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OPPORTUNITIES AND LIMITATIONS OF THE IMPLEMENTATION OF CONTEMPORARY PERFORMANCE MEASUREMENT MODELS IN THE CONTEXT OF PRE-UNIVERSITY EDUCATION

Abstract: *The paper discusses the opportunities and limitations of applying contemporary performance measurement models in the context of pre-university education. Special attention is given to the approach of measuring performance using the Balanced Scorecard (BSC) and the concretization of perspectives in the context of educational institutions – primary and secondary schools. The Balanced Scorecard enables schools to articulate an authentic choice of indicators, thus illustrating their specific qualities and helping them to control their processes and the behaviour of relevant stakeholders in the aim of improving educational work. The research results show that it is possible to make a collective list of indicators that can be updated and that can also be used as ideas to be applied in individual cases of organized learning. Schools which were active in different socio-educational contexts were able to successfully use the Balanced Scorecard, perceive their operations and improve them in order to provide educational service for users as well as employees for the purpose of improving the organization.*

Keywords: *performance, balanced scorecard (BSC), education, balanced scorecard in education, performance measurement.*

1. Introduction

Performance measurement of business entities is of crucial importance for monitoring effectiveness and efficiency, especially for relevant decision-making as well as improving the working process and creation of values. This multiplicity of needs for conducting measurements is specially related to one of management functions – the control of the implementation of business activities compared to the adopted plan and

the defined objectives and tasks of an organization (enterprise, corporation or one of its segments, an organizational unit). The tendency is to quantify this measurement and express it by numerals as concrete indicators of successful business operations performance; however, monitoring and evaluating these processes have lately also produced qualitative guidelines/assessments. Certainly, there is much debate in scientific and expert community regarding the best indicators of performance and a conclusion

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can be drawn that the best method of measuring does not exist; instead, depending on the objective of an insight, a procedure is employed that is supposed to provide the clearest picture of the state of things or enable the best possible consideration of the complexity (or segments thereof) of economic or business activities of the observed subject in the temporal reality. Some of the indicators are characterized by imperfection or historicity, these being obtained after the activities have been performed; others are related to the momentary events, that is, momentary effects of certain factors of operation. (Domanović, 2019).

Research studies provide different approaches, methods and procedures by which performance measurement is conducted and a great number of them is related to financial indicators of business operations. These models mainly belong to the group marked as traditional, whereas methods which follow the so-called soft factors of operations represent contemporary approaches to the operation performance consideration. These soft factors are in fact components that can be related to the satisfaction of customers or service users, the measure of stakeholders' participation in work processes, the evaluation of the vision and defined strategies, the enlargement of knowledge and the transfer of knowledge among employees, the technological development, the measuring of the process of creating values for all participants in the operations of an organization's transactions, as well as other important issues (Domanović, 2019, 172). Certainly, financial indicators do not lose significance; in fact, together with the implementation of non-financial standards they constitute a totality that is unique for each organization and serves to better comprehend the performance of a business system.

Public sector constitutes a particular subsystem of the business operations totality due to the fact that it expresses certain specific qualities in terms of capital fund,

profit, income allocation, and the purpose for which the entities were established; in fact, these are of a specific interest to the society. It can be said that they belong to activities that exist to resolve various types of external issues (Mankiw & Taylor, 2016) and to offer services and perform business activities with specific interest to the functioning of everyday life in a community. The managers of subjects in the public sector, as well as their founders, owners (shareholders) share the same interests for the performance measurement in the aim of monitoring operations and decision-making based on data, as well as their equivalents from the non-public sector of operations.

Therefore, the subject of this research is the implementation of contemporary models of performance measurement in the context of pre-university education, that is to say, whether an integral conceptual framework for the performance measurement of primary and secondary education institutions can be found to exist in the literature.

The aim of this research is to identify possibilities and limitations in the application of contemporary performance measurement models in the context of pre-university education institutions in the public sector, that is, the pre-university education. This research is exploratory and it aims to provide a better understanding of the researched phenomenon, with the methods of analysis, comparison, classification, deduction and synthesis being used in the process of arriving at conclusions.

Besides introduction and conclusion, the paper is comprised of another three parts. The first part is theoretical framework providing the context of pre-university education, a brief review of contemporary performance measurement models and description of some models used in practice. The second part is a sort of an overview dealing with the implementation of contemporary models for performance measurement in the field of education, namely, the application of instruments for

the Balanced Scorecard within the education institutions. The third part offers a concretization for the application of the perspectives of the Balanced Scorecard in the context of organized and institutional learning; it actually shows how the mechanism of BSC can be applied in primary or secondary schools.

2. Theoretical framework

2.1. The context of pre-university education

The field of education or more precisely the field of the state education system is a part of the public sector. Contrary to public enterprises such as public utility services enterprises that can make profit and invest in the equipment or perform allocation in some other way, educational institutions founded by the state (including pre-school institutions, primary schools – schools for primary and compulsory education, secondary schools – grammar schools, vocational schools, music, ballet schools and others) do not make profit, but are instead financed as indirect budget beneficiaries – of the local government or the relevant Ministry, depending on the need. For example, the payment of employees' salaries in primary schools is realized from the budget of the relevant Ministry of Education, whereas the current maintenance of the institution is financed from the budget of the local government. Also, there is a dedicated account that parents can use to finance certain activities (travelling to excursions, excursions or visits to cultural institutions, museums, theatre plays, cinema projections), and these activities are treated as quality improvements of the educational process. Assets from donations given by natural and legal entities have a very precise purpose and are contractually determined.

By considering the mechanism of financing design, it becomes obvious that public schools have no opportunity for profit realization as is the case with other entities

from the public sector. The exception to this can be found in private schools, due to the fact that they make profit from the income derived from tuition fees or other educational services.

Secondary schools, grammar schools or vocational schools can charge some educational services (for example, in the case of part-time students), but this serves only to cover the organizational costs of these educational activities (examinations, teaching materials, technical servicing and maintenance); thus, there is an inflow of money without a profit realization.

Based on the aforementioned, it can be concluded that financial flows and the control of these flows are directed toward the realization of planned incomes and expenses. Successful operation is not demonstrated on the basis of the realized profit, but instead on the manner in which the regular functioning of the described financial mechanism enables seamless operation of educational processes and which in that way creates values for all participants.

2.2. Contemporary models of performance measurement

The function of control is an essential function of management and by employing it we surely perform some of the forms of the performance measurement, that is, the control of the objectives' realization, business strategies or efficiency and effectiveness of the enterprise or business subject (Pokrajčić, 2002, 391). Multiplicity or development of application of different models for monitoring operations or obtaining information related to the conducting the production process or offering services enables correction and changes related to the essential postulates of the subject that participates in the economic exchange of goods and services. These models can be financial and non-financial by their nature; that is to say, they can be traditional or contemporary (Domanović, 2019, 164). Contemporary models of

performance measurement include mainly non-financial approaches and they are focused on those activities of business subjects by the improvement of which we initiate the creation of a value and the realization of financial profit.

“There is no agreement about the question how to measure performance best” (Pokrajčić, 2002, 442). Contemporary approaches to performance measurement should be flexible and should be changed according to changes in organization together with its environment (Pokrajčić, 2002, 391); they should follow the course of the business subject development and describe processes, perform monitoring and report on the effects of the strategy realization and activities of the business success (Domanović, 2019, 165). According to (Pokrajčić, 2002, 443) contemporary models of performance measurement are determined by financial and non-financial measures – “customer satisfaction, the value for owners, resources and internal processes, innovativeness of the enterprise.”

From the aspect of organizational changes, whether they are incremental or radical (having a disrupted balance – from equilibrium through disequilibrium) (Stojanovic Aleksic, 2007, 196), performance measurement enables monitoring and controlling the transition from the old to the new paradigm. These organizational transformations include different types of changes – within the basic system of the organization; in strategy, objectives, mission, vision and alike; tasks and activities; in technology; in management; in planning, compensations, remuneration; in the culture of the organization; in the employees’ behavior, leadership, motivation; in the structure of the power; in the outcomes; in the image (Stojanovic Aleksic, 2007, 194-195). Contrary to managers in profit organizations who are focused on making money for the company (or any other business subject), in the non-profit sector the entities realize social/communal impact which poses a

special challenge (Daft & Marcic, 2006, 16). The effects of such different ways of doing business should be monitored in different ways. Of course, in both cases there is a part of operations related to the finances, but it is certainly treated differently. Indeed, business activities of subjects from the same field of activity are not identical, the same, and so different models will be applied between them to monitor their performance with the purpose of satisfying the requirements for an informed management or leadership of the organization.

The leadership function of the management requires information and conducting operations that are based on data. For that reason, there is a need for development of different metrics by which processes are described and which provide a quantitative and qualitative structuring of the reporting on the performed and current business activities, with the aim to get a clearer, precise picture in each and every moment of the realization of an organization’s strategy and objectives as well as its working tasks. When combined, these approaches in fact measure the performance depicting the whole complexity of a business entity in a hypercomplex reality and exceed the simplified view of business successfulness seen from just one point of view of profit maximization. The importance of this especially grows when we consider that certain subjects do not make profit as part of their operations and that their activities are focused on a certain benefit that can have social, cultural or any other value. Certainly, these organizations also have financial operations, they are active in bookkeeping, their accounting departments keep track of income and expenses but with the aim of enabling an unhindered realization of activities the source of which is to be found in the stated mission of the organization.

In theories which deal with the leadership and organizational changes, an example is given of two basic archetypes of changes described by two theories – theory E and theory O. The former is related to the “hard“

changes based on the changes in organization's components (strategy, structure, systems, technology) with the use of economic instruments such as re-engineering, restructuring, downsizing; whereas the latter is based on the changes in "soft" components – organizational culture, climate, power structure and human resources, life-long learning and employees' development (Stojanovic Aleksic, 2007, 203-205). In the case of any of these two types of changes, it is possible to apply performance measurement with the use of perspectives of the Balanced Scorecard and in that way follow the courses of staged processes and make proper decisions. By applying theory E, changes are designed by the top management and are implemented top-down, strictly, and the effects can be noticed fairly fast. Changes according to theory O are implemented by mobilizing the entire organization's potential, created by the general employees' participation, by the bottom-up approach – they are implemented slower due to the fact that they are supported by reassessment, correction, modification of attitudes and behaviour of employees and by activating personal and social processes through interactions, and they result in mutual values, as opposed to the hard version of changes in which values are adopted as something given. In the processes described like this, which are implemented by the organization's management, an instrument of the Balanced Scorecard is determined differently – it is given by the agent of the change (top management, implemented by others in hierarchy – executive managers of middle and lower level and employees or followers in the leadership process) or as a mutually generated value produced in the process of comprehensive changes, as an immanent (intrinsic) need for managing the business entity. Certainly, for concrete circumstances in relation to available resources (time-related, financial, etc.) it is necessary to make an arbitrary decision on the desired set of measures for organizational changes, and

in accordance with that create the Balanced Scorecard which will correspond to business reality.

2.3. Some contemporary models of performance measurement

Contemporary models of performance measurement should enable simultaneous realization of insights into performance of multiple business areas of a single subject. To achieve the maximum coverage, such a model should at least include the following elements (Domanović, 2019, 168):

- Development of a strategy/objective,
- Process management,
- Individual performance management and
- Revision.

There are various techniques and methods that satisfy the mentioned condition for offering useful information on processes that proceed in different business areas. Some of them are the Total Quality Management (TQM), Performance Prism, and the Balanced Scorecard.

In literature, Total Quality Management is designated as a separate organizational culture and the way of thinking (Janosević et al., 1999, 35). The mentioned is related to an integrated management action in relation to the established practice – permanent orientation towards improvement, appreciation of requirements and needs of customers or service users, participation of employees, team work, mutual (team) work for problem solving, continual monitoring and measurement of outcomes, long-term thinking and planning, nurturing partnership relationships with suppliers. According to Janosevic et al. (1999, 36), this approach to quality establishment and improvement is based on ten elements, essential for its implementation:

- Defining qualities and values for the customers;
- Development of the orientation towards the customers;

- Orientation towards the business processes of the enterprise;
- Developing relationship between customers and providers;
- Adopting the preventive approach;
- Adopting the attitude that the work needs to be done 'without making a mistake';
- Obtaining the facts first;
- Stimulating each manager and employee towards participation;
- Creating an atmosphere of complete involvement;
- Aspiring towards continual improvement.

Based on this list, it is possible to show and summarize the elements of Total Quality Management (TQM) in an integrated manner by a pyramid whose four facets are: orientation towards the customer, involvement of all employees, orientation towards facts, and continuous improvement, and whose base is comprised of the leadership process, which leads and integrates them into a unique totality (Janosevic et al., 1999, 38).

In order to be able to implement the concept of Total Quality Management in a company, it is necessary for all management functions to be established; otherwise, insurmountable difficulties and unresolved problems will be encountered and thus the system will not be successful. Certainly, this is a kind of a feedback loop in which the establishment of the concept of Total Quality Management strengthens management functions, so that it represents a mutual process of improving business.

The performance prism is an approach to measurement that considers interested groups, that is, stakeholders, linking them with other key aspects of the functioning of a business entity into a unified whole (Neely & Kennerley, 2007, 7). The triangular prism is a personification or metaphor for the overall business entity whose foundation is satisfaction and contribution to stakeholders, while the lateral sides represent strategies,

processes and capabilities (Neely & Adams, 2000, 3). In fact, it is necessary to answer five key questions (Neely & Kennerley, 2007, 4):

- 1) – Who are our stakeholders and what do they want and need?
- 2) – What do we want and expect from stakeholders (which desires and needs are to be satisfied)?
- 3) – Which strategies should we use to fulfill these desires and needs?
- 4) – Which processes should we implement to fulfill these desires and needs?
- 5) – Which capabilities – connecting people, processes, technologies, infrastructure – should we possess in order to establish a more effective and efficient process management?

The listed questions lead us to establishing the measures by which we could define strategies, processes and capabilities, and the answers to these questions offer an opportunity to make a unique scorecard with the consideration/analysis of which we can manage business success. It is possible to concretize this for any organization so as to obtain a clear picture of business performance.

The Balanced Scorecard - BSC is a concept that brought innovation into the improvement of operations, first of all in private, profitable sector in the United States of America; then it was transferred into the public sector and non-profit organizations. Certainly, this development required certain adjustments in the approach to performance measurement of business subjects. According to Kaplan & Norton (1996), vision and strategy of an enterprise or any other business subject are in the focus and the key fields where their successfulness are read off are: finances, customers (service users), internal business processes, learning and development (Kaplan & Norton, 1996, 9). The stated turns the framework for the transfer of strategy into an operative concept, by which the measurement of performance is

conducted. The basic thesis of BSC is that financial outcomes and financial statements of operations cannot be a basis for value creation activities in themselves. They provide information on things that have already happened and how they have affected the balance sheet or income statement among other things. In other words, financial measures are lagging indicators and as such they are not effective in identification of leadership or activities that have impact on financial outcomes (Karathanos & Karathanos, 2005, 222).

3. Application of contemporary performance measurement models in the field of pre-university education – balanced scorecard (BSC)

The Balanced Scorecard is a widely applied model for performance measurement (Oliveira, Oliveira, Fijałkowska & Silva, 2021; Guenther & Heinicke, 2019; Hansen & Schaltegger, 2016). However, within the area of education detailed instructions or details for the implementation of perspectives of this approach are missing. What is mostly emphasized is the part related to advantages and limits of implementation (Oliveira, Oliveira, Fijałkowska & Silva, 2021). As was mentioned earlier, performance measurement enables the management to freely perform the function of control, and the more comprehensive the applied approach is, the better the insights are. The Balanced Scorecard of Outcomes enables simultaneous (side-by-side) consideration of many fields or activities in an organization and it represents a summary of quality. In fact, this management control is like a resume of an organization, as it is comprised of characteristics belonging to several fields. It enables monitoring improvement and decision-making (Oliveira, Oliveira, Fijałkowska & Silva, 2021).

Instead of the Total Quality Management (TQM), the Balanced Scorecard has been more and more popular in the field of education, and higher education institutions use it for management practice improvement and quality assurance of basic functions: teaching and learning, research and work within community (Reda, 2017). When applied, the BSC system integrates key processes in an organization and enables their measurement (Reda, 2017; Nayeri, Mashhadi & Mohajeri, 2008). At the same time, by establishing a continual process of performance measurement, we improve the quality and make sure that the elements included in Balanced Scorecard combine to provide the improvement and advancement of educational work (Reda, 2017; Holmes & Brown, 2007). Author Reda (2017) considers learning and teaching an essential process and observes it from all perspectives of the Balanced Scorecard, and thus we have:

- Financial perspective – resources used for teaching and learning.
- Customer perspective (service users) perspective – satisfaction of service users (students and parents) during teaching and learning.
- Internal business process perspective – process of teaching and learning.
- Learning and growth perspective – input (presumptions) and development of teaching and learning.

The stated depicts how a core process (teaching and learning) in educational institutions can be considered from different and independent perspectives, creating thus a unique and complete review of characteristics/performance. Certainly, a benefit of this approach is, for example, that the process of teaching and learning is comprised of many other parallel processes conducted at the same time – the monitoring process, evaluation and assessment of students' accomplishments, followed by the students' behavior during the acquisition of knowledge (learning), the necessity of using

proper teaching aids, offering educational or any other support during the organized learning process.

Integrating presumptions for realization of the process of teaching and learning, the process of teaching and learning itself, as well as outcomes of this process into a unified whole that is measurable in a way it can be comprehensively viewed – organizationally, strategically, at the level of employees, or at the level of created values for service users (or stakeholders) – is a positive side of the application of the Balanced Scorecard.

However, according to Camilleri (2021), the use of the Balanced Scorecard depends on the skills and predispositions of evaluators, who provide their constructive criticisms and recommendations regarding the four perspectives of this approach. They are entrusted to establish clear goals for the employees, those who were assessed and whose productivity and effectivity in working environment are evaluated. At the same time, the evaluators should notice their weaknesses and fields of activity that require improvement. At the same time, they must also “scan their macro environment in order to get acquainted with opportunities and threats from political, economic, social and technological factors” (Camilleri, 2021, 13). This reveals all the complexity of functioning of a business entity within a hypercomplex macro environment, and especially educational institutions that are observed in a conservative manner as established social activities with the core activity of teaching and learning that was established long time ago and which cannot be changed. In fact, the reality is quite different than this. Environmental changes that are continual and prompt also require proper responsiveness of this special/specific business subject. Internal processes create values for stakeholders under external impacts that are long-term and short-term – for example, educational policies and objectives of the government and current operations (maintenance). According to

research findings of Camilleri (2021), the Balanced Scorecard has a potential for the improvement of educational institutions, enabling institutions to clarify their mission and vision, whereas defined perspectives improve efficiency/performance by identifying what is really important for service users and interested parties. The Balanced Scorecard analyzes past and present performance of the educational work (or: it could be said the achieved and current effect).

Papenhausen & Einstein (2006) state that a successful implementation of the strategy requires active contribution of all members in an organization; all members of an educational institution should understand it and contribute to its success in their daily activities. For this purpose, communication and education are important, that is, meta-learning that provides support for the internal process development. This meta-learning refers to the necessary knowledge for leading/instructions given from the meta position in relation to the internal processes, and they are not external in their nature. The Balanced Scorecard is successful if each member of the organizational community gets feedback information by which the individual growth and development are stimulated, and performance is also enhanced by it.

In the field of education, it is possible to adapt some results of research papers to a proper context. Thus, approaches applied in the field of higher education can be adapted to the context of pre-university education. Rohm (2002) considers that institutions produce values as business subjects or organizations, align them and in that process, they deal with the problems of measurement and performance improvement. Their mission and vision are focused on the satisfaction of service users more than on the profit. Due to this fact, educational institutions should:

- Furnish/provide a clear structure for continual quality improvement;
- Establish/set up a culture of

academic quality (or: quality culture of organized learning);

- Efficiently assess utilization of resources for the implementation of educational programs;
- Document the contribution of each activity of the institution's mission as well as the promotion of personal and academic excellence (excellence of outcomes for success and successful organized learning) and
- Define priorities in future planning and estimation of needs.

On the other side, the implementation of BSC can use existing tools as the strategic map in order to improve clarity. This is especially useful for directing of middle management and operational staff of the institution, as well as other non-technical interested parties. By using the strategic map, everyone is capable of visualizing how their activities contribute to institutional strategic goals and final outcomes" (Al-Hosaini & Sofian, 2015, 30). Kaplan & Norton have already provided the option of using different tools and applications so as to improve better usefulness of the approach of the Balanced Scorecard. For example, the strategic map offers correlation between important strategy elements – objectives, initiatives and actions that should be implemented (Al-Hosaini & Sofian, 2015; Kaplan & Norton, 2000).

In conclusion of her research on application of the BSC in university educational institutions, the author Hladchenko (2015) states that the development of the Balanced Scorecard aids personnel in better understanding the strategic aims; it is also helpful in dividing implementation strategies into multiple phases as well as performing control with the aid of measures, projects (projected activities) and indicators. Establishing perspectives of the Balanced Scorecard enables the development of the staff (personnel, members of the teaching staff and personnel for organizational operations support), the educational process

and research (in schools: teaching process and learning), as well as quality improvement according to demands by external and internal stakeholders.

In the United States of America there is The Baldrige National Quality Program (2003) that was adopted as a means for the implementation of legislation related to general quality improvement, primarily in the business world, and development of competences of American business subjects at the international level. Since 1995, adaptations of this act in the field of educational institutions operations were initiated, so there is a separate document dealing with this field (Karathanos & Karathanos, 2005).

The main part of The Baldrige National Quality Programme consists of criteria for achieving excellent performance (the performance excellence). The criteria are focused on the development of a comprehensive system for measurement aligned with the strategic aims of the company (organization) and offering outcomes in the following fields (Karathanos & Karathanos, 2005, 223):

- 1) Outcomes focused on the customer (the service user);
- 2) Products and services outcomes;
- 3) Financial and market outcomes;
- 4) Human resources outcomes;
- 5) Organizational effectivity outcomes, including key measures of the internal operations performance;
- 6) Management and social responsibility outcomes;

Finally, a development of these criteria and systems of performance measurements led to the creation of the new document, Education Criteria for Performance Excellence (2003b), intended for the field of education, so since 1999 an award has been established for their application.

Karathanos & Karathanos (2005) analyzed how three educational institutions from various parts of the USA applied these criteria, measuring performance from

perspectives of the Balance Scorecard which was shown to be compatible with Education Criteria for Performance Excellence (2003b). Institutions were situated in different socio-educational contexts – town size, demographic structure, employment of parents, socio-economic status, adolescence pregnancy, spirits and the use of psycho-active substances, crime rate, as well as various approaches to the definition of education strategy and objectives. All three educational institutions successfully improved their processes and achieved desired performance by the use of the adapted criteria and perspectives of the Balanced Scorecard. In Appendix, a table of selected indicators is provided, sorted by measurement areas – variables, in total for all educational institutions. This table is in fact a systematization (specification) of possible proofs on the basis of which insights were obtained, that is, on the basis of which conclusions were drawn related to the measure (level) of the concrete performance achievement. Listed items can be used as a collection for selecting elements when designing a consideration of the business circumstances of any educational institution, by applying the perspectives of the Balanced Scorecard.

In a study that dealt with the applicability of the Balanced Scorecard for the performance measurement of primary schools in Turkey, authors Gündüzalp & Arabaci (2017) examined three groups of participants in the educational process – teachers, principals and inspectors. These participants were directly or indirectly involved in teaching and learning process implementation or in a larger sense in educational work performed in schools – with teachers directly, and with principals and inspectors indirectly. (Inspectors can be said to be in a certain meta-position in relation to school processes. Principals can also have position in which they participate directly due to the fact that educational process in school is a much broader concept than teaching and learning.) Findings obtained by this research argue for

the application of performance measurement by tools found in the Balanced Scorecard, for which it was stated that it "ensures effective communication among employees" (Gündüzalp & Arabaci, 2017, 176). Principals, more than other participants in this performance evaluation research, accept the use of the BSC for assessing school performance, which is justified by their support for evaluation activities (assessment) that enhance the quality level of the organization for which they are responsible. Inspectors, unlike teachers and principals, express reservations about the implementation of the Balanced Scorecard in measuring and improving school performance. However, results speak in favor of the fact that educational staff in schools clearly supports the implementation of the Balanced Scorecard tools in achieving insight into educational work.

The concept of the Balanced Scorecard was applied in a certain number of secondary vocational schools in Greece, and the results of this project were presented in the study Mylona et al. (2018). These authors emphasize that in the process of designing the Balanced Scorecard outcomes for organizations in the public sector it is necessary to perform certain adaptations (Mylona et al., 2018, 10):

- 1) Mission of the organization is positioned to the top of the Balanced Scorecard;
- 2) Strategy is placed in the middle part of the Balanced Scorecard (core BSC);
- 3) Organization must determine to whom it offers services (who are its users or clients) and how their needs will be satisfied in the best way in order to achieve their mission and simplify the task of choosing the performance measures in all perspectives;
- 4) Financial perspective is necessary and it is the basis for the achievement of others;

- 5) Defining internal processes leads to the creation of values for service users (clients).

After the application of the Balanced Scorecard in schools from the project in the study of Mylona et al. (2018), authors present how the tools were developed for performance measurement, that is, which

elements were planned for monitoring. According to the perspectives of the Balanced Scorecard, the items that are defined are the subject of changes (or: intention, purpose), the indicator that defines it, goals and activities by which that change is achieved. This is demonstrated in Table 1.

Table 1. Subject of change – Indicators – Goals – Activities (perspectives of BSC) Source: Mylona et al. (2018)

BSC perspective – Finance					
Subject of change	Indicator	Goal	Activity	Activity	Activity
Organization sustainability (schools)	Students turnover rate of a school	Preservation of the number of students of a school	Cooperation between school and family	Alternative teaching methods	Students' involvement in school activities
BSC perspective – Customers (Service users)					
Subject of change	Indicator	Goal	Activity	Activity	Activity
Ethical and spiritual students' cultivation	Percentage of students who gained communication skills	Development of students' communication skills and social integration	Students' work in municipal offices in the context of practice acquirement	Development of Health, Cultural and Environmental educational programs with experience-based approach	Educational visits
BSC perspective – Internal processes					
Subject of change	Indicator	Goal	Activity	Activity	Activity
Improvement of infrastructure construction and working environment	Percentage of implemented approved proposals for corrections	Improvement of working environment	Painting of classrooms	Replacement of curtains and blackboards	Air conditioning installation in all classrooms
BSC perspective – Learning and growth					
Subject of change	Indicator	Goal	Activity	Activity	Activity
Development of organizational climate and culture	Percentage of the employed with developed personal objectives	Development of personal objectives and proper activities which align with organizational objectives of the employees	Application of motivating staff methods	Encouraging staff to participate in training programs	Organization of regular meetings in order to evaluate the progress of the process

Mylona et al. (2018, 10) state that "transformation of an educational organization into an open and dynamic school is a long-term process that requires thorough planning and contribution of the all interested parties". By applying the model and by implementing it through everyday activities, schools have achieved certain benefits (Mylona et al., 2018, 13):

The involvement of teachers and students is enabled by the influence of strategy at all levels by developing everyday actions and activities at personal and group levels;

Engagement, encouragement and development of the personnel in decision-making and planning of educational processes;

Correlation of change indicators and enabling the monitoring of the strategic goal achievement in a dynamic manner;

Option of feedback information and learning that makes it possible for the organization (school) to become more effective (opportunity of adjusting the parameters in the function of the organization improvement);

Full coordination of organizational activities;
A more objective allocation of resources.

Certainly, the application of this model for performance consideration and measurement enables the change in the consciousness of participants in the educational process and provides guidelines for monitoring, control and improvement of behaviour of the employees (Mylona et al., 2018).

Gündüzalp & Arabaci (2017) offer a set of recommendations for creators of educational policies that is related to those who need to apply the Balanced Scorecard and a special set of measures for researchers of these possible activities of measuring school performance. The most important recommendation from these authors is that teachers should pass through an introductory training related not only to working with customers of educational services (students and parents, and possibly other parties

interested in educational outcomes), but also to the learning and improvement of the Balanced Scorecard concept. Second, having in mind that school inspectors have a different opinion regarding the application of the Balanced Scorecard that is negative compared to other examined groups, it is recommended that they also pass through the introductory training or introductory activities in the application of BSC. Certainly, basic recommendation directs that this concept should be supported from the national level by educational authorities and the software support should be worked out and developed to ensure effectivity and efficiency of the application of the Balanced Scorecard concept.

4. Concretization of the implementation of the balanced scorecard (BSC) – alignment of balanced scorecard perspectives for organizations of pre-university education

The system of pre-university education is made up of a unique and complex range of tasks that are dominantly or completely in the sphere of intellectual activities. Therefore, consideration, control and measurement of effectivity and efficiency of activities in these organizations pose a specific problem compared to industrial business entities or other production activities. Thus, mechanisms and models of performance measurement used in economics require a specific adjustment for this sector, whose clients are users of education services.

The Balanced Scorecard is one of the comprehensive tools for performance measurement and it also finds its utilization in the system of educational institutions where it can be used to classify different and organically linked processes into defined perspectives and enable consideration of contributions of some of them from various points of view – sometimes as indicators and

factors whose impact has characteristics of imperfection, but sometimes also a temporary effect with an impact on the creation of future events. We classify these elements in one situation as lagging indicators and in another, depending on their role in the process, as leading indicators.

Definition of outcome measures is not an easy work due to the fact that it is necessary to strike balance between lagging indicators and leading indicators, so as to better comprehend the processes that occur within an organization (Domanović, 2010, 53). In this work it is necessary that all stakeholders, and first and foremost the direct participants in the work process together with the management, become involved in establishing measures, an indicator list in order to satisfy the essence of the Balanced Scorecard – to “include outcome measures and performance drivers of outcomes, correlated reciprocally in the cause-and-effect relationship.” (Domanović, 2010, 51).

Applying a tool such as the Balanced Scorecard to one specific field requires

capability of understanding and translating statements related to operation processes within the profit sector (for the purpose of which this approach was generated in the first place) into proper formulations for the public sector processes, especially in the field of education, as *specificum par excellence*.

In Table 2, examples of lagging measures and leading measures are given that are related to school processes. It is necessary to notice that in various circumstances some measures have the character of lagging measures, while in other circumstances they are leading measures. For example, the summative assessment has a character of lagging measure as its primary characteristic; however, in the process of assessment, in the totality of the process of monitoring and evaluation it can be a leading measure, due to the fact that it is only one among several indicators for the future general success of students in a greater whole of monitoring and evaluation of the learning process.

Table 2. Lagging measures and leading measures. Source: Authors

Outcome measures	Lagging measures	Leading measures
Definition	Measures focused on outcomes at the end of defined period which normally characterizes historical outcomes.	Measures which “incite” or lead to implementation of lagging measures, measuring interstage processes and activities.
Examples	Results of final examination (at the end of compulsory education). Overall success of students at the end of the school year. Summative assessment. Students' satisfaction. Parents' satisfaction. Reports on the school process implementation. External evaluation of the school – report.	Students' success at the end of a classification period (totality during the learning process). Formative assessment. Participation of students. Participation of parents. Instructional-pedagogical insight. Operational planning. Analysis of implementation and plans for improvement of school processes. Plan of improvement of educational work after external evaluation.

When we think about the perspectives of the Balanced Scorecard and concretize presentations for the field of education, that is, for institutions of pre-university education

– predominantly for primary and secondary schools, Table 3 presents how financial perspective is aligned to this segment of operations.

Table 3. Finance perspective – Institutions of pre-university education. Source: Authors

Financial measures	
Total assets	Costs
Receipts	Total costs
Total receipts	Debts
Investments	Receivables
Money flows	Liabilities payment
Expenses	Inventories
Total expenses	Diversification of receipts and expenses (Ministry, local government, own assets, parental aid)
Money spent on doing teaching outside of school premises	Value of equipment, teaching aids

Finances for the sector of pre-university education do not have the same character as they do in the business sector, that is, with profit organizations. Primary reason for the existence of an enterprise is making a profit. For schools, the primary reason is to realize educational services: in fact, it is the realization of the teaching and learning process in the narrowest sense, and in a broader sense it pertains to the realization of educational work which thus creates non-material values, and that could in the long run even produce material things. Therefore, with school finances, the most important thing for the money flows, receipts and expenses is to enable an unobstructed conduct of educational work, which means

that the inflow of the budget assets and realized own assets enable, in terms of quality, conducting of the core-process of teaching and learning and all accompanying activities in which value is created by organized learning. If the planned cash flow dynamics – that is, regular financing – as well as necessary investment are missing, this can lead to a disruption in working processes, so that educational institutions would face problems with focusing on designing and implementing their educational activities. School would lose its ontological dimension and would have to deal with problems that do not belong to its relevant sphere of operations.

Table 4. Perspective of Customers (service users) – Institutions of pre-university education. Source: Authors

Customer measures (service users)	
Satisfaction of students	Number of adopted students' initiatives
Satisfaction of parents	Visits by the interested parties for enrollment to school
Loyalty to school	Costs for school promotion
Number of students in school	Number of advertisements on enrollment to school
Number of students who were transferred to another school	School reputation
Number of newly arrived students	Number of students per grade and class
Number of adopted parents' initiatives	Estimate of spent assets per student for improvement of educational work
Number of students with special educational support	Support to students with problems in behaviour

The perspective of customers (clients or service users), is presented in Table 4 – measures for performance assessment are listed, giving the insight into how students and parents participate and see the process of value creation in the school that students have chosen. Certainly, the education market or market for educational services is different by nature from the market for profit organizations and so it has limited functions in accordance with regulations for this field.

For example, enrollment policy in primary schools gives advantage to territorial belonging, whereas this is not the case with the secondary schools. There are other limits and differences compared with the profit sector that make this field special (for example, schools do not bear financial risks of operations under the influence of educational service market, as is the case in other fields).

Table 5. Perspective of internal business processes – Institutions of pre-university education. Source: Authors

Measures of internal business processes	
Respect of the daily rhythm of class schedule (average number of daily interventions in class schedule change)	Degree of utilization of school premises
Integration of local community into school work	Software update and informativeness of electronic grade book
Number of planned but not held classes	Reactions to parents' complaints
Response time to requests of students	Reactions to students' complaints
Response time to requests of parents	Complaint to a student's grade
Continual improvement of educational process (incremental and radical)	Number of complaints to students' assessment
Planning, programming and reporting	Participation of students in school processes
Precision of planning	Participation of parents in school processes
Mediation among school organs, teams, teaching staff	Number of elective courses
Number of specialized classrooms, laboratories	Number of optional activities
Introducing new employees to work processes – procedures	Procedures for newly arrived students – process of alignment to new environment
Procedures for special students' support	Development of tracking procedures, validation and assessment of students' work

To have the Balanced Scorecard in its full capacity, it is necessary for an organization (school) to thoroughly describe all its processes. The clarity and realization of school's control functions, as well as the school performance assessment, depend on the defining measures of internal processes. Table 5 presents internal school process measures that are complex, organically connected and inseparable from each other – they take place at the same time in a dialectic course and it is possible to consider them separately, so that together they provide us with the whole picture. The better we define and the more sophisticatedly we perceive individual educational and upbringing processes, the more complete picture of the

school as a whole process we will obtain.

All perspectives of the Balanced Scorecard are interconnected and interact with each other during the implementation of tasks that take place within an organization. In schools the educational work takes place that creates values for service users, in the first place for students and parents, then for others stakeholders (teachers, immediate environment, local government, state and society in their entirety). It is necessary for these processes to be improved by building or in actual fact developing competences of those responsible for their implementation in order to ensure high-quality educational work.

Table 6. Perspective of learning and development of employees – Institutions of pre-university education. Source: Authors

Measures of learning and development of employees	
Participation of employees/teachers in the work of professional and vocational associations	Number of teachers trained by different teaching methods, techniques of learning with the aim of improving educational work
Number of trainings for employees	Absence from work of employees
Number and specification of horizontal professional improvement within the institutions and outside of it	Fluctuation rate of employees
Number and specification of accredited trainings of professional improvement in school and outside of it	Proposals of employees
Number of teachers who are attending additional academic competences improvement	Satisfaction of employees
Motivation of employees for work	Options of allowance to compensations of employees
Working environment quality	Internal communication rating
Number of completed cards of results	Safety at work
Ratio of competence coverage	Achievement of personal goals
Leadership development	Planning of communication/exchange
Percentage of employees who use any form of ICT in the process of teaching and learning	Number of teachers who are capable of the realization of the distance learning
Capability of employees for performing multifunctional tasks	Knowledge management
Ethos of employees	Use of platforms for distance learning
Instructive-pedagogical work in school	Interdisciplinary connecting – role of professional councils for specific field
Trainings for support to the students' families	Trainings for monitoring and evaluation of students' work

The knowledge necessary for the employees in pre-university education is acquired in different ways and through different processes. It can occur by school officials giving instructional-pedagogical insights, by horizontal exchange in professional councils, in accredited and non-accredited trainings, by formal academic education or informal or non-formal ways of acquiring knowledge. Improving educational work in school is unthinkable without continuous professional development of employees in an environment that encourages and nurtures good ethos, organizational culture and a pleasant working atmosphere. Table 6 provides some criteria for assessing school performance from the perspective of learning and employee development. Certainly, that perspective of learning and employee development also takes into consideration

the movements within the teaching community, employee retention, dynamics and effects of acquired knowledge. If there is constant employees' fluctuation or a large number of them work in many schools, it will certainly be more difficult to constantly provide the same training for employees rather than to focus on upgrading previously acquired knowledge for conducting the work process.

Based on the stated it is clear that for each school there exists a unique card of results in the sense of the performance criteria that are used. This provides authenticity of performance assessment for each educational institution, but it also provides the authenticity of the performance set that characterizes it.

5. Conclusion

Contemporary approaches to performance measurement appeared as a necessity for they also included non-financial indicators of the success of operations, which do not only measure final processes but also enable assessing the consequences of decisions that have just been made or are yet to be made. The Balanced Scorecard is one of the several contemporary approaches to performance measurement, which is comprehensive and respects financial as well as non-financial indicators of operations. The educational field in its complexity requires just one approach personified in the Balanced Scorecard – it assesses and measures performance from various aspects creating a clear picture of the circumstances and offers opportunity for the informed decision-making for the future. The academic papers and studies that were the subject of this research enable the insight into different practices and theoretical observations in relation to the Balanced Scorecard in the field of operations of educational institutions. Most of the available research studies are related to higher education institutions, but it is possible to perform interpolation on pre-university systems of organized learning (primary and secondary schools primarily).

The Balanced Scorecard makes it possible for schools to articulate an authentic choice of indicators that illustrates their specific quality in the best way and helps them control their processes and behaviour of employees (by including interested parties as well – in the first place, students and parents, then immediate environment, local and national authorities) in the aim of improving educational work. By making use of the examples of those who concretized instruments of the BSC, it is possible to make a collective list of indicators that can be updated and also used as an idea for application in individual cases of organized learning. Schools which were active in different socio-educational contexts

successfully used the Balanced Scorecard, considered their operations and improved them in order to contribute to educational service users but also making it possible for employees to improve the organization.

Teachers and principals notice that using the Balanced Scorecard enables raising and nurturing organizational culture and ethos, improves participation in school processes, while inspectors express reservations; thus, research authors recommend initial or introductory trainings for using this method of the performance measurement, as well as a set of measures for sustainability (support of national education authorities, digital system of support for the performance measurement etc.).

Leadership process, which is immanent to the nature of organization and functioning of the school by the application of the Balanced Scorecard acquires a powerful ally for successful profiling of operations by monitoring and improvement of performance.

In relevant references that were researched for this paper, there is no an integral conceptual framework for performance measurement in the institutions of primary and secondary education. There are numerous different implementations that were analyzed and the findings were synthesized (integrated) in a single review or collection of possible indicators for the performance measurement by the means of the Balanced Scorecard. The special value of the BSC approach lies exactly in the fact that it recognizes the diversity of educational contexts and that by its application it provides a clear picture of performance and enables maintaining authenticity of each subject of organized learning. In this way, after each application of the Balanced Scorecard for performance measurement, the plan for improvement of conditions can be established as well as aligned to a specific context in which the educational work is performed.

Concretization in the field of education at the level of institutions in this research produced possible measures for lagging and leading indicators; thus, due to the simultaneous unfolding of many different processes within the unique educational work we get a duality of these terms. In one consideration, a measure is a lagging indicator, while in another it is a leading indicator, depending

on the purpose or intention of observing the specific issue within the unique totality of a school.

In any case, the Balanced Scorecard is a usable tool for researching one's own strengths and weaknesses, but also a powerful tool for improving pre-university educational institutions.

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Appendix

Table 7. Chosen Indicators classified by fields of measurement – variables. (The Balanced Scorecards - The Baldrige National Quality Program - Education Criteria for Performance Excellence) Source: Karathanos & Karathanos (2005) – Synthesized.

Measures	Description of measure fields	Application of concretization
Process of students' learning	Outcomes should be based on different evaluation methods, to support general mission of the organization and goals of improvement and to represent overall holistic assessment of students' learning.	Different tests for knowledge and students' achievement. Self-assessment of knowledge and achievements. Students' profile (profile of learning). Rate (number) of students with special diplomas. Total average of grades (overall achievement of students). Rate (regularity) of lecture attendance. Active (interactive) learning. Digital competences. Skills development: leadership, problem solving, conflicts, communication. Respect of diversity. Evaluation of skills by employer (basic skills, communication...).
Outcomes directed to students and interested parties	Measure of satisfaction of students and interested parties with specific characteristics of the educational program and services, delivery, interactions and transactions with impact on development and learning of students and future activities of students and interested parties.	Satisfaction of interested parties (students, community, personnel) – leadership, strategic planning, directedness towards stakeholders, information, staff, processes, outcomes. Satisfaction of graduates – basic skills, individual needs, personal development, transitional skills, technologies. Average of daily participation in the activities. Number of hours devoted to drafting out students' papers. Overall satisfaction of students. Key indicators of satisfaction – Teachers, technologies, atmosphere. Rate of elimination from the system. Drug abuse. Rate of class attendance. Overall satisfaction of parents. Satisfaction of learning from home (or on-line learning). Exhaustion of students. Number of additional enrollments to school. Number of students who repeat the grade. Satisfaction of students with environment. Assessment of school by the community or the environment. Positive recommendations.

<p>Budget and financial results</p>	<p>Teaching and general administrative costs per student, levels of tuition fees and tuition fees, resources redirected to education from other fields, increase in scholarships.</p>	<p>Revenue – from state, local government, grants, participation of parents... Earmarked funds from state – for teaching, current operations... Earmarked funds – individual needs, technologies, transitional skills, basic skills, personal development... Expenditure per a student – state assets, local government, grants... Spending – maintenance, operational costs, teachers' salaries, allowance to compensation... Scholarship, renting costs (students' residence). Deviation from the budget plan at the end of year, financial reserves...</p>
<p>School and personnel results</p>	<p>Rate of innovations and proposals; completed courses or educational programs; learning; improvement of performance at work; cross-training rates; cooperation and team work; exchange of knowledge and skills among working positions, units and locations; welfare, satisfaction and dissatisfaction of employees</p>	<p>Personnel assessment – leadership, strategic planning, students, information, school/personnel, educational and processes of support, outcomes. Compensations based on efficiency. Using ICT in the aim of exchange (e-mail, Viber, messages). Environmental factors – health, safety, ergonomics (adapting working conditions). Satisfaction with school; employees' satisfaction, transfer of employees, Complaints on work. Development of school/staff – building of leading team, personnel growth and development, time spent in training, supervision over employees' work (satisfaction with listed items). Satisfaction with development programs for employees. Communication between grades. Moral indicators (ethos), welfare and opportunities for professional development. Satisfaction of employees. Confidential complaints by staff. Diversity (relationship to minority groups). Discrimination and harassment. Opportunity for professional development and improvement. Injuries at work and professional illnesses. Availability of trainings in the field of ICT – software and hardware.</p>

<p>Results of organizational effectivity</p>	<p>Capacity for improving efficiency (achievement) of students, development of students, educational climate, response indicators to students' needs or interested parties, efficiency of business partners, key measures or indicators of implementation of organizational strategy and action plans.</p>	<p>Performance/efficiency at final examination (fulfillment of educational standards). Efficiency on tests from various courses. Efficiency at various examinations out of school. Contextual educational classes offered per student on a weekly basis. Availability of Internet to students. Bandwidth of the school website. Informativeness of the school website and opportunity to perform distance learning using it. Opportunity of distance learning. Using platforms for distance learning. Efficiency of educational design and delivery of educational material. Satisfaction of students with directing and advising. Costs and safety of students' transportation. Enrollment of students. Number of teachers in school. Alignment of school with regulations. Education of adults and parents. Trainings and workshops for parents. Various ethical codexes and rulebooks in school – respect. Teaching plans and programs. Special educational programs. Laboratory and demonstration room teaching. Students' assessments of using: computer laboratories, library support services, nutrition services (kitchens and canteens). Efficient use of electrical energy and trends in using energies (energy efficiency).</p>
<p>Results of management and social responsibility</p>	<p>Fiscal responsibility, internal; and external; measures or indicators of ethical behaviour and trust of interested parties in the management of the organization (school); alignment with regulations and laws; organizational citizenship.</p>	