Modeling and Transformation of the Evaluation Mechanism of Greek Higher Education Institutes using Balanced Scorecard Technique

Manolis Chalaris [a], Ioannis Chalaris [a], Stefanos Gritzalis [ab] and Anastasios Tsolakidis [a]

[a] Technological Education Institute of Athens, Ag.Spyridonos St., 122 10 Aigaleo, Greece
[b] University of the Aegean, Department of Information and Communication Systems, Samos GR-83200, Greece

Corresponding author: manoshlr@teiath.gr

Abstract: The functional efficiency of an institution of higher education depends on the size of the available resources and their efficient use, which is expressed using corresponding indicators e.g. the duration of study. Therefore, there is a need of using new and intelligent models and tools to control and evaluate the educational work. Such models give an emphasis in the processes of developing criteria, techniques, and indicators, and facilitate measurement and performance's investigation. Recent research showed that Balanced Scorecard gained preferences of the administration of Educational Institutions. This paper presents initially a discussion of basic elements in a balanced target setting in the area of Higher Education and then the basic steps for implementing the balanced scorecard technique for the case of the evaluation of a Greek Higher Education Institute according to the evaluation criteria that are set by the Hellenic Quality Assurance Agency (ADIP).

Keywords: Higher Education Institution; Balanced Scorecard; Strategic Management; Quality criteria; KPI, Quality Assurance; Quality Strategic Map; ADOscore;

1. INTRODUCTION

In today's world, where knowledge and quality are considered as critical factors in the global economy, Higher Education Institutions (HEI) as knowledge centers and human resource developers play a crucial role. Strategic planning and management enables the Institutions to increase the adaptability with the environment and improve their performance. So, a well-informed strategic management will increase the overall quality of the services provided in the Institutions and Balanced Scorecard (BSC) can be considered as an appropriate strategic management tool for this purpose. In this direction, the decision makers and administrators will be able to organize the internal knowledge in order to support the mission of the institute, to

control the outcome services and to design the outcome knowledge due to the needs of the society.

In our paper we describe how the application of the BSC methodology will enhance the quality in HEI and we present a case study regarding TEI of Athens (TEI-A). The paper is organized as follows: In the section 2 we present how the BSC strategic management enhances the quality in higher Educational Institutes. Section three presents the implementation of the BSC methodology to the TEI of Athens and finally the paper ends with a conclusion.

2. BSC STRATEGIC MANAGEMENT ENHANCE THE QUALITY IN HEI

The quality in a HEI can only be enhanced through a transparent, thorough and integrated evaluation, whose outcomes will be properly assessed and used by the administration of the institute. For the evaluation processes of HEIs, International/National Quality Assurance Agencies have set quality criteria that are correlated with specific indicators that measure the performance in all sectors of the education. Those indicators are called Key Performance Indicators (KPI) (Kettunen, J., 2008).

The Hellenic Quality Assurance Agency (HQAA), which is responsible for the accreditation and evaluation of the Greek HEI, has suggested the following sectors for the classification of the quality criteria:

- Educational Program
- Learning
- Research
- Relationships with Social and Cultural events, with industry and Production
- Academic development strategy

Administrative services and infrastructures (administrative services, student concern, transparency in the management of economic resources, etc.)

The Academic Evaluation is a difficult and complex task but also very important and difficult is the monitoring and utilization of the outcome of the evaluation processes. For this purpose, it is necessary for a HEI to employ strategic management methodologies and models that will facilitate measurement and performance's investigation.

2.1. Strategic Management in HEI

Strategic management is a matter of mapping the route between the perceived present situation and the desired future situation . Well – formulated institutional policies that enhance the coordination and effective implementation of programs, projects and plans can support the administration taking the appropriate decisions for the educational development. Through strategic management, the vision, goals, tactics of the institute and strategies which fulfill its needs, will be integrated into a unified whole (Seyda Serdar Asan & Mehmet Tanyas, 2007).

For the successful implementation of the goals set by the institute, appropriate tools must be determined and used. This paper is concerned with the BSC tool as a strategic management tool that supports linking strategy with operational initiatives.

2.2. Balanced Scorecard

Kaplan and Norton (1992) introduced balanced scorecard as a performance measurement tool for the first time. Till now many changes have been made to the physical design, application and the design processes used to implement the tool, that have enhanced the utility of balanced scorecard as a strategic management tool (Kaplan, R.S. and Norton, D.P. , 2001).

The typical BSC framework includes the following four perspectives (Kaplan, R.S. and Norton, D.P. ,2004):

- Financial: encourages the identification of a few relevant high-level financial measures. In particular, designers are encouraged to choose measures that help in the formulation of an answer to the question "How do we see stakeholders?"
- Customer: encourages the identification of measures that answer the question "How do customers see us?"
- Internal Business Processes: encourages the identification of measures that answer the question "What must we excel at?"
- Learning and Growth: encourages the identification of measures that answer the question "Can we continue to improve and create value?"

The finale purpose of BSC is to support managers by providing them all the factors for aligning the performance of the organisation with its strategy(M. D. Nayeri, M. M. Mashhadi and K. Mohajeri, 2008).

2.3. Applying BSC in HEI

The adaptation and application of BSC in an organisation has been described extensively. On the other hand very little research has been conducted for its adaptation and application in the education context (Karathanos, D., Karathanos, P. , 2005). When a higher education institute wants to apply BSC it should emphasize in academic measures than in financial performance(Umashankar, V., Dutta, K. , 2007)0.

Thus, we considered as necessary to adapt the four typical perspectives of the BSC to those presented in the following figure (Figure 1). In this approach.), the "financial perspective" is replaced by the "teaching and research work perspective" which refers to the highest possible quality of the supplied teaching and research work. The "customer perspective" is replaced by the "students and partners perspective" since they are considered as customers of the HEIs. The "internal processes perspectives" remains the same, while the fourth perspective "learning perspective" is replaced by the "human and financial resources perspective". This perspective refers to input and infrastructure elements of the scientific process of the institution (Manolis Chalaris et al, 2011),(Chalaris, Ch. Boursanidis,2009)0.
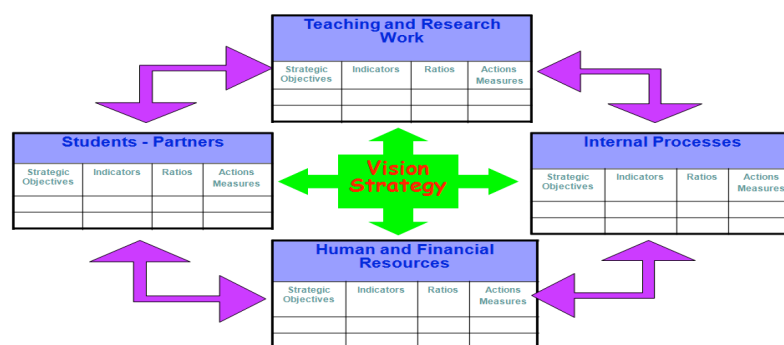

Figure1: Four perspectives of BSC for HEI

2.4. The impact in the Quality Assurance Processes

Quality Assurance (QA) in a HEI refers to all processes, infrastructure and personnel that are used in order to improve the quality of the education (Chalaris I. , Ch. Boursanidis, 2009).

For the better description of the quality assurance processes, we can use the quality strategic map that shows the influence of the external factor to the

procedures of a HEI and also the interactions between the management processes and the internal processes.

Figure 2 presents the quality strategic map, which is proposed in a study by Kettunen & Kantola (Chalaris I, Poustourli C, 2013) where there is a linked series of objectives that are located in the four perspectives of the BSC framework and also includes a set of cause and effect relationships among the objectives.
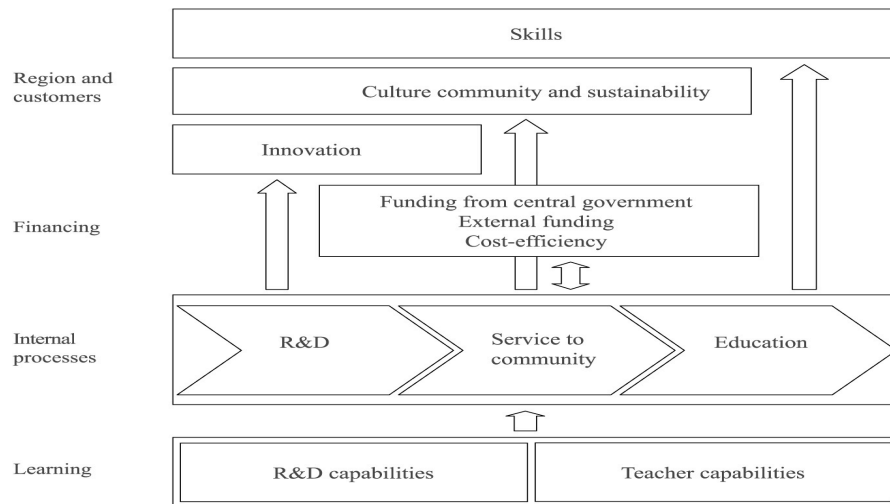

Figure 2: Balanced scorecard – quality strategic map

By adopting this suggestion, a HEI, after defining the KPIs that are related to the quality criteria, can define its strategy based on the outcomes of the application of BSC which will present if the objectives set have been achieved. In particular, the management of the Quality Assurance Unit of an Institute can monitor all performance indicators in order to support the administration of the Institute in taking decision for the improvement of the quality of the educational and operational processes and in setting its strategic objectives.

For this purpose a tool for supporting the BSC methodology is considered as necessary for the better monitoring, measurement and dynamic controlling of the institute performance. As such a tool we suggest ADOscore that offers a unique Management Portal to display information and aid decision making using actual company strategy and performance results (BOC)0. Web-based management reports automatically generated by ADOscore and intuitive Controlling Cockpits with charts, trends, and traffic lights, deliver the right information at the right time (see Fig.10).

With the usage of this tool each user – role of the Institute can select the sector he is interested in and continuously monitor the performance of the indicators of the evaluated sector. In this direction, the manager of the Quality Assurance Unit of the Institute can observe all performance indicators in order to support the administration of the institute taking decision for the improvement of the quality of the educational and operational processes and in setting its strategic objectives.

3. **The Case Study of TEI of Athens**

The BSC model as aforementioned attempts to capture the semantics between the different aspects of an organization without considering only the financial parameter as other models: it also tackles with issues that affect directly or indirectly the organization's strategy (Chalaris I, Poustourli C, 2013).

Thus, it achieves the alignment of the assessment systems of an institution with its strategy in all levels and gives the administration the opportunity to get a

comprehensive insight into the operation of the institute by monitoring the KPIs set for evaluating the strategic objectives. This can be considered as an important success factor for achieving long-term sustainability within the requirements arising from the new model of organization and functioning of the institutions and the requirement of quality standards proposed by the Hellenic Quality Assurance and Accreditation Agency (ADIP).

Furthermore, through the application of the BCS model in a HEI, a culture of continuous assessments and performance management for all stakeholders will be established. But also very important is that all stakeholders will realize how each one's work will affect the total good of the institute, and the importance of monitoring the progress of their attempts.

What we suggest is that the development and management of the strategic map for a higher educational Institute should follow the here-below reasoning, visualized in the following Figure 3.

Figure 3: The basic structure of the Strategic map of a Higher Educational Institute

Based on this reasoning and taking into consideration the assessment model proposed by ADIP, we tried to implement a strategy map (see Fig. 4) for a department of TEI-A as a first pilot attempt.
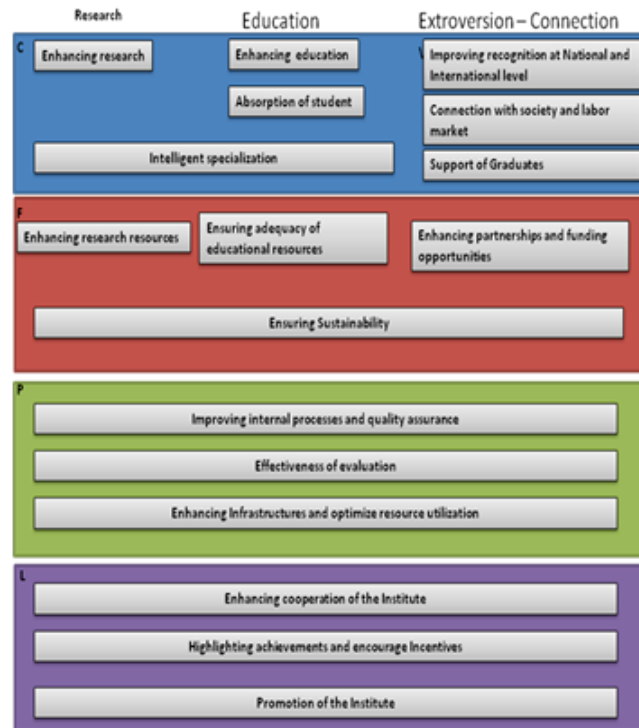
Figure 4: Strategy map of a department of TEI-A

Our objective is to activate a dialogue within the departments of a HEI, by means of visualized results of the evaluation aspects, on what the current situation is and what can be done, in order to define an academic strategy and achieve the strategic objectives. In our pilot attempt, we started by proposing a strategy map for a department of TEI-A and we try to find out for all aspects of ADIP's assessment and in every question, possible values, the source of taking the answer and the measurement process that needs to be set. Moreover, for every dimension we assigned a weighting factor. The weighing factors have been set somewhat arbitrarily, in order to start a discussion on these dimensions within the Departments.

First we implemented in ADOscore, the BSC Map for each department of TEI of Athens based on the Evaluation Mechanism of ADIP. As seen in Figure 5, a strategic BSC unit exists for all sectors of the evaluation mechanism and all these are assigned to the Department's BSC Model.
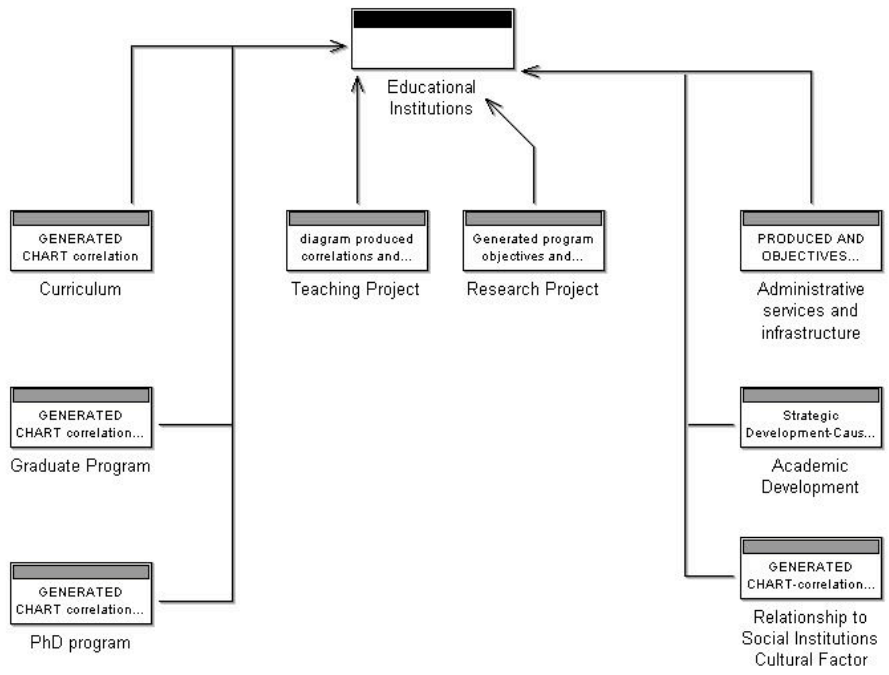
Figure 5: BSC Map for a department of TEI A

Then for each sector and for the four adapted perspectives of BSC for HEI, strategic objectives have been defined setting in addition the success factors that have to be achieved. Next Figure (Figure 6) depicts the Model of strategic objectives and success factors for the "Teaching" sector.
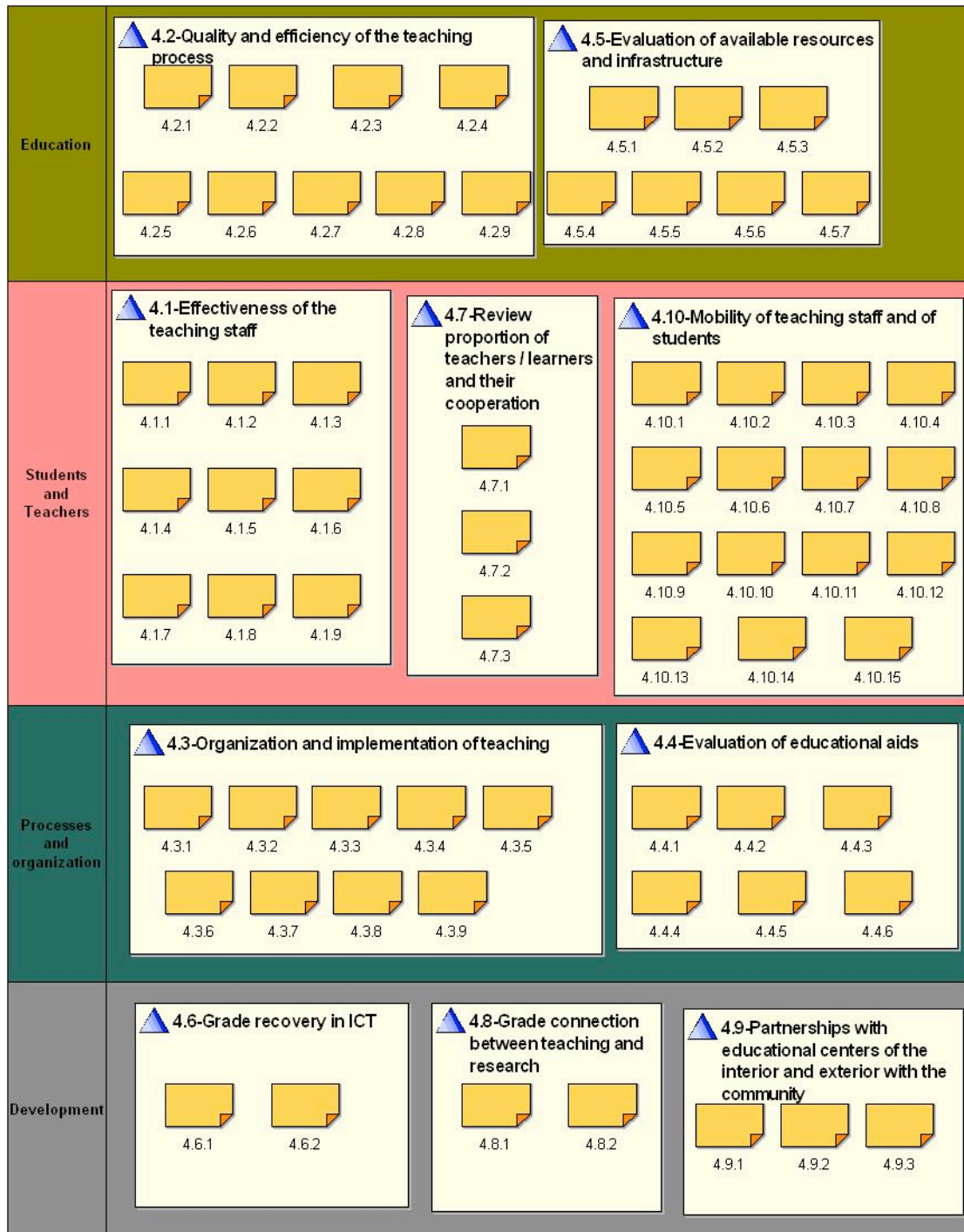
Figure 6: Success Factor Model of "Teaching" sector

Further, one of the most important steps was to present the quality strategic map which shows the interactions between the strategic objectives as well as the quality criteria related to each one. In Figure 7 we present the Cause and Effect Model (Strategy map) for the sector of "Teaching" as it was designed through ADOscore tool.

As you can see in all four adapted perspectives, strategic targets, and/or operational targets are set and for each target one or more performance indicators are assigned that define the success of it. For all strategic targets, as well as for all

indicators, thresholds, periodicity and weights are defined in order to have an integrated view of the strategic map and to prepare our models for the calculation of the current status.
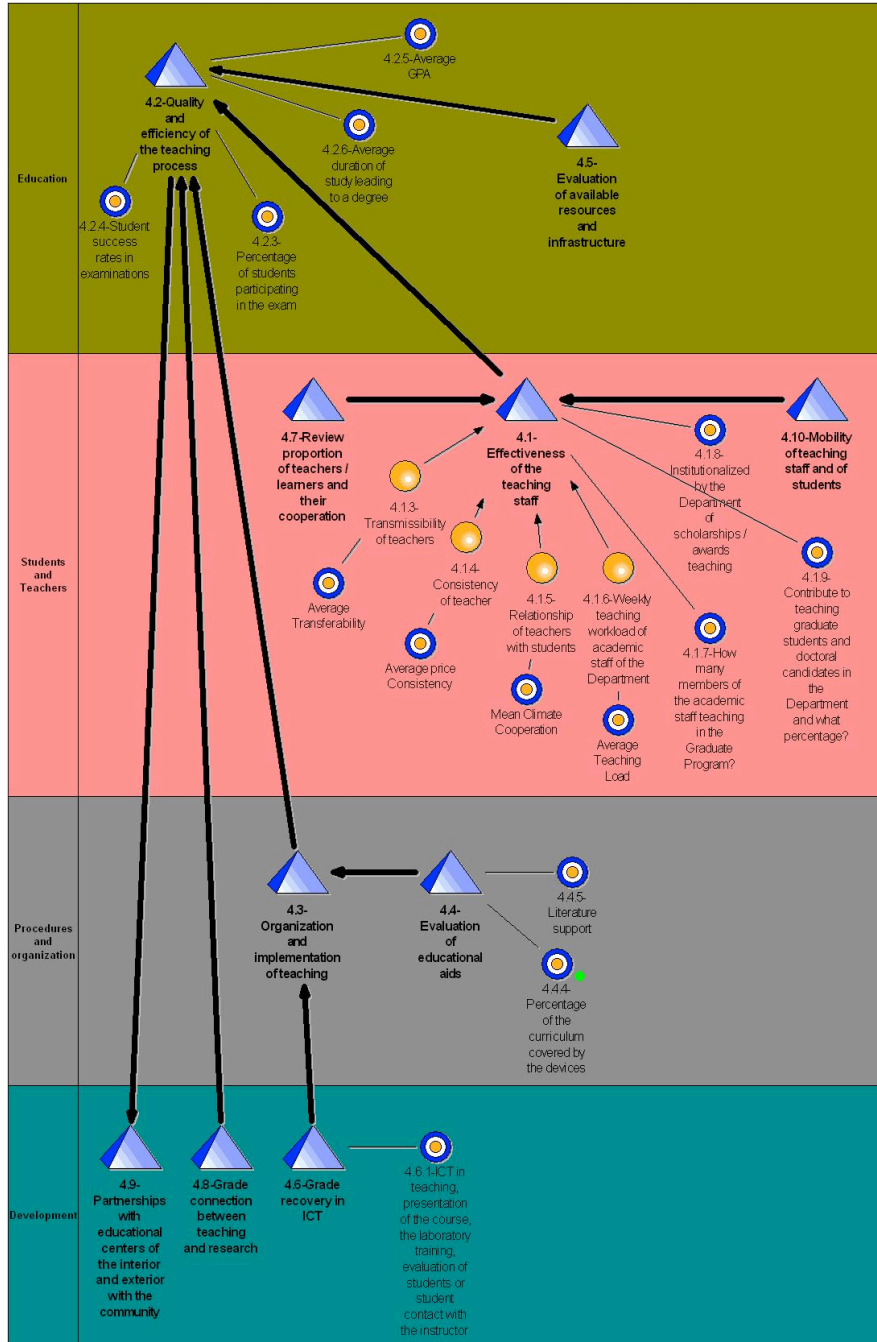

Figure 7: Cause and Effect Model (quality strategic map) of "Teaching" sector

Our next task was to create a pool of indicators, as well as an indicator model for giving the mathematical formulas of the composed indicators (see Figures 8 & 9 for the "Teaching" sector). Through these two models we can enter some details of the indicators and mainly to enter the value of each indicator. This value is used to

calculate the current values of performance indicators and goals for a specific time period.
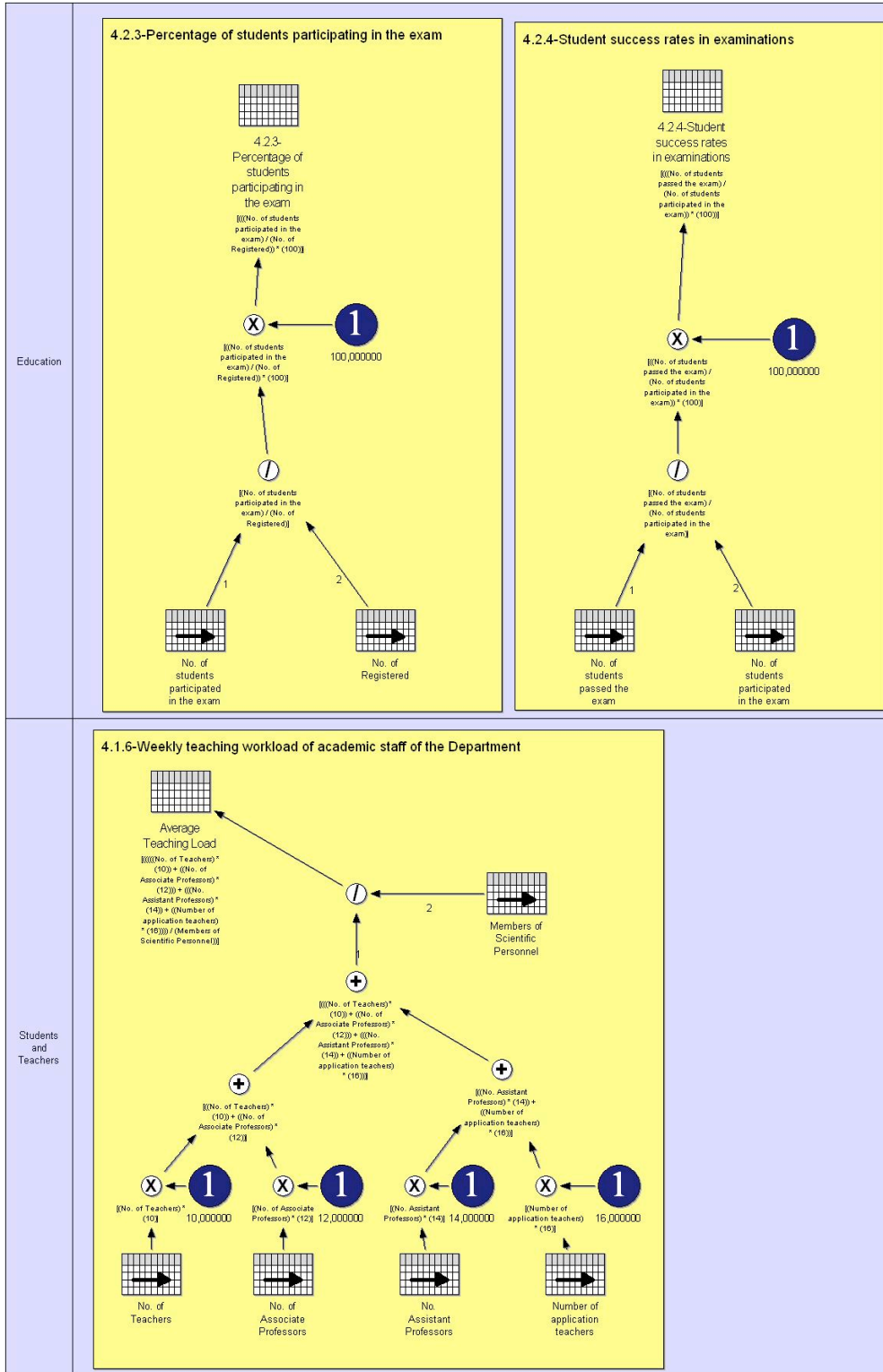

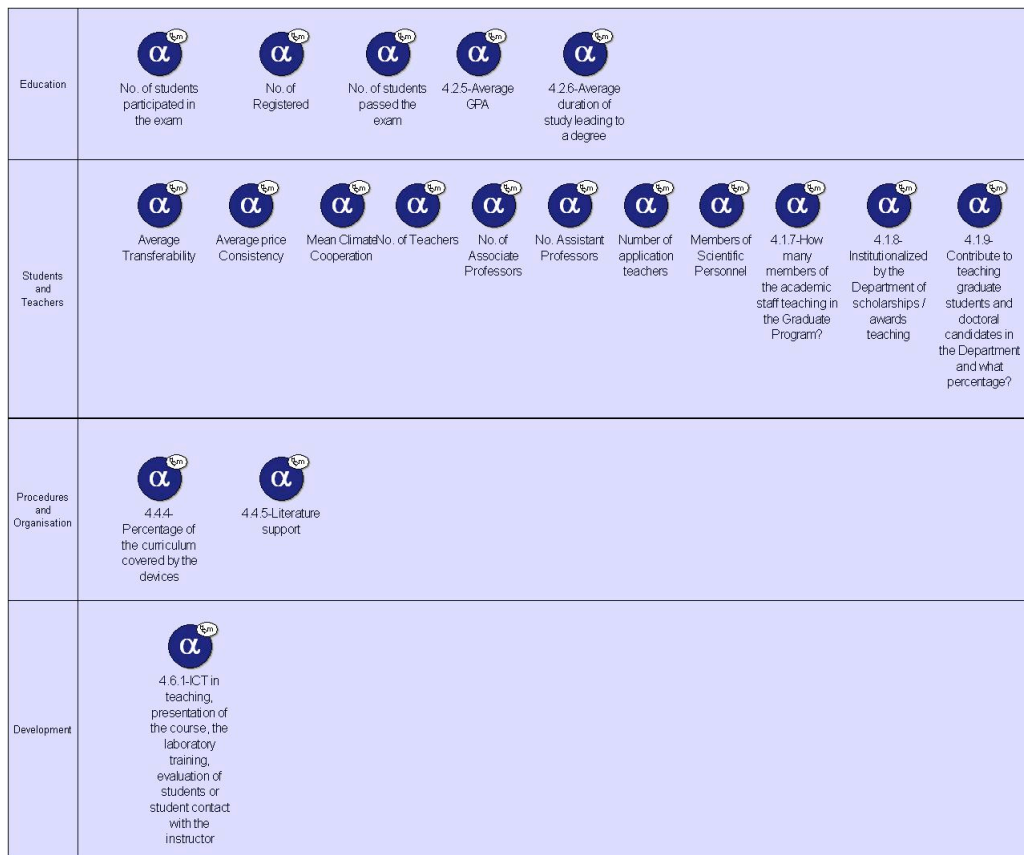Figure 8: Indicators Model of "Teaching" sector

Figure 9: Pool of Indicators of "Teaching" sector

After implementing, using ADOscore, all these models for all sectors of the Evaluation Mechanism of ADIP, we initialized our BSC Models giving some arbitrarily current values to our indicators and tried to calculate the status of all strategic objectives and thus to trigger a dialogue within the departments of a HEI, by means of visualized results of the evaluation aspects, on what the current situation is and what can be done, in order to define an academic strategy and achieve the strategic objectives.

Next Figure (Figure 10) shows a snapshot of the Controlling and Reporting Cockpit of our case study, created using ADOscore tool that gives the opportunity to the strategic decision makers of the department and thus the Institute to monitor the existing situation and the grade of achieving the strategic objectives and the performance of the strategy in total.
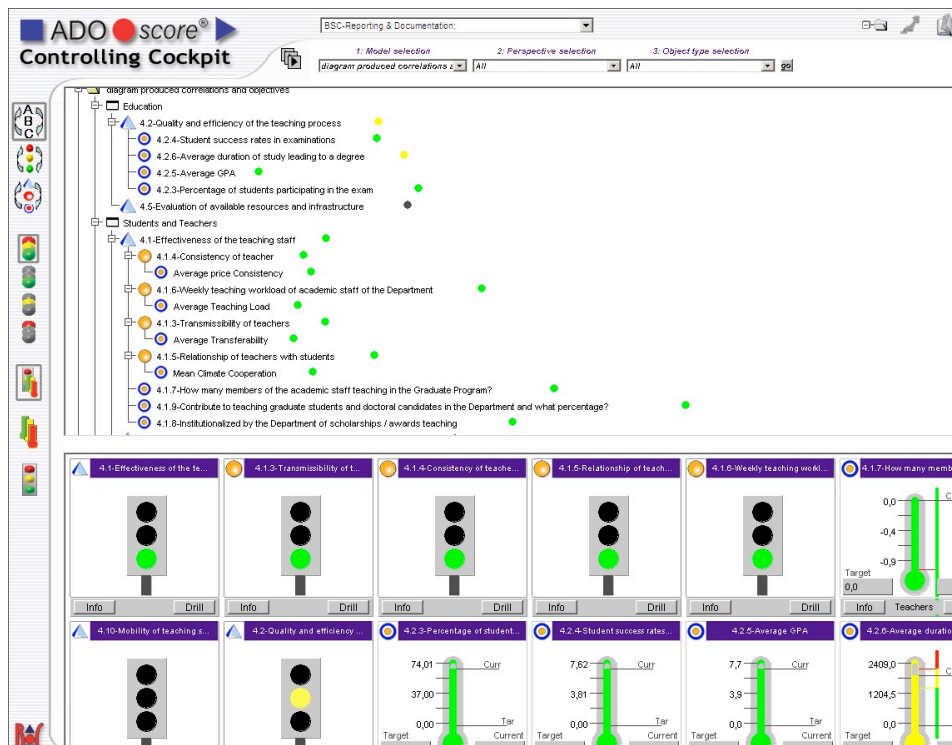
Figure 10: Controlling and Reporting Cockpit

4. CONCLUSION

This paper represents how the application of the BSC methodology will enhance the quality in HEI and presents also an attempt to apply the balanced scorecard methodology in TEI of Athens (TEI-A).

This first attempt in TEI-A, showed that BSC is indeed an appropriate strategic management tool that will enhance the quality of a HEI. Its application will support the administration entities to observe all performance indicators and suggest solutions for the improvement of the quality of the educational and operational processes especially when this application is supported be a tool for the better monitoring, measurement and dynamic controlling of the institute performance, like ADOscore.

Based on our own advanced evaluation system with a parallel use of the tool BSC - ADOSCORE BOC SA we believe that we have accomplished the following: each academic department of the university building on the findings of the internal and external evaluation, can deliver its own academic strategy and define its own weighting factors in the adjusted model of ADIP. The respective assessment dimensions will refer to the current situation of the department and to the specific milestones that wishes to be led in the next academic evaluation period. Until today we do not know any similar effort in the Greek area. Likewise, international literature is also not rich in the field of academic strategy management with the use strategic management tools.

References

Asan S. S. & Tanyas M. (2007), Integrating Hoshin Kanri and the Balanced Scorecard for Strategic Management: The Case of Higher Education, Total Quality Management & Business Excellence, 18:9,999-1014

BOC.AdoScore . http://www.boc-group.com/products/adonis/

Chalaris I., Boursanidis Ch. (2009), Evaluation of a High Educational Institute using the balance scorecard technique- The first experiments from the First experiences with the Dept of Informatics, TEI of Athens, 3rd Conference of Administrative Sciences, University of Crete

Chalaris M., Tsolakidis A., Sgouropoulou C. & Chalaris I. (2011), Developing an Information System for Quality Assurance in Higher Education using the Balanced Scorecard Technique - The case study of TEI-A, PCI 2011. ISBN 978-0-7695-4389-5.DOI 10.1109/ PCI. 2011. 43.

Chalaris I., Poustourli C. (2013) Quality Continuous Improvement in Higher Education with Balance Scorecard Technique proceedings of Management of International Business and Economics Systems, Larissa, Greece

HQAA-Hellenic Quality Assurance Agency for Higher Education. www.hqaa.gr/ or www.hqaa.gr

Kaplan, R.S. and Norton, D.P. (2001), The Strategy-focused Organization, How Balanced Scorecard Companies thrive in the New Business Environment, Harvard Business School Press, Boston, MA.

Kaplan, R.S. and Norton, D.P. (2004), Strategy Maps, Converting the Intangible Assets into Tangible Outcomes, Harvard Business School Press, Boston, MA

Karathanos, D., Karathanos, P. (2005). Applying the Balanced Scorecard to education, Journal of Education for Business, March/April, 222-230.

Kettunen, J., & Kantola, I. (2005). Management information system based on the balanced scorecard. Campus-Wide Information Systems, 22, 263–274

Kettunen, J. (2008). A conceptual framework to help evaluate the quality of institutional performance, Quality Assurance in Education, 16(4), 322-332

Nayeri M. D., Mashhadi M. M. & Mohajeri K. (2008), Universities Strategic Evaluation Using Balanced Scorecard

Umashankar, V., Dutta, K. (2007). Balanced scorecards in managing higher education institutions: an Indian perspective, International Journal of Educational Management, 21(1), 54-67.