objectivity of its definition, the BSC method is applied which is founded the existence of the imbalances of the strategic goals and the lack of causal connection between them.

Towards a implementing the BSC to a higher organization, in the direction of translation strategies in steady state and comprehensible set of indicators, identified the following activities:

1. Assessment of need for the BSC method. This activity is based on the comparative implementation of two sub-activities which consist in the analysis of the development strategy of the University through the context of the BSC method and identifying the need for BSC method using a questionnaire.
2. Identification of perspectives of the BSC method. Identification of perspective will be a form the backbone of research and will be one of the key elements.
3. Development of a base key success factors - KSF and key indicators of the state - the KPI. After identified perspectives, collection of KSF and corresponding KPI was conducted in the direction of the real converting unbalanced strategies in steady state per perspectives BSC method.
4. Selection of potential KSF and KPI. Based on a large base of KSF and the KPI, using perspectives of BSC methods and brainstorming techniques, the choice of potential KSF and KPI is executed, which will be used in further research in the final choice KSF and the KPI and the development of the strategic map.
5. Connecting strategic objectives with potential KSF. In order to be committed

translating strategic objectives into the KSF, it is necessary to ensure their connections or required at any moment to realize the fact that the strategic objectives to be translated into the KSF, have to be associated with them, and there must be a causal relationship. On the basis of using of diagram of interconnection pattern, and causal connections between goals and KSF, it will be conducted connection of existing strategic goals and potential KSF, in order to conduct comparison of the existing strategic goals with the final KSF, or to determine whether all the strategic objectives represented in the final selected KSF.

6. Identification of characteristics for selection of KSF and KPI. Characteristics for choice KSF and KPI are the criteria for the final selection of KSF and KPI. For each characteristic for the selection of KSF will be separately evaluated potential KSF, and the same will be done for the KPI. Characteristics for selection of KSF and KPI will be integral part of, first, a questionnaire by which the selected respondents should be evaluated about ranking of offered KSF and KPI in accordance with characteristics for selection KSF and KPI, and after characteristics for selection will be an integral part of the software package Expert Choice by which KSF and KPI will be synthesized in accordance with characteristics for selection, in order of their final choice. This activity is composed of two sub-activities, one of which is directed to the KSF, and the other to the KPI.
7. Drawing up AHP model for the selection of KSF and the KPI. A method of multi criteria decision making is essential from the point of the participation of a large number of respondents, the number of perspectives of BSC method, characteristics for selection and the number of potential KSF and KPI. In this activity, especially for the KSF and especially for the KPI, will be made hierarchical structure of AHP model for their choice by applying the basic rules of the AHP. This structure will be respected during creation of database in the software package Expert Choice.
8. Selection of KSF. On the basis of a questionnaire about ranking of KSF and

KPI per characteristics for selection and per perspectives of BSC method, and on the basis of entered data in the software package Expert Choice, the final selection of KSF from the list of potential KSF will be done. At the end, the sensitivity analysis of selected KSF will be done in order to offer view on the reaction of existing classification of KSF on changes in relative importance of each characteristics for selection of KSF.

9. Selection of KPI. On the basis of results from the questionnaire that will be entered in the software package Expert Choice the synthesis of relative importance will be done. It will be used sensitivity analysis to test the reaction to changes in the relative importance of selected KPIs.
10. Correlation analysis of selected CSF. In order to test the statistical significance of translating strategic objectives into KSF, as well as their arrangement on the perspectives of the BSC method, the correlation analysis will be used. A positive link will be witness that the translation of the strategic goals into balanced set of CSF justified.
11. Correlation analysis of selected KPI. Correlation analysis will be used in the case of tests of statistical significance of translating strategic objectives into KPIs, as well as their arrangement per perspectives of the BSC method.
12. Development of the strategic map KSF and KPI. As a final product of BSC method via the interconnection pattern will be displayed strategic map of equilibrium KSF and strategic map of KPI of the University, in which are translated existing strategic goals and made the final balance.

### 3. IMPLEMENTATION OF BSC

The implementation of the BSC method is provided through the use of activities described in the previous section. In this section will be explained in detail each of the implemented activities.

#### 3.1 Assessing the need for BSC method

As part of this activity was originally estimated a need for the implementation of the BSC method by completing the questionnaire specifically created for this purpose [5]. The

questionnaire was filled by management HEI using the Delphi method, based on which, according to the rating scale questionnaires, it is estimated that the introduction of the BSC method in system operations is necessary from the point of establishing the discipline of measuring efficiency, the successful implementation and measurement strategies, meeting the needs of users and other stakeholders, as well as coordinating the work of the general objectives.

Then, along with filling out the questionnaire examined the balance of the existing strategy in accordance with the perspectives of the BSC method. In table presented below the presence of unbalanced situation by traditional perspectives of BSC method, 12 strategic goals and 66 KPI, is evident.

**Table 1.** Preview the KPI per strategic objectives in line with the perspectives of the BSC method

Perspective	Number of strategic goal	Number of KPI	Percentage of participation of KPI (%)
Financial	5,10	5	7,57
Stakeholders	3,4,6,8,10,11	15	22,73
Learning and growth	3,4,5,7,12	7	10,6
Internal processes	1,2,3,4,5,6,7,8,9,10,12	39	59,1
Total number	12	66	100

**Table 2.** Preview of KSF per strategic goals in line with perspectives of the BSC method

Perspective	Number of strategic goal	Number of KSF	Percentage of participation of KSF (%)
Financial	5,10	5	8,77
Stakeholders	3,4,6,8,10,11	14	24,56
Learning and growth	3,4,5,7,12	6	10,53
Internal processes	1,2,3,4,5,6,7,8,9,10,12	32	56,14
Total number	12	57	100

### 3.2 Identification of perspectives of the BSC method

As the most important element of the BSC method, BSC perspectives may vary from organization to organization, given name and the total number. In order to decide how many perspectives will be identified in the research, their final selections were conducted by brainstorming method. The four traditional BSC perspectives will be used: stakeholders, financial, internal processes and learning and growth perspective.

### 3.3 Development of a base of KSF and KPI

This activity included the collection of all the available KSF and KPI to which will be translated strategic goals of the organization. Their collection was carried out on the basis of the available literature, interviews with various experts on the basis of already used KSF and KPI University, as well as KSF and KPI competitive HEIs. The method of gathering was organized so that all possible KSF and KPI, which can consist of strategic objectives, divided according to the identified perspectives of the BSC method. Especially assured that all collected KPI correspond or be engaged with the KSF, which later must meet the strategic goals. The total is collected 181 KSF and 474 KPI.

### 3.4 The selection of potential KSF and KPI

Taking into account that the quite a number of KSF and KPI collected, in this activity that number had to be reduced to a smaller number to the research could proceed unhindered. Through brainstorming methods a large database of KSF and KPI is reduced to a potential CSF and KPI while retaining links with existing strategic goals. 27 KSF and 184 KPI was selected for further study.

### 3.5 Connection of strategic goals with potential KSF

One of the goals of this research is to translate 12 strategic goals in the set of KSF by the perspectives of BSC method which will balance the overall strategic situation. As strategic goals can't be divided per perspectives of the BSC method, in further research they will be replaced with KSF, as key areas that make up the basis of HEI functioning, and at the same time they are in connection with

existing strategic goals.

The connection between strategic goals and potential KSF was conducted by diagram of interconnections which proved that all potential KSF are in connection with existing strategic goals.

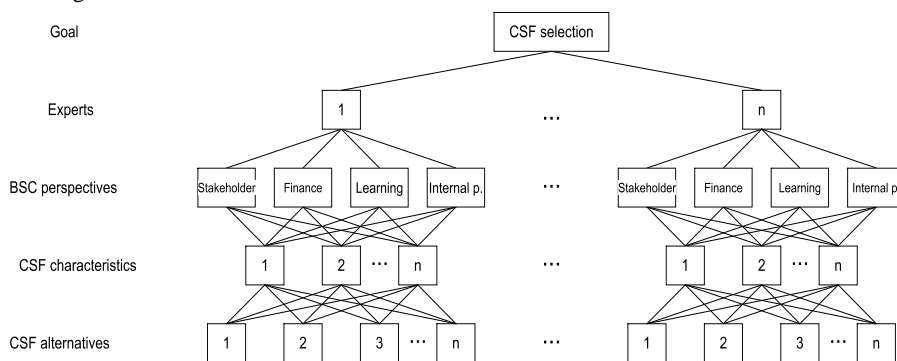
### 3.6 Identification of characteristics for selection of KSF and KPI

The next phase is selection of final KSF and KPI that should consist the strategic map. Their selection will be defined through AHP method. This method involves the creation of hierarchical model with 5 levels of which one level represents characteristics of KSF and KPI on the basis of which to be determined final KSF and KPI. The selection of KSF and KPI will be conducted by respondents that will determine relative importance of offered KSF and KPI per perspective of the BSC method, and on the basis of characteristics for selection KSF and KPI. On the basis of available literature, of the total number of possible characteristics for selection KSF through brainstorming method the three characteristics

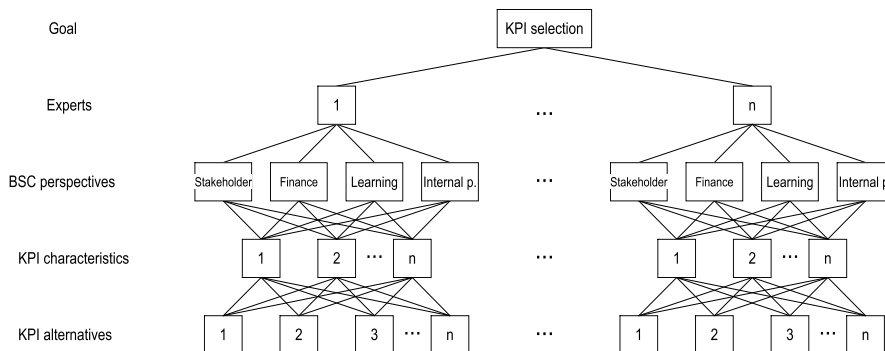
were chosen, and “strategic importance”, “have the potential to improve” and “have a positive impact on the organization”. On the same way as for KPI, three characteristics were chosen and “indicator change”, “stimulates continuous improvement” and “susceptibility to influences”.

### 3.7 Drawing up AHP model for the selection of KSF and the KPI

To select a KSF from a list of potential KSF, which should consist of the existing strategic goals, as well as to determine the relative importance of each KSF it was used structured approach based on AHP methodology. The reason for using this method is the participation of a large number of respondents (experts) who will participate in the election of KSF, the existence of four perspectives of the BSC method, and the presence of characteristics which will make the final selection of KSF. Hierarchical structure shown in the following figure is selected for the KSF selection.



**Figure 2 - Hierarchical structure of AHP model for KSF selection**



**Figure 3 - Hierarchical structure of AHP model for KPI selection**

The primary objective is selection of KSF and selection of KPI from the list of potential KSF and KPI that are associated with existing strategic goals. On the second hierarchical level the respondents are positioned that will do prioritization in pairs. The next hierarchical level represent BSC perspectives for which KSF and KPI should be chosen, then characteristics for selection KSF and KPI on the basis which the final selection should be conducted and at the last hierarchical level are alternatives, as offered KSF and KPI for selection. Selected KSF and KPI will at the end form a strategic map which represents the last step in the implementation of the BSC method.

### 3.8 KSF selection

KSF in this research are the main elements that translate existing unbalanced strategic objectives of the University in equilibrium set by per perspectives of BSC methods in order to develop strategic map. Selection of potential KSF has been done through a questionnaire created for this purpose, and then entering the survey results in the program Expert Choice for mutual comparison of potential KSF, determining their relative importance and relationship consistency. The target group during questioning were university leadership, management of organizational units, members of the Senate, the members of the Steering Board, members of the Committee for Quality Assurance and representatives of the Student Parliament of the University, and all relevant decision makers.

**Table 3.** The total response rate to the questionnaire about the choice of KSF and KPI

Target group	Maximum number of participants	Number of respondents	Response percent
University management	4	3	75 %
Senate of University	26	16	61,53 %
Steering Board	11	5	45,45 %
QA Committee	16	11	68,75 %
Organisational units managements	44	32	72,72 %
<b>TOTAL</b>	<b>101</b>	<b>67</b>	<b>64,69 %</b>

After completing questionnaires, all results are entered into the program Expert Choice, in order of their final choice for strategic map of the University. Expert Choice Program is

performed ranking potential KSF in accordance with the statements of the respondents (decision makers) respecting a pre-defined hierarchical structure of the AHP model for election KSF.

After classification and determined relative importance of offered KSF per perspectives of the BSC method, the final selection of KSF that should form strategic map is made. The final selection of KSF was conducted by methodology where for relationship of goals (KSF) and measures (KPI) in the actual business systems apply [6]:

- Number of goals: 20-35,
- Schedule objectives by perspectives should follow relationship:  $2 f - 3 s - 3 ip - 2 lg$  ( $f$  – financial perspective,  $s$  – stakeholders perspective,  $ip$  – internal processes perspective,  $lg$  – learning and growth perspective),
- The relationship between the objectives and measures is generally 1:1. The relationship can be 1:m, where  $m \leq 3$ .

In accordance with basic connection  $2 f - 3 s - 3 ip - 2 lg$ , in the research the following connection is obtained:  $4 f - 6 s - 6 ip - 4 lg$ , which means that if we look at the previous primary connection, in the next part of the research for he strategic map will use 4 KSF from financial perspective, 6 KSF from stakeholders perspective, 6 KSF from internal processes perspective and 4 KSF from learning and growth perspective.

**Table 4.** The relationship between the offered and selected KSF

Perspective \ CSF	Offered CSF	Selected CSF
Financial	5	4
Stakeholder	7	6
Learning and growth	6	4
Internal processes	9	6
<b>TOTAL</b>	<b>27</b>	<b>24</b>

**Table 5.** Overview of the final CSF by perspectives of Balanced Scorecard

Perspective \ CSF	Selected CSF	Relative importance
Financial (4)	Revenue growth	0,364
	Budget confirmation	0,229
	Investments	0,181
	Cost management	0,162
Stakeholder (6)	Teaching staff	0,214
	Students	0,207
	Social community	0,146
	Stakeholder	0,141

	<i>satisfaction</i>	
	<i>Impact of government</i>	0,116
	<i>Alumni</i>	0,102
<i>Learning and growth (4)</i>	<i>Mobility</i>	0,224
	<i>Employees motivation</i>	0,209
	<i>Technology improvement</i>	0,206
	<i>Lifelong learning</i>	0,162
<i>Internal processes (6)</i>	<i>Quality of study programs</i>	0,208
	<i>Scientific work/ research</i>	0,178
	<i>Quality assurance system</i>	0,137
	<i>Library resources</i>	0,106
	<i>Infrastructure capacity</i>	0,082
	<i>Service efficiency</i>	0,078

### 3.9 KPI selection

KPI represents the factors that constitute the key success factors (KSF). Each KSF is consists of one or more of the KPI. Selection of potential KPS which will be selected for the strategic map was done by filling in a questionnaire, and then entering the results of those questionnaires in the program Expert Choice for mutual comparison of potential KPI, determining their relative importance and relationship consistency. Target group and number of respondents was the same as in case for KSF. Expert Choice program is performed ranking and comparing of potential KPI in accordance with pre-defined hierarchical structure of the AHP model for the selection of KPI.

Methodology of KPI selection was conducted through principle that 1 KSF can not constitute more than 3 KPI [6]. Taking into account that for each KSF were offered from 2 to 18 KPS per BSC perspectives, KPI final selection was made by the following principle (in order to avoid that all KSF have the same number of KPI):

- For KSF which have up to 5 offered KPI, 1 KPI is selected,
- For KSF which have up to 5 to 8 offered KPI, 2 KPI are selected,
- For KSF which have from 8 and more offered KPI, 3 KPI are selected.

From a total of 184 potential KPI, 44 KPI are selected or 23,91 %.

**Table 6. Overview number of KPI per KSF**

CSF Perspective	Selected CSF	Number of selected KPI per CSF
<i>Financial (4)</i>	<i>Revenue growth</i>	3
	<i>Budget confirmation</i>	2
	<i>Investments</i>	1
	<i>Cost management</i>	2
<i>Stakeholder (6)</i>	<i>Teaching staff</i>	3
	<i>Students</i>	3
	<i>Social community</i>	2
	<i>Stakeholder satisfaction</i>	3
	<i>Impact of government</i>	2
	<i>Alumni</i>	2
<i>Learning and growth (4)</i>	<i>Mobility</i>	1
	<i>Employees motivation</i>	2
	<i>Technology improvement</i>	2
	<i>Lifelong learning</i>	1
<i>Internal processes (6)</i>	<i>Quality of study programs</i>	3
	<i>Scientific work/ research</i>	3
	<i>Quality assurance system</i>	3
	<i>Library resources</i>	3
	<i>Infrastructure capacity</i>	2
	<i>Service efficiency</i>	1

### 3.10 Sensitive analysis of relative importance of potential KSF and KPI

The final outcome of the sensitivity analysis was to show the reaction of the existing classification of potential KSF and KPI to changes in the relative weights of each of the observed characteristics for selection KSF and KPI. In this way, the final decision was made about whether such a classification KSF and KPI, through questionnaires and processing of the Expert Choice, the justified.

Conducted sensitivity analysis involved intentionally disturbs of existing weight of characteristics for selection in certain interval, and then the impact of change on total ranking was observed. The increase in weight of one criteria led to the corresponding reduction in the weight of the remaining criteria in the same cluster, and vice versa. Software package Expert Choice has enabled the five methods of sensitivity analysis: Dynamic, Performance,

Gradient, Head to Head and Two-Dimensional, through which the results are analyzed. The methods presented, especially the first two, have shown that certain changes in weight characteristics for selection KSF and KPI not significantly endanger the final ranking of potential KSF and KPI, and it can be considered justified. This situation was expected given the inconsistency ratio and for selection of KSF and for selection of KPI.

### 3.11 Correlation analysis of final KSF and KPI

Originally created diagram of

interconnections between strategic goals and KSF after the final selection of KSF enables show of new diagram, in which it retained a strong link between them.

This connection testifies to the fact that the chosen methodology of BSC conducted efficiently balancing current (unbalanced) strategic objectives and their translation into balanced KSF per perspectives without omitting or eliminating some of the existing strategic goals. In order to highlight this connection, method of correlation analysis is used to prove statistical significance between translation of strategic goals into KSF and KPI.

**Table 7.** Aggregated overview of the distribution KSF by the strategic objectives by applying the AHP method

Strategic goals		Current state (1)		Potential KSF (2)			Final KSF (3)		
No	Perspective	Number of KSF, which measure the strategic goal	% KSF in relation to the total number of KSF	Perspective	Number of KSF, which measure the strategic goal	% KSF in relation to the total number of KSF	Perspective	Number of KSF, which measure the strategic goal	% KSF in relation to the total number of KSF
1	IP	5	0,087	IP,S	2	0,045	S	1	0,028
2	IP	4	0,07	IP,S	3	0,068	IP,S	2	0,057
3	IP,S,LG	4	0,07	IP,S,LG	3	0,068	S,LG	2	0,057
4	IP,S,LG	4	0,07	IP,S,LG	4	0,09	IP,S,LG	4	0,114
5	IP,F,LG	5	0,087	IP,F,LG	5	0,113	IP,F,LG	4	0,114
6	IP,S	2	0,035	IP,S	3	0,068	IP,S	2	0,057
7	IP,LG	6	0,105	IP,LG	2	0,045	IP	1	0,028
8	IP,S	4	0,07	IP,S	3	0,068	IP,S	3	0,085
9	IP	6	0,105	IP	1	0,022	IP	1	0,028
10	IP,S,F	9	0,157	S,IP,F,LG	12	0,272	S,IP,F,LG	10	0,285
11	S	4	0,07	S,LG	3	0,068	S,LG	3	0,085
12	IP,LG	4	0,07	IP,LG	3	0,068	IP,LG	2	0,057
Total		57	1	-	44	1	-	35	1
Different KSF		55	-	-	27	-	-	20	-

Correlation 1-3	Values	Correlation 2-3	Values
The correlation coefficient (r)	0,616	The correlation coefficient (r)	0,980
The coefficient of determination (r <sup>2</sup> )	0,379	The coefficient of determination (r <sup>2</sup> )	0,961
The standard estimation error	0,058	The standard estimation error	0,014
t – value statistics	3,13	t – value statistics	15,81
The level of confidence	0,05	The level of confidence	0,05
p - value of the correlation coefficient	0,005	p - value of the correlation coefficient	1,05E-08

Based on the use of basic tables on the strength of correlation can be established that the correlation coefficients in both cases, are medium strong and strong. Assessing statistical significance of the calculated correlation coefficient was conducted, and was determined that the change in the value of some KSF

caused by a change in the value of other KSF or the value change occurred by accident due to other circumstances. On the basis of calculation of all required parameters displayed in the table above it can be concluded that a change in the dependent variable is not due to chance, but there is a statistically significant linear



relationship between translating the current KSF in potential, and between translations of

potential KSF in the final CSF.

**Table 8.** Aggregated overview of the distribution of KPI per strategic objectives

Strategic goals		Current state			Potential KPI			Final KPI		
No	Perspective	Number of KSF, which measure the strategic goal	Number of corresponding KPIs per KSF and strategic goal	% of KPI compared to the total number	Number of KSF, which measure the strategic goal	Number of corresponding KPIs per KSF and strategic goal	% of KPI compared to the total number	Number of KSF, which measure the strategic goal	Number of corresponding KPIs per KSF and strategic goal	% of KPI compared to the total number
1	IP	5	6	0,090	2	13,275	0,072	1	0,666	0,015
2	IP	4	4	0,060	3	13,275	0,072	2	1,666	0,037
3	IP,S,LG	4	4	0,060	3	17,418	0,094	2	1,5	0,034
4	IP,S,LG	4	4	0,060	4	17,418	0,094	4	3,5	0,079
5	IP,F,LG	5	5	0,075	5	25,043	0,136	4	4,5	0,102
6	IP,S	2	4	0,060	3	13,275	0,072	2	2	0,045
7	IP,LG	6	7	0,106	2	11,043	0,060	1	1,5	0,034
8	IP,S	4	7	0,106	3	13,275	0,072	3	3,5	0,079
9	IP	6	7	0,106	1	6,9	0,037	1	1	0,022
10	IP,S,F	9	10	0,151	12	31,418	0,170	10	16,666	0,378
11	S	4	4	0,060	3	10,518	0,057	3	5	0,113
12	IP,LG	4	4	0,060	3	11,043	0,060	2	2,5	0,056
TOTAL		57	66	1	44	184	1	35	44	1
Different KSF		55	66	-	27	184	-	20	44	-

Correlation 1-3	Values	Correlation 2-3	Values
The correlation coefficient (r)	0,627	The correlation coefficient (r)	0,749
The coefficient of determination (r <sup>2</sup> )	0,393	The coefficient of determination (r <sup>2</sup> )	0,630
The standard estimation error	0,080	The standard estimation error	0,062
t – value statistics	3,26	t – value statistics	4,13
The level of confidence	0,05	The level of confidence	0,05
p - value of the correlation coefficient	0,004	p - value of the correlation coefficient	0,001

As is the case with the KSF, in the case of translation KPI, in accordance with the obtained values of basic parameters, there is a significant statistical relationship.

### 3.12 Strategic map

BSC model is displayed via a graphical way through the strategic map. The strategic map is a tool that helps in defining, visualizing and describing the strategy and process of cause - effect interdependence defined of KSF and KPI, or balanced strategic goals. In this way the

BSC method goes further in depth of understanding key business processes. The strategic map is a series of houses divided into four perspectives, each connected by arrows that define interdependence. On the basis of specific and defined KSF contributing to balancing the strategic objectives per perspectives of BSC and the associated KPI, created two strategic maps with the present causal relationships between KSF and KPI, and one joint that provide a comprehensive view of the strategic map of the University.

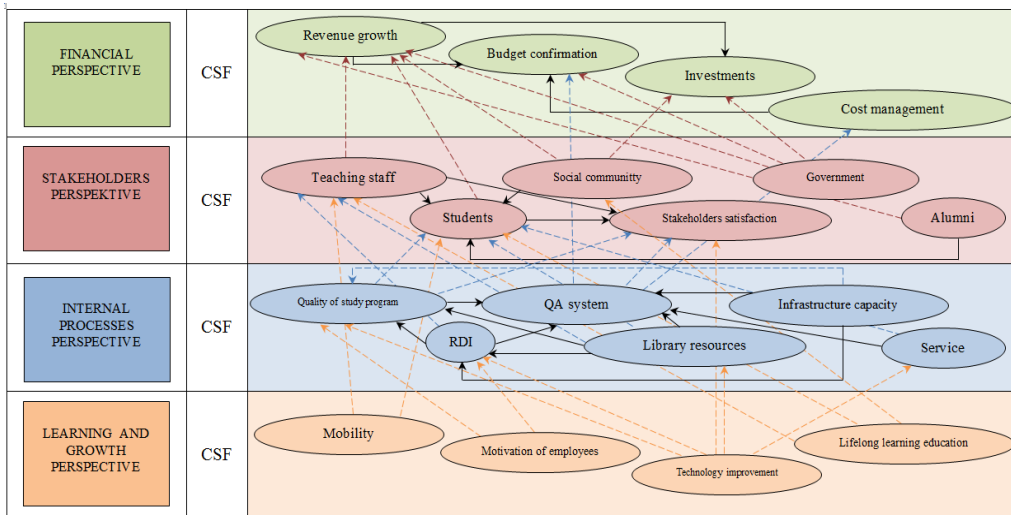


Figure 4 - Strategic map of KSF

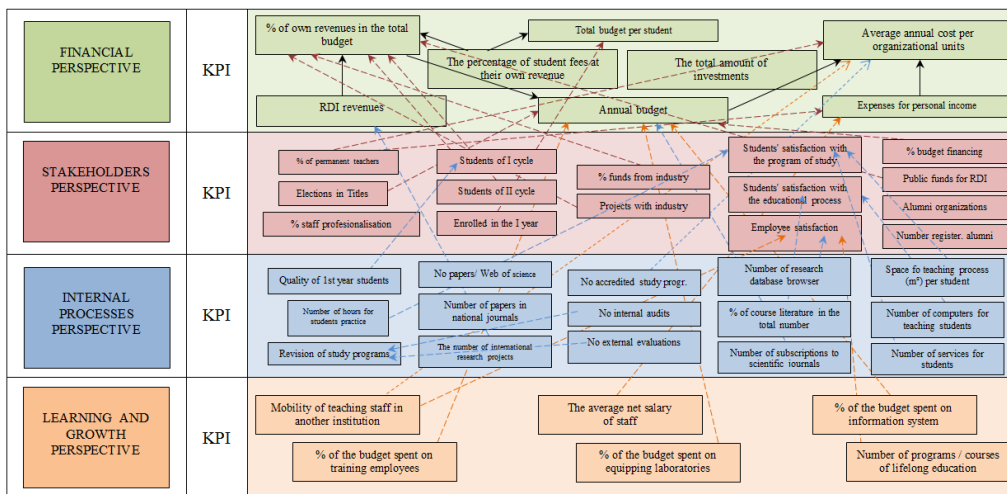


Figure 5 - Strategic map of KPI

The existing strategic objectives would not be able to enter into a strategic map for the reason that is not evenly distributed per perspectives of the BSC. That is why such an unbalanced strategy translated into a steady state using the KSF as the areas that are crucial for the successful functioning of the University. Translated KSF after conversion are equally distributed areas per perspectives of BSC. In this way, the main component of the BSC is realized - balancing. The next component that needs to be realized that it could be said that the strategic map is complete, it is a cause and effect connection of elements in the strategic map, in this case KSF. Coupling elements with

causal relationships, the whole strategy is linked into a single compact unit. In this whole, it can be seen which KSF are the drivers of the strategy, and which factors represents the final goals. Considering that the KPI need to demonstrate the achievement of KSF and strategic objectives and that there are twice as many of the KSF, the strategic map is balanced in their number and show some causal connection.

As can be inferred from the map, and in accordance with the importance of KSF perspectives, and here is the order of importance of perspective the same as in the case of KSF. The map clearly shows that the

most important KPS located in the financial perspective (the percentage of own revenues in the total budget and annual budget), and are related to the CSF, from which derives. Looking at this strategic map, it is very easy to conclude that though financial perspective is the most important for the University, while other perspectives serve as a support and way of realization and realization of the objectives set out in the financial perspective.

Schedule of KPI indicates that after financial perspective it is a very important stakeholders satisfaction, which is again on the other side caused by the financial perspective, but also with the perspective of internal processes and learning and growth perspective.

The strategic map obtained in this study is a scientific methodological statement of existing management methods with the new principles of planning and management by providing insight into priorities in a balanced way synthesizing the organization in an efficient manner by providing a framework for the application of control mechanisms that will ensure the incorporation of strategic planning in all aspects of the functioning of a university.

At the same time, strategic map is the result of translating the strategy of the University into balanced set of KSF and KPI, providing a picture of the current situation.

#### 4. CONCLUSION

Based on the significant number of taken steps, it has been proven that there is a possibility of applying the BSC on the existing strategy of HEIs. The conducted sensitivity analysis and correlation analysis are the witnesses that it is possible to translate strategy into action, or in understandable set of

indicators that will be balanced per BSC perspectives.

The implementation of the BSC on HEI has been proven that unbalanced and dysfunctional strategies can be translated into an effective strategy with identified mechanisms for monitoring through KSF and KPI, with the established foundation for the further strategic planning and management, particularly control. The experimental application of the BSC has shown that it is possible to utilize existing strategy for translating into balanced state per perspectives and basic principles of the BSC method, and that can be displayed it through a understandable set of indicators in order to be made available at all organizational levels and to, most importantly, provide a basis for the establishment of a strategic planning system with management and control mechanisms.

Taking into account the environment in which the University of East Sarajevo operates and financial conditions in which it operates, it can be said, and what is this research and found, that the financial perspective in the forefront, that should not be the case with the modern HEIs in which is a stakeholders perspective in the foreground. Orientation on the stakeholder perspective in public organizations and higher education should contribute to the quality and benefits of the financial perspective. Too much focus on the financial side may jeopardize the functioning of other perspectives and to ignore the fundamental problems facing higher education in this region, and it is the demographic decline of the population - which automatically implies a smaller number of students, excessive and unfair competition among institutions of higher education, reducing public financing, excessive reliance on student tuition and the like.

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