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Applying balanced scorecard methodology in public sector: The case of a vocational school in Greece

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Abstract: *Balanced Scorecard is a very important tool for management and evaluation of the long-term organization strategy, which simultaneously observes the improvements at the efficient function, exploiting the most of the organization's potentials and diffusing the progress to all the employees. The implementation of Balanced Scorecard took place at the 5th Laboratory Centre (LC) of East Attica during the school year 2016-17, after the goals had been set and the measurement indicators had been defined by the school's administration stuff (School Head, Deputy School Head, Teachers responsible for LC Sectors, Teachers responsible for Direction Laboratories, Teachers Board). The results indicated that the vision, the objectives and the overall strategy of the organization had been clarified and communicated to all customers. The administrative control of the progress of the procedures was more effective and the daily actions were connected with the objectives of the organization. Also it is important that all employees aligned with the organization's long-term strategy, and, furthermore, redesigning the model was possible. In the long term the appropriate background for the ongoing development of the organization and its effectiveness improvement in a constantly changing environment was created.*

Keywords: *Human Resource Management, Change Management, Balanced Scorecard (BSC), Laboratory Centre, Vocational Education.*

JEL Classification: *I20, I21, I29*

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1 INTRODUCTION

The purpose of this study is to present the strategic plan which was drawn at a vocational school and whose main

objective was to increase the efficiency and effectiveness of the organization through improvement of existing and future functions and to provide a framework for the management of the future vision.

The chosen method to be applied to the case study of the school is the Balanced ScoreCard (BSC), which is considered to be the most integrated method of strategic management based on the references and its application worldwide. The BSC is a management tool that can be applied to organizations and enterprises so as to implement the strategy adopted by the transformation of tangible and measurable objectives. It introduces a new culture, philosophy and approach, using the energy, skills and expertise of staff to accomplish long-term strategic objectives. It communicates the strategy to the organization's personnel, facilitates the alignment of the organization's policies and connects its vision with the individual functional procedures (Niven 2005; Gordon 2006).

At the same time, BSC maintains financial metrics as financial performance measures of the past, but it also complements them with measurements from three additional perspectives – customers, internal processes, learning and growth – which are proposed as guidelines for the creation of future performance measures (Christou et al., 2000; Kaplan, 2010). Each perspective is developed on objectives derived from the analysis of the content of operational units. Additionally it defines the actions, which are the initiatives and the measures to be taken in the direction of the strategy towards the vision. These four perspectives provide the context for the BSC (Kaplan & Norton, 1996a). More specifically:

- The Financial perspective determines what the financial results should be in an organization. Economic goals are used to determine the organization's long-term objective, i.e. to provide the superior performance of the organization over the capital invested. Accurate financial information is necessary for the efficient and smooth direction of the organization, while the provision of correct and timely financial information to the right person in an organization helps a lot in making the right decision at the right time (Malgwi, 2014). It is considered to be the most important dimension of the BSC as it is the basis for measuring all the others.
- The Customer's perspective is designed solely to measure how well the company meets customer's requirements while modern management philosophy has shown a growing awareness of the importance of customer focus and customer satisfaction in any business. Finally, it is necessary to note that the substantial understanding of what customers want, makes a decisive contribution to the continuous improvement of the processes by which the organization provides its products or services (Hannabarger et al., 2007; Valachis et al., 2009), which is the next analyzed perspective.
- The Internal Processes' perspective focuses on the company's internal results that lead to financial success and satisfied customers. This dimension concerns the effectiveness and efficiency of internal processes. The principle on which it is based is that the customers' perspective measurements are important, but they must be converted into measurements of what the organization needs

to do internally to meet its customers' expectations (Malgwi, 2014).

- The Learning and Growth perspective is the last of BSC's four perspectives and the one that conceals and empowers all others. It focuses on measuring the fundamental elements of the organization's ability to compete, improve processes, and ultimately create value. The development of organizational skills and competences is an essential prerequisite for any successful and efficient corporate strategy (Journéault, 2016).

The BSC was originally developed as a performance measurement system of enterprises in the private sector, but soon began to apply to non-profit organizations and public sector in other countries (Kaplan & Norton, 2001). Innovative companies use the ScoreCard as a strategic management system in order to conduct their long-term strategy and to carry out critical administrative procedures (Nilson & Olive, 2001, Warren, 2002, Simons, 1995, Porter, 1996) such as:

- Clarification and translation of vision and strategy.
- Communication and connection between strategic goals and measures.
- Programming, objectives' group and alignment of strategic initiatives.
- Upgrade of feedback and learning strategy (Kaplan & Norton, 1996a).

When designing a Balanced Scorecard for a public organization, some variations should be made before designing and implementing it:

1. The mission moves to the top of the Balanced Scorecard.

In private sector, the measures appearing in the BSC should lead to improved profitability, while in public organizations and non-profit organizations the other perspectives of the BSC are more vital. Monitoring of the results of Education and Development's, Customers', Internal Processes' and Financial perspectives provides the opportunity to set short- and medium-term objectives as well as the feedback needed for annual audit and credibility (Kaplan, 2010).

2. The strategy remains at the heart of the BSC system. Nonprofit and governmental organizations often have difficulty cultivating a clear and concise strategy with priorities that have to be consistent with the uniqueness of the organization and match each other in an effort to respond effectively to challenges and opportunities (Niven, 2008).

3. The growing prospect of customers.

The public body produces value linked to the provision of services and goods to the public and is related to wider socioeconomic impacts (Pollitt & Bouckaert, 2000). Achieving the mission of a public organization is not equivalent to fiscal responsibility and management. Instead, the organization has to determine who it intends to serve (who the customers are) and how its needs can best be met in order to complete its mission and to simplify the work of selecting performance measures in all perspectives (Niven, 2008).

4. The financial perspective is necessary for completing the BSC.

Financial measures in public and non-profit organizations in the BSC can be considered either as factors that allow the success of the customer or as constraints within which the organization must operate (Niven, 2008).

5. Definition of the Internal Processes leading to value for customers.

Non-profit organizations should select processes that lead to improved outcomes for customers and at the same time allow the approach of organization's mission (Niven, 2008).

6. Employee training and learning outlook.

Motivated employees with the right mix of skills and tools that work in an organizational climate that is supportive of change are the key components of improvements to the guidance process that lead to the achievement of socially important goals of non-profit and governmental organizations (Christou & Sigala, 2000, 2002, 2003; Niven, 2008).

As stated by Kaplan & Norton (1996b), this trend is favored by the so-called "new public management", whose main components are the obligation of increased accountability to all stakeholders, the requirement for effective operation, which should be demonstrated from economic efficiency (value for money) of the used resources and the measurement of organizational performance, too.

2 CASE STUDY: THE 5TH EAST ATTICA LABORATORY CENTRE

The 5th Laboratory Centre (LC) of East Attica was founded by Law 1756/20-9-1999 and is located in the municipality of Acharnes. As all school units of the Ministry of Education, Research and Religious Affairs, it has independent administrative structure as far as its operation is concerned (Law 1318/1-7-2015). It is in cooperation with three Vocational Upper Secondary Schools (VUSS) of the area (1st and 3rd Day and 2nd Evening VUSS of Acharnes) and provides its services to 980 students. There are 52 teachers at the school, of which only 14 work exclusively for the LC.

The administrative staff of the LC is the School Head, Deputy School Head, Teachers responsible for LC Sectors and Teachers responsible for Direction Laboratories. There is also the Teachers Board, involving all the teachers who teach laboratory courses. The LC's premises cover a total area of 3000 m², while structured area covers 1350m². It has three fully equipped Computer Labs and two Economic and Management Labs equipped with obsolete Computers. Nursing Labs, Nursery/Childcare Lab, Medical-Biology Lab as well as Cosmetology, Hairdressing, Fashion Design and Production, Food Technology and Agricultural Labs are fully equipped, but they face serious problems in the maintenance of their equipment. The school also has two greenhouses of 170m² and 50m², courtyard with greenery and an underground parking area of 1072m². Additionally, the school has a Teachers' room and a Projection room in order to carry out cultural activities and meet the educational needs of the organization.

The Direction Laboratories of the 5th LC, as well as the Sectors in which they are included are:

Table 1: 5thLC Direction Laboratories

Sector of Health - Welfare - Well-being:	Sector of Agriculture, Food and Environment:
<ul style="list-style-type: none"> Nursing Labs 1& 2 	

<ul style="list-style-type: none"> Nursery/Childcare Lab Medical-Biology Lab Hairdressing Lab Cosmetology Lab 	<ul style="list-style-type: none"> Environmental Management Lab Basic Agricultural Techniques Lab Food and Drink Technology Lab
Sector of Applied Arts:	Sector of ICT:
<ul style="list-style-type: none"> Fashion Design and Production Lab 	<ul style="list-style-type: none"> Computer Labs 1, 2& 3
	Sector of Economics and Management:
	<ul style="list-style-type: none"> Economics and Management Labs 1& 2

3 METHODOLOGY

A working group of the school's administrative staff (School Head, Deputy School Head, Teachers responsible for LC Sectors, Teachers responsible for Direction Laboratories, Teachers Board) was formed, based on the identification of the objectives of education as defined in the applicable legislation (Law 1566/1985). This group defined the vision of the organization, as "the creation of an open and dynamic school, which will contribute to optimal professional and social development of students, meeting the needs of all involved". Within this framework, the administration of the school aims to create a vibrant cultural educational organization that encourages creative exploration, thought independence and desire for exceeding established limits. Subsequently the goals for the school year 2016-2017 were raised as follows:

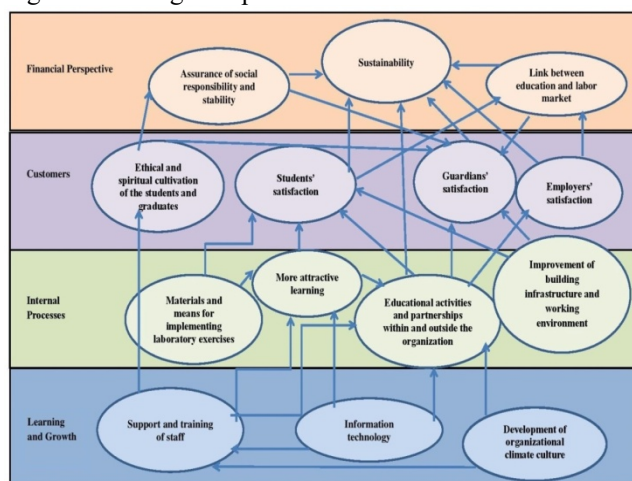
- Development of collaboration culture.
- Upgrade of the educational process.
- Improvement of building infrastructure and working climate.
- Enhancement of the extroversion of the unit.

The most powerful evolution of the BSC was its conversion from a measurement system in a communication tool via strategic maps. On these maps the causal pathways that are woven through the four perspectives and lead the organization to the implementation of the strategy are defined. At the same time strategic maps are powerful communication tools that signal to all employees what must be done for the accomplishment of the organization's mission (Niven, 2006). The strategy map developed at the case study school is reflected in Figure 1.

Additionally the measurement indicators were set, as they were indicated by bibliography in conjunction with the legislative framework of the school's operation and historical data of the organization. The BSC was implemented during the school year 2016-17. Data were collected by the school informatics system ("MySchool"), and by observations of the school teachers. An indicator was measured in each perspective and it had been developed with actions during the school year. The programming was done in September 2016 and the actions were developed as follows: the first one from

October 2016 until January 2017 and the second one from February 2017 until May 2017.

Figure 1. Strategic map of 5th LC of East Attica



The monitoring of results and the redesigning, where this was necessary, for the indicators of the first three perspectives (Learning and Growth, Internal Processes, Customers) were done at the end of each semester, while for the indicator of Economic perspective it was done at the end of the school year.

The measurement indicators of the objectives which were used, the goals and the actions performed for the improvement of the indicator in the BSC perspective which was studied are:

- **Learning and Growth perspective**

The objective of this perspective is the development of the organizational culture and the indicator used is the percentage of employees who were activated and developed personal objectives and corresponding activities (Table 1). To achieve this objective, the following actions are proposed:

1st action: Implementing incentives for staff. School leadership and management must identify the talents and skills of educational staff, appreciate their value, motivate them, inspire them, and encourage them to express their own vision for the organization by setting personal objectives (Burantas, 2002, Fullan, 1999, Thoonen et al., 2011).

2nd action: Encouraging staff participation in training programs. After identifying the needs of teachers for training using a questionnaire, training programs will be developed to meet these needs. The involvement of trainers and trainees will be voluntary (Katsaros, 2008).

3rd action: Organization of regular meetings to evaluate the progress of the organization's objectives achievement process (Finnigan, 2012, Tranetal., 2017).

- **Internal Processes Perspective**

The objective of this perspective is the improvement of building infrastructure and working environment (Katsaros, 2008). The indicator used is the percentage of the approved corrective proposals that have been implemented (Table 2).

Table 1. Objectives – Indicators – Goals – Actions of Learning and Growth Perspective

Learning and Growth					
Objective	Indicator	Goal	Action	Action	Action
Development of organizational climate culture	Percentage of employees who developed personal objectives.	Development of personal objectives and corresponding activities which align with the organization's objectives by the employees.	Application of motivating staff methods.	Encouragement of the staff to participate in training programs.	Organization of regular meetings in order to evaluate the progress of the process.

To achieve this objective, the following actions are proposed:
1st action: Painting of the classrooms. Improving the aesthetics of Laboratory halls and common areas creates a supportive environment for pedagogical and learning processes.

2nd action: Replacement of curtains and blackboards. The reformation of Laboratory halls with curtains, whiteboards and art paintings upgrades the learning and working environment.

3rd action: Installation of air conditioners in all classrooms. The addition of air conditioning units in the Laboratory halls enhances the autonomy of heating during the evening operation of the school, therefore both covers the needs of the school and has a positive impact on its financial planning.

Table 2. Objectives – Indicators – Goals – Actions of Internal Processes Perspective

Internal Processes					
Objective	Indicator	Goal	Action	Action	Action
Improvement of building infrastructure and working environment	Percentage of approved corrective proposals that have been implemented.	Improvement of the working environment.	Painting of the classrooms.	Replacement of curtains and blackboards.	Air conditioning installation in all classrooms.

- **Customers' Perspective**

The objective of this perspective is the ethical and spiritual cultivation of the students and the indicator used is the percentage of students who gained communication skills (Table 3). To achieve this objective, the following actions are proposed:

1st action: Voluntary work of students in the services of the Municipality in the context of laboratory exercises. The involvement of pupils in such actions encourages their interaction with other members of society, adults and peers, and systematizes, promotes and strengthens social learning processes (Dean, 1995; Sigala & Christou, 2007).

2nd action: Development of Health, Cultural and Environmental educational programs with an experiential approach. Student participation in these programs contributes to the development of individual skills/competences as well as self-confidence, improvement of communication skills, creativity and initiative, and their sociability.

3rd action: Educational - Instructive visits. Educational and instructive visits on one hand reinforce knowledge with

experiential actions and, on the other hand, entertain and encourage the socialization and sensitization of pupils (Andreadou & Drakaki, 2008, Krakowka, 2012).

- **Financial Perspective**

The objective of this perspective is the sustainability of the organization and the indicator used is the change rate of the school's students potential (Table 4). To achieve this objective, the following actions are proposed:

1st action: Close cooperation between the school and the family. Close and systematic bilateral communication with parents is particularly useful in eliminating potential parental concerns and inhibitions and establishing trust to the organization (Gliou, 2005).

2nd action: Alternative teaching methods. Students achieve and find school more interesting if the teaching is done in a way that responds to their personal learning levels.

3rd action: Students' involvement in the activities of the organization. Active student participation in the activities of the organization strengthens the educational and student community and develops the organization's extroversion.

Table 3. Objectives – Indicators – Goals – Actions of Customers' Perspective

Customers					
Objective	Indicator	Goal	Action	Action	Action
Ethical and spiritual cultivation of the students	Percentage of students who gained communication skills	Development of students' communicative skills and social integration	Students' work in municipal services in the context of laboratory exercises.	Development of Health, Cultural and Environmental educational programs with experiential approach.	Educational – Instructive visits.

Table 4. Objectives – Indicators – Goals – Actions of Financial Perspective

Financial Perspective					
Objective	Indicator	Goal	Action	Action	Action
Sustainability of the organization	Change rate of the school's students potential.	Preservation of the school's students potential.	Cooperation between school and family.	Alternative teaching methods.	Students' involvement in the activities of the organization.

4 RESULTS

The study of indicators of the BSC tool in the 5th LC of East Attica during the school year 2016-2017, gave the following results (Table 5).

Based on the evaluation of BSC strategy, the results which had been obtained are as follows:

- The higher output is observed in Customers' perspective where "the development of students' communicative skills and their social integration" increased by 50% between the two semesters (by 10% in the 1st semester and by 60% in the 2nd one). This is due to the motivation of teachers to plan with the students more and more enticing actions, so as to involve a greater number of students in them.

- The next high output is in the Internal Processes perspective where the objective of "improvement of the working environment" was achieved by 40% (20% in the 1st semester and 20% in the 2nd one). Improving the building infrastructure and the working climate is an "alternative motive" that will differentiate the work behavior of teachers (Harmer, 2001).

- The low change rate in the Learning and Growth perspective, where the "development of personal objectives and corresponding activities which align with the organization's objectives by the employees" changed only by 2% in the 1st semester, created the need for enhancing the actions in this indicator. Thus, teachers' training programs were developed during the 2nd semester, which were based on topics suggested by them and resulted in the increase of their participation and the change of the indicator at 9% in the 2nd semester. The small variation of this indicator reinforces the belief that change is a process that takes time to achieve it. But even this small increase demonstrates the teachers' consensus for the necessary changes that will guide the organization into a common vision for the future.

- Finally, in the Financial perspective, while in the school year 2015-2016 there was a 5% decrease in the school's students potential, the implementation of communication activities within and outside of the school, as well as the enhancement of the "communication between school and family" action, resulted in the reduction of school dropout (2% decrease) during the 2016-2017 school year. Consequently, the school's student potential percentage increased, although, due to economic and social conditions, a further fall was expected.

5 CONCLUSION

Transforming an educational organization into an open and dynamic school is a long-term process that requires thorough planning and the contribution of all stakeholders. The implementation of the BSC model to the educational organization of the 5thLC of East Attica during the school year 2016 - 2017 provided significant results for the structure of the objectives and the transmission of the vision of the organization. Using the model and implementing it to all of its activities, the organization has gained several benefits, the main ones being:

- The organization's vision, objectives and overall strategy have been identified through a multi-party process involving teachers and students from the whole organization. The strategy was communicated to all levels of the organization and developed through everyday actions and activities on a personal and group level.

- Alignment of teachers' personal goals with those of the organization has been achieved by engagement,

empowerment and involvement of the staff in decision-making in educational planning.

- A framework of indicators of the four perspectives of the model has been formed. These indicators are linked and interact with each other and provide the ability to monitor the achievement of strategic objectives in a dynamic way.
 - Continuous review of the model and actions in order to identify the points requiring improving interventions (correction of errors) and the best adjustment of the parameters in the organization's function contributed significantly to the success of the effort. The opportunity of feedback and learning enabled the organization to become more effective.
 - Full coordination of the organization's activities was achieved. The long-term and short-term objectives were connected in a balanced way. The administrative control over the progress of procedures has been consolidated and became more effective.
 - An objective allocation of resources was achieved across the range of activities.
 - The professional development of human resources and the evaluation of the teachers' competences were carried out according to the needs of the students.
- The change made to the organization and the new strategic way of thinking, if kept alive, will in the long run create the proper background for the ongoing development of the organization and its viability.

Table 5: Results in 5th LC of East Attica

Implementation in 5 th LC of East Attica					
Objectives	Indicators	Measures			
		1 st Semester 2016- 2017	Change	2 nd Semester 2016- 2017	Change rate
Development of personal objectives and corresponding activities which align with the organization's objectives by the employees. (Learning and Growth)	Percentage of employees who developed personal objectives.	2%	Enhancement of actions	9%	7%
Improvement of the working environment.(Internal Processes)	Percentage of approved corrective proposals that have been implemented.	20%		20%	40%
Development of students' communicative skills and social integration. (Customers)	Percentage of students who gained communication skills.	10%	Enhancement of actions	60%	50%
Preservation of the school's students potential. (Financial)	Change rate of the school's students potential.	2015-2016		2016-2017	3%
		-5%		-2%	

6 RESEARCH RESTRICTIONS

The main limitation of this research lies in the impossibility of generalization of the findings of the case study of the 5th

LC of East Attica in Secondary Vocational Education in Greece. Conducting corresponding surveys in a wider context (a larger number of public vocational schools) could generalize common results. At the same time, the implementation of Balanced Scorecard was limited to a period of one school year, so it did not yield the most. If there was time available, the evaluation would be more substantiated on the basis of objective criteria and the implementation of the redesign would have the greatest possible benefits. However, the positive results are evident mainly within the organization, where the achievement of overall objectives has become a personal pursuit for each teacher.

7 SUGGESTIONS

This study could lead to reflection and further exploration of administration and human resources management issues in education. It would be interesting to complete this research with the implementation of BSC in a three-year plan with the following objectives (Katsaros, 2008):

- Study of a significant number of indicators of the four perspectives, as well as the collection of data and the extraction of conclusions, using more measuring tools on an expanded scientific basis.
- Conduction of research to meet the expectations of the groups involved (teachers, students, guardians, employers).
- Use the feedback results on redesigning the BSC.
- Expenditure of resources for the process and the monitoring and utilization of the required human resources.
- Applying the model to more VET organizations and creating an information system to perform BSC in public institutions of learning.

It is now widely accepted that "the key to success is teamwork" and "the great challenge for administrations is to be able to mobilize their entire human resources towards achieving common goals" (Protopappas, 2006). The creation and implementation of a BSC system is more relevant to "change in people's hearts and minds" and maintaining new guidelines than applying measures to control employee behavior. The utilization of the BSC as a framework for aligning the organization with human capital contributes to the creation of a high-performance organization (Rohm & Halbach, 2002).

Niven (2008) writes: "*The issues are many and complex, but taken together they might be characterized by two super ordinate and related challenges—sustainability and the ability to adapt to a rapidly changing world. Organizations must cope with increased competition, more diversity among constituents, higher expectations from the public, increasing costs, declining support, rapidly changing technology and substantially different ways of conducting business. Surviving in such an environment (sustainability) depends upon the ability to adapt.*"

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