

# Balanced Scorecard: A Powerful Method to Improve the Management of Educational Institutions

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## ABSTRACT

Teaching, learning and education are the main activities related with any higher education institution (HEI), be they public or private. In this context, the balanced scorecard (BSC) is a powerful method that helps the successful application of performance measurements in terms of the efficiency of the programs, processes and people of any educational institution. The key performance indicators (KPI) are crucial indicators to translate the strategy into action, improving the synergies of all the people that contribute to management success. This paper underlines the importance of the BSC model in private, governmental and non-profit organizations highlighting its implementation in a HEI. In order to clarify the main concepts of the application of the BSC method in a HEI, a hypothetical institution (IPX) is considered and a set of strategic objectives are considered in terms of financial, clients, business, learning and growth perspectives. The key parameter indicators and the action plan are defined according to the HEI vision.

**Keywords:** BSC model; higher education institutions; KPI; strategy

## 1. Introduction

The management of any organization is always a great challenge. Traditional management support information systems often do not allow to fully respond to this challenge, as they present several weaknesses and are focused almost exclusively on the financial perspective, leaving out aspects related to learning and growth that generally dictate the success or failure of any organization if they are not properly taken care of [1].

In this context, the BSC assumes a prominent role as an instrument of strategic management. The formulation of objectives, strategic initiatives, goals and performance indicators (KPI) in the four perspectives of the BSC (financial, clients, business and learning and growth), allows to improve the strategic planning of any organization, including public higher education institutions (HEIs), which, as a general rule, have a weak culture of strategic management.

In this work, taking as a reference a hypothetical public higher education institution (IPX), the theme of the BSC is addressed, defining, according to a pre-defined vision, the strategic objectives, the critical success factors and the strategic evaluation measures associated with the financial, customer, internal and learning and growth perspectives, culminating in the definition of an action plan for this hypothetical institution.

## 2. The BSC model in private, governmental and non-profit organizations

As the BSC is a methodology that aims to measure the performance of an organization, serving the management objectives adapted to the vision of that organization, it is normal that its use is not limited to private organizations for profit. Even though in this type of organizations the financial perspective assumes a predominant role, in order to guarantee its smooth functioning, in the medium and long term, the exclusive use of this perspective is very reducing. Even companies with very favorable financial indicators can have their short / medium term future compromised if they do not value the aspects related to the perspective of learning and growth. On the other hand, although the BSC methodology can be applied in governmental and non-profit organizations, of which public HEIs are an example, the relative weight of the different perspectives, mentioned above, is different. Often it is the customers' perspective that becomes more important than the others. This statement does not mean that the financial perspective, and often the cost reduction associated with it, is not essential, particularly in a context where the financing of HEI is cut successively by the state budget (SB).

It should be noted that, since the BSC is not a single/static activity, it is subject to continuous improvements that result from the analysis of the values associated with the performance indicators associated with the different actions that are intended to be implemented. These continuous improvements can even have a predictive character and be based on the trends that have been registered over the time of KPI. The indicators themselves may be subject to changes or adjustments as they are not the most appropriate in a given phase of the organization's evolution and do not respond according to the expectations that were underlying its creation. Issues related to the sensitivity of the indicators and their correlation with strategic objectives is crucial for the BSC to be adapted to the vision and strategic objectives of a given organization.

Concerning the design and implementation of the BSC, it is important to distinguish two phases. One of them corresponds to the design of the BSC itself and the other, associated with its implementation, is, as mentioned, a continuous, dynamic and feedback process ("feedback") that must take into account the short, medium and long term strategies, organization to which it applies.

## 3. Implementation of the BSC in a higher education institution

Although there are specificities in the functioning and vision of higher education institutions in relation to others companies or institutions, the essential objective of both stands out for their effectiveness, efficiency and responsibility in the performance of the activities they develop. HEI and others companies or institutions must be competitive so that they are able to attract and retain their target clients. For this reason, it makes perfect sense to state that the BSC is an element of paramount importance for those responsible and all employees of any HEI, defining a strategic plan and a set of performance indicators (KPI) that guarantee effective and efficient management in different perspectives, namely, financial, customer, business and learning and growth [2].

As is evident, the BSC of an HEI includes the four perspectives typical of any BSC. However, the perspective of the clients of the HEI services, which include students, companies and the community where the HEI is inserted, assumes a crucial role. The financial perspective that is related to the management of physical and financial resources and investments in services and equipment has been assuming an increasingly important role in recent times in view of the limitations of financing through SB and the need for HEI to increasingly use their own budget even to pay part of the salaries of their employees. As mentioned, it is important to note that the trend that has been registered in recent years has been a substantial decrease in the funds made available by the SB and a significant increase in own revenues, which in some HEIs is close to 50% of the total financing. Taking the example of the 2018 Lisbon University (LU) budget [3], approved by its General Council (GC) in November 2017, it can be seen that in the budget plan for 2018 it was considered the existence of several units (faculties) with an own revenue component higher than 50%. Transcribing, from this plan, it reads: *"If we do not take into account the activity of the subsidiaries, six of the eighteen faculties of LU and the Central Services present budgets in which the revenue component own or equal to 50% of the budget, and of these only one unit has a value of own revenues greater than 65% of its budget. This is the case of the Institute of Social Sciences, intensely oriented towards research, without 1st cycle students, and financed by various funds to support science and by an allocation of the share of SB based on specific criteria"*.

The increase in EBIT in an HEI translates in the vast majority of cases in the possibility of the institution making investments in services and equipment that are sometimes decisive in terms of the attractiveness of the HEI, since the funds, made available for this purpose, through SB are generally, short or, for some years, non-existent. This fact is particularly critical in HEI that develop activities in the engineering area and that require large investments in laboratory equipments.

The internal or business perspective of a HEI focuses on the management component related to continuous improvement in terms of services, facilities and resources within the scope of an internal and integrated management and quality assurance system (I2MQAS) that promotes efficiency and effectiveness of all activities carried out by the HEI. The HEI should also focus on the differentiation/specificity, quality, and timeliness of the training courses it provides, being the employability of graduates a decisive indicator of its success.

Finally, the perspective of learning and growth aims to continuously improve the quality, efficiency and effectiveness of the functioning and of the available resources, with the HEI-I2MQAS and information systems playing a decisive role in achieving these goals. The dissemination of success stories and their contribution to the motivation of all employees also play an important role at this level.

Figure 1 is a possible representation of the methodology that can be followed to develop the strategic formulation of a HEI. From the left center to the right we will have the strategic objectives, the strategic guidelines, the strategies themselves, and the actions that support the values, the mission and, particularly, the vision of a specific HEI. The performance measurement indicators that support the management of the HEI are materialized in the actions associated with the HEI's strategic plan, which typically lasts between 3 and 5 years

and must be in conjunction with the duration of the terms of the presidents or rectors of the HEI.

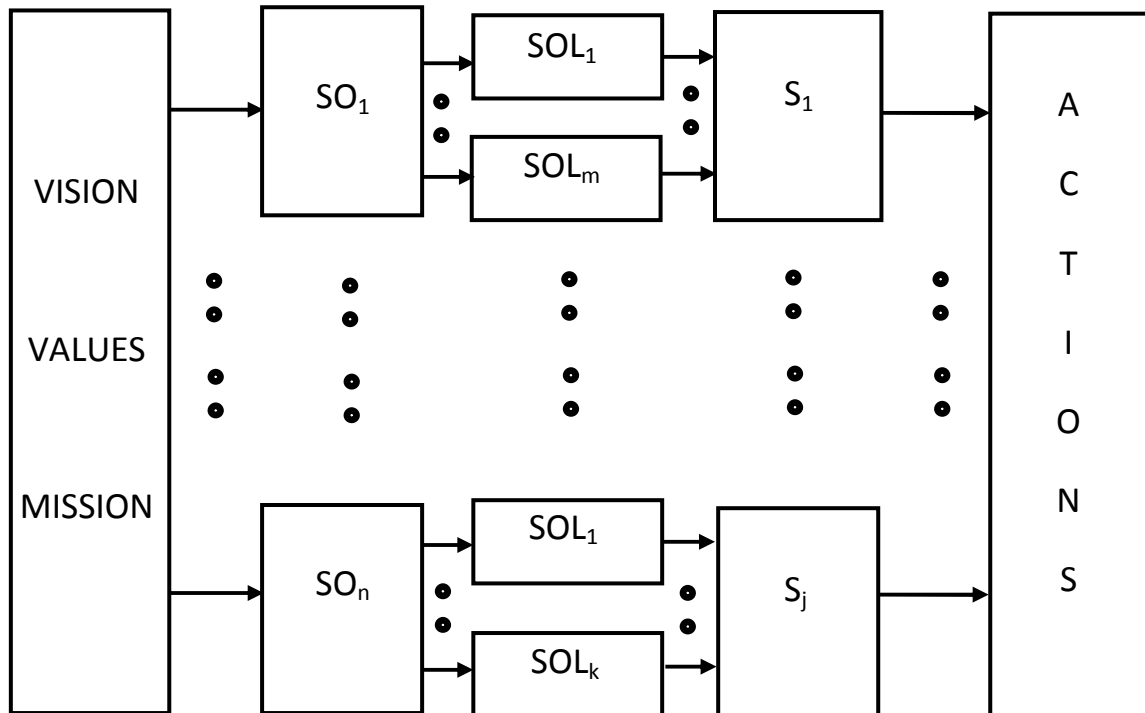


Fig. 1. Methodology for developing the strategic formulation (SO - strategic objective; SOL- strategic objective line).

As a conclusion, it can be said that the strategic formulation associated with the exemplified BSC should focus on three strategies, comprehensive and complementary, to which objectives are related to: 1. Development of tertiary education and quality research activities; 2. Establishing a strong connection with the local, national and international community and 3. Continuous improvement of the quality, efficiency and effectiveness of the functioning and of the available resources

#### 4. BSC for an hypothetical HEI: IPX

The present section includes a summary related with the design and implementation of the BSC method in a simple and hypothetical HEI (IPX). Based of the HEI vision the strategic objectives, the critical success factor and the strategic measures (KPI) are established for the finance, clients, business and learning and growth perspectives. Considering that the HEI vision is defined as follows: "To be a leader in tertiary education, in the polytechnic education sector, with international prestige, recognized for its strong connection to the community and excellence in its ability to intervene in the creation, transmission and diffusion of scientific, technological and cultural knowledge", the different BSC perspectives are summarized in tables 1 through 4.

Table 1. BSC finance perspective.

<b>Finance perspective</b>	
<b>Strategic Objectives</b>	
Optimize the use of physical and financial resources Reinforce investment in the acquisition of new equipment for technology labs	
<b>Critical Success Factors</b>	
Financing reduction through SB Price increase for water / electricity / telephone Reduction in the financing of own revenues (enrollments) Increase in the number of obsolete equipment that cannot be repaired (breakdowns) ESS reductions Increases in employee salaries (category changes and / or steps)	
<b>Strategic Measures/KPI</b>	
25% increase in own revenues 10% reduction in energy consumption (water, electricity and gas) 25% increase in revenues from the institution's participation in R&D projects Widespread use of VoIP in audio communications	

Table 2. BSC client perspective.

<b>Clients perspective</b>	
<b>Strategic Objectives</b>	
Develop tertiary education and quality research activities Establish a strong connection with the local, national and international community	

<p>Increase the specificity of training courses and promote their continuous updating</p> <p>Use active teaching and learning methodologies (PBL and TBL)</p> <p>Streamline the alumni network (Alumni network)</p>
<p><b>Critical Success Factors</b></p>
<p>Reduction in the number of students enrolled</p> <p>Reduced research funding</p> <p>Excessive teaching hours changes and / or steps)</p>
<p><b>Strategic Measures/KPI</b></p>
<p>Maintain the employability rate of 90% of graduates from all LIC courses</p> <p>Minimum survival rate of 60% in all formations</p> <p>Vacancy filling rate (global minimum of 85% and 40% at CNA level)</p> <p>Double the number of communications and publications in specialized magazines with "referees"</p> <p>Increase the institution's "ranking" to the 1st quartile at national level</p>

Table 3. BSC business perspective.

**Business perspective**

<p><b>Strategic Objectives</b></p>
<p>Streamline all interface / communication mechanisms with students, companies and the community (SC)</p> <p>Increase IN/OUT mobility rates for students and teachers</p> <p>Ensure the full functioning of the performance evaluation regulation and changes in the remuneration of teaching staff</p> <p>Promote the installation of home automation systems to minimize superfluous energy consumption</p>
<p><b>Critical Success Factors</b></p>
<p>Reduction in the number of students enrolled</p> <p>Reduced research funding</p> <p>Excessive teaching hours angariados</p>
<p><b>Strategic Measures/KPI</b></p>
<p>25% reduction in response times to requests from students, employees, companies and the community</p> <p>Doubling the ratio of the number of specialists / FTE (20%)</p> <p>25% reduction in the average cost per</p>

graduate student 50% reduction in failure and dropout rates
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Table 4. BSC learning and growth perspective.

**Learning and growth perspective**

<b>Strategic Objectives</b>
Continuously improve the quality, efficiency and effectiveness of the operation and available resources IT and IS Training and Innovation Implementation of the Internal Quality Assurance System (I2MQAS)
<b>Critical Success Factors</b>
Motivation of employees, teachers and non-teachers, around the objectives of the BSC Difficulties in organizing and coordinating services (academic and non-academic) Difficulties in creating interfaces in computer applications that have to migrate to the new IS (I2MQAS)
<b>Strategic Measures/KPI</b>
50% increase in the number of hours in the rate of internal and interinstitutional training actions (other IPX) Comprehensive evaluation of the results of training actions

A possible action of the BSC of IPX can be summarized in the following seven points: 1. Implement the BSC; 2. Carry out a program of internal motivation and training actions in all areas; 3. Certify the internal and integrated management quality assurance system (I2MQAS); 4. Implement the regulation of performance evaluation and of all employers, including, obviously, teachers (repercussion in salaries and categories); 5. Flexibilize and compact the traditional training offer (courses and post-graduations); 6. Promote, in a sustained way and based on pilot experiences, the introduction of active teaching and learning methodologies (PBL and TBL); 7. Promote sabbatical exemptions for applied research in industrial and business environments.

## 5. Conclusions

As a final conclusion, it should be noted that the present paper is mainly intended to exemplify in a very simple and somewhat incomplete way, the use of the BSC in a HEI. As it is clearly shown it makes perfect sense to use the BSC method as an auxiliary tool to improve the control, management and performance of a HEI, regardless of whether or not it is for profit purposes.

In order to deepen and complement the addressed topic, the reader of this paper is suggested to access complementary references [4-9].



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## Glossary

BSC- Balanced Scorecard

CNA- National Access Contest

EBIT- Earnings Before Interest & Tax

ESS- External Specialized Services

FTE- Full-time equivalent

HEI- Higher Education Institution

I2MQAS- Internal and Integrated Management Quality Assurance System

IN/OUT - Input/Output

IS- Information System

IT- Information Technologies

KPI- Key Performance Indicators

LU- Lisbon University

PBL- Project Based Learning

R&D- Research and Development

SB- State Budget

SC- Central Services<sup>1</sup>

TBL- Team Based Learning

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<sup>1</sup> These services include, among others, the academic division, the information technology division, the human resources division, the center for internationalization and mobility, the service to promote employability, the innovation support, R&D and entrepreneurship unit, and the evaluation and quality services.