

Article

Review of Selected Performance Measurement Models Used in Public Administration

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Abstract: The main goal of this article is to define the characteristics of and to evaluate the three selected models used to measure the performance of public administration bodies, with an emphasis placed on their application in different perspectives. The contemporary public administration institutions are obligated to increase their operating efficiency as well as the satisfaction of their stakeholders. This is precisely why they have been implementing diverse models, especially those already used for years in managing profit-oriented organisations. The models chosen for analysis are applied in public administration, making it possible to measure numerous indicators of both financial and nonfinancial nature. The research method adopted by the authors is a conceptual literature review performed using the resources of the Scopus, Springer, WoS, Emerald, and EBSCO databases. The items subject to analysis were the 3Es (i.e., economy, efficiency, effectiveness) and IOO (e.g., input, output, and outcome) models as well as the model included in the BSC (Balance Scorecard). The research has evidenced that each of the models has its strengths and limitations. The results thus obtained have led to a conclusion that the solution showing the highest potential in the area of the study is the performance measurement model proposed under the BSC; however, according to the authors, it still requires some fine-tuning to public administration's operating conditions and organisational culture. The article also highlights the fundamental operationalisation problems related to the subject in question.

Keywords: public administration; performance measurement models; performance

1. Introduction

The social, economic, technological, and organisational changes one can observe currently affecting our world, the related digitisation of the public sector, and the implementation of e-Government or t-Government (Weerakkody and Dhillon 2008; Weerakkody et al. 2011; Janssen and Estevez 2013) have become the very reasons why public administration's activity is now oriented towards performance measurement. The concept of New Public Management (NPM)¹ has significantly contributed to the reorganisation of public administration. The very essence of NPM is to improve the functioning of public administration by using solutions which have been proven effective in the private sector. The foundation of the NPM concept is implementation of business models for which implementation aims at improving the quality of public services. Under the new public

¹ New public management was originally applied in the UK, only to become commonly accepted in other countries such as Australia, New Zealand, and the United States.

management concept, the functioning of public organisations is mainly oriented towards fulfilment of specific results by using *performance management*.

Further stimuli for making public administration operations more result oriented are the growing requirements of citizens, the IT development, and the increasing competitiveness of economies, which calls for the state to undertake effective and efficient actions.

In this context, the emerging new social and economic trends are also of significant relevance, and these particularly include the ageing society, the increasing social inequality, the growing urge to ensure greater accountability and transparency at different levels of government, and the climate changes or the limited access to resources that are commonly witnessed ([Global Trends to 2030 2017](#)). On top of that are the growing demands of citizens, the evolution of the IT sphere, and the growing competitiveness of economies, the latter requiring effective and efficient operation of the state. If public institutions are to anticipate and successfully respond to the emerging new problems and challenges, they need to think and act strategically and to be capable of measuring their performance not only from the perspective of short-term results but also, above all, by taking long-term achievements into account ([Bryson et al. 2014](#); [Calogero 2010](#); [Micheli and Neely 2010](#); [West and Blackman 2015](#)). What appears to be particularly important in the context of all these problems is acquiring information which makes it possible to improve these operations by catering to the current needs of the entire environment.

Efficiency improvement is consistent with the objectives of public administration ([Carmona and Grönlund 2003](#); [Yuan et al. 2009](#)). Defining measures and performance measurement comprise one of the stages of efficiency management.

Our opinion is that analysis and review of the literature on the subject of performance measurement in public administration is justified by the relevance of this problem from the perspective of a discourse on the rationale behind evaluation of both the internal efficiency of public institutions and the satisfaction of different stakeholder groups. Given the considerable diversity of the organisations operating in the public sector, our elaborations have been limited to local government authorities, where lower efficiency is still observed compared to the private sector ([Jin 2013](#)) and which tend to be focused more on procedures than on the outcomes of their actions.

The article has been developed in a specific structure. Its first part provides a literature review into the research in the field of efficiency management in public administration. It provides the foundation for formulation of the research problem and objective. What follows is a discussion on the characteristics and specifics of public administration, explaining the grounds and substantiating the need for measurement of its performance. Further aspects described in the paper are the 3Es and IOO models as well as the model included in the BSC (Balance Scorecard). Another section explains the research methodology. In the research results section, the authors have provided their critical evaluation of individual models, highlighting the need to compile their advantages and to match them closely with the context of public administration. They have also indicated the practical implications of the analysis, arguing that the choice of a performance measurement model may cause management of a public administration body to become oriented to a greater extent towards efficiency and effectiveness improvement as well as increase in the satisfaction of various stakeholders. In the closing paragraphs, the authors have also discussed the limitations of their study as well as plans for future research work.

2. Literature Review

The studies reviewed in the field of efficiency management in public administration can be divided into three groups. The first one concerns the efficiency measuring methods ([Ho 2006](#); [Wang and Berman 2001](#)). The second group comprises publications emphasising the increased use of information from efficiency measurement (including performance) ([Abdel-Maksoud et al. 2015](#); [Folz et al. 2009](#); [Kroll and Moynihan 2015](#); [Moynihan and Lavertu 2012](#); [Yang and Hsleh 2007](#)). The last group includes papers focused on the results of empirical studies concerning the impact of performance management on the results obtained ([Gerrish 2016](#); [Poister et al. 2013](#)). In summary of the studies referred to above, it can be noted that their attention is focused on the need for the measurements in question

as well as on the necessity of selecting adequate measures, using a consistent measuring system, and appropriate interpretation of the results obtained (i.e., performance). Moreover, some authors (Dimitrijevska-Markoski 2019; Van Helden and Reichardt 2013) argue that the use of the information acquired from the measurements is insufficient and that the scope of the measurements should be integrated with the relevant development plans.

The literature review (Grizzle 2002; Moynihan 2006) implies that the manner in which public administration functions is evaluated mainly from the angle of the services rendered as well as the level of utilisation of financial resources. Far from denying this approach in which the advantages are numerous, we believe that one should pay more attention to the need for measurements of other nonfinancial parameters, for which the levels determine the long-term development not only of the organisation itself but also, in the case of public administration, of municipalities, communes, or entire regions. As Van Van Dooren et al. (2012) noted “the development of performance indicators for public administration requires an understanding of two defining features of the nature of public administration. First, public administration is about enabling rather than delivering. Public administration almost never provides final goods and services. Public administration, however, is a precondition for the successful operation of other government departments.”

Bearing in mind that the measurement scope affects the results thus obtained (performance), it seems reasonable to ask what models should be used to perform such measurements in order to be capable of evaluating both short- and long-term effects. This article attempts to answer this question. Its goal is not only to define the characteristics of and to evaluate the three selected performance measurement models applied in public administration bodies by focusing on their utility value in terms of both short- and long-term outcomes but also to identify the fundamental operationalisation problems.

2.1. Specifics of Public Administration

Compared to the private sector, the functioning of public administration is different in several important aspects. The main difference is the dichotomy of the customer perception. For public administration, a customer is both a citizen and a recipient of certain public services (Alford 2002). Consequently, the actions being undertaken should be differentiated according to who they address. The needs of the public service recipient and those of the citizen may differ. What the former expects above all is high-quality public services, while the latter mainly counts on the possibility of participation in democratic decision-making processes as well as on implementation of the public strategy and mission by representatives of authorities. It should be noted that it is the fundamental complexity of the notion of a customer that makes it so difficult to implement unambiguous measures for examining the outcomes of the efforts undertaken by public administration bodies.

H. G. Rainey (2003, p. 75) highlighted the distinguishing features of public organisations. What should be noted is the lack of typically market-like behaviour of organisations, resulting from the fact that their operations are publicly financed, from their low level of motivation to reduce operating costs, and from the lack of clear indicators for measuring their performance, which managers could use in the decision-making processes. On the other hand, these organisations render important services, the use of which is often mandatory or inevitable for citizens. Further characteristic features are also the external political influence which limits the decision-making autonomy of managers and the existence of various connections within the environment which may affect how organisations function. What also matters from the perspective of the efficiency they can attain is the high intensity of manager turnover resulting from the tenure-based system of their positions. It often causes difficulties in implementing plans and introducing changes, while bureaucratic structures limit innovation and creativity of employees.

An important aspect to the functioning of public administration is also its nonprofit nature, which rules out evaluation of the organisations of this kind in terms of profitability. However, the added value they create may be greater than in the private sector because it is not limited by the profit criterion and the public interest is decisive (Perry and Vandenaabeele 2015).

The above arguments imply how complex it is to evaluate the functioning of public administration. One should also note that such an evaluation is performed by different kinds of supervisory bodies, and as such, it must also be aligned with their requirements.

There are also suggestions that public organisations which manage public funds are obligated to display more attentiveness to the effectiveness of the actions they undertake than private organisations (Kalleberg et al. 2006).

What also matters is that, on account of common access to information and the increasing level of education of the society, one can observe growing awareness and knowledge of citizens who expect advanced solutions and efficient service from public administration, as they do from businesses. All the above arguments make it reasonable to look for solutions that can improve how public administration functions. On top of that, there is also a need for continuous improvement of every organisation by relying on adequate measurement of its efficiency in operation.

2.2. Essence and Rationale of Performance Measurement in Public Administration

To interpret the notion of *performance*, one should refer to its origin, as defined in the English literature on the subject. The rationale behind performance measurement stems from the general systems theory by Weiner (1948) and Bertalanffy (1968) (Smith and Bititci 2017). Neely et al. (2000) claimed that “a performance measure is a metric used to quantify the efficiency and/or effectiveness of action.” Performance measurement must be conducted in an organised fashion. Consequently, one can also speak of efficiency management for which the purpose is to define objectives and to ensure that such objectives are achieved throughout the planning and control cycle. This is achieved by taking appropriate actions using specific tools and mechanisms that should serve not only to measure and evaluate the performance but also, above all, to improve the performance (Vignieri 2018). In this publication, *performance* is used in the sense of *results*, and results as such may be evaluated in terms of products, outcomes, impacts, effectiveness, and efficiency. The aforementioned criteria can be assumed as the dimensions of performance measurement with regard to the operation of public administration bodies. However, for purposes of their explicit interpretation, these criteria need to be defined in more detail (Table 1).

Table 1. Interpretation of main notions used in the sphere of performance measurement.

Main Notions	Definition
Output	Short-term result of completed activities, taking the form of products or services
Outcome	Intended indirect effects exerted on target groups: outcomes are changes in the institutional and behavioural capabilities to create development conditions, generated between the completion of certain results and the achievement of objectives. Outcomes represent the achievement of different kinds of priorities resulting from the assumed operating strategy. Outcomes may be, for example, deliverables of projects or their consequences as perceived by the relevant beneficiaries.
Impact	Long-term improvement experienced by the society

Source: authors' own elaboration based on Resource Based Management Part 1, <https://unhabitat.org/?rbm-handbook=1-1-what-is-results-based-management> (accessed on 2 August 2020).

The output products or services correspond to the achievement of operational objectives, outcomes are related to the pursuit of tactical objectives, while impacts are consequences of fulfilling strategic objectives. What matters in the public sector in the short-term perspective is the results of the public services provided, which should be analysed against the level of customer satisfaction. Achievement of the outcomes entails certain specific benefits for the target group, while the impact translates into a long-term effect on the society.

The results of the research to date (Van Helden and Reichardt 2013) indicate that the measurement of public administration functions is focused on obtaining specific products, and much less attention is paid to the measurement and evaluation of results and impacts.

In order for measurements to be performed properly, one must first precisely define the measurement criteria resulting from the objectives assumed. R.D. Behn (2003) argued that performance measurement has eight purposes, i.e., to “(1) evaluate, (2) control, (3) budget, (4) motivate, (5) promote, (6) celebrate, (7) learn, and (8) improve”.

The complexity of public administration highlights some important problems in adequate performance measurement, and consequently, this aspect is treated as “the Achilles’ heel of administrative modernisation” (Bouckaert and Peters 2002). Thomas and Jajodia (2004) pointed out that some dominant trends are short-term thinking and risk aversion. Another problematic issue is the utility and the actual utilisation of measurement results. Numerous authors (Van Helden and Reichardt 2013) claimed that the measurement results obtained by public administration bodies are not used to the fullest in increasing their efficiency and in improving their operations, and so, they only serve to fulfil the reporting obligations.

Meanwhile, adequate use of information concerning the measurement results corresponds to the obligation to account for the operational outcomes actually attained before the society, both in terms of the activities performed directly by the given entity (output) and those caused by output in the society (long- and medium-term outcomes). Such objectives should be achieved by acting in accordance with the law and the principles of economically sound finance management, i.e., in line with the principles of economy, efficiency, and effectiveness.

In discussing the measurability, Bouckaert and Halligan (2007) pointed out the existence and relevance of three levels of analysis (macro, micro, and mezo) as crucial elements of performance measurement. The micro level represents the organisation’s efficiency level, also referred to as the managerial level. The macro level is the global level comprising the aggregated social results evoked in the given country, while the mezo level pertains to the network of organisations involved in the implementation of public sector policies. On each level, specific results are generated. The output is generated on the micro level, the outcome emerges on the macro level, and the mezo level enables the impact to be assessed. The choice of level determines the type of measurement criteria to be applied (Bianchi 2010). What is commonly being stressed at present is the *performance paradox* phenomenon, i.e., a threat of a weak correlation emerging between performance indicators and the performance itself in the public sector (Van Thiel and Leeuw 2002). Consequently, the emphasis is placed on the need for using the data previously obtained for education and improvement purposes as well as for moving away from accountability mechanisms.

3. Materials and Methods

In order to fulfil our research goals, we conducted a conceptual review of the literature on the subject, namely of the most popular journals addressing the subjects of performance measurement, performance measurement models, and public administration.

It was conducted by browsing through the electronic publication databases of Scopus, Springer, WoS, EBSCO, and Emerald. The choice of the above databases was dictated by several factors, first of which was that they contain a list of most international publications representing various scientific disciplines. Secondly, the papers which can be found there are both reviewed and indexed. The emphasis was placed on the scientific articles in English, entered into the databases before 31 May 2020. As regards the search itself, it was assumed that it would be performed by taking publication titles, abstracts, and keywords into account. In order to retrieve all the relevant documents and to exclude the irrelevant ones, specific selection criteria were defined. The literature research was conducted in 2 iterations. Initially, all publications (articles in journals, chapters in books, and conference papers) containing the phrases “public administration” and “performance measurement models” were taken into consideration. A somewhat small number of records was obtained in

that case, namely 32 in total. Moreover, not all of the publications found were actually related to the subject matter. Consequently, in the second iteration, the wording of the phrases searched for was changed, and the following combinations of terms were assumed: (“public administration bodies” or “public administration units” or “public administration”) and (“performance measurement system” or “results management” or “performance management”). A search based on such criteria returned a larger number of items, namely a total of 393 records (299 in the Springer database, 38 in Scopus, 24 in Emerald, 12 in EBSCO, and 20 in WoS). From among them, the authors eliminated 11 duplicates and 9 articles written in a language other than English. The adequateness of the remaining publications was evaluated by the authors by reviewing their summaries. The analysis took two months overall.

In order to fulfil our research goals, we conducted a conceptual review of the literature on the subject, namely of the most popular journals addressing the subjects of performance measurement, performance measurement models, and public administration. The research procedures are shown in Figure 1.

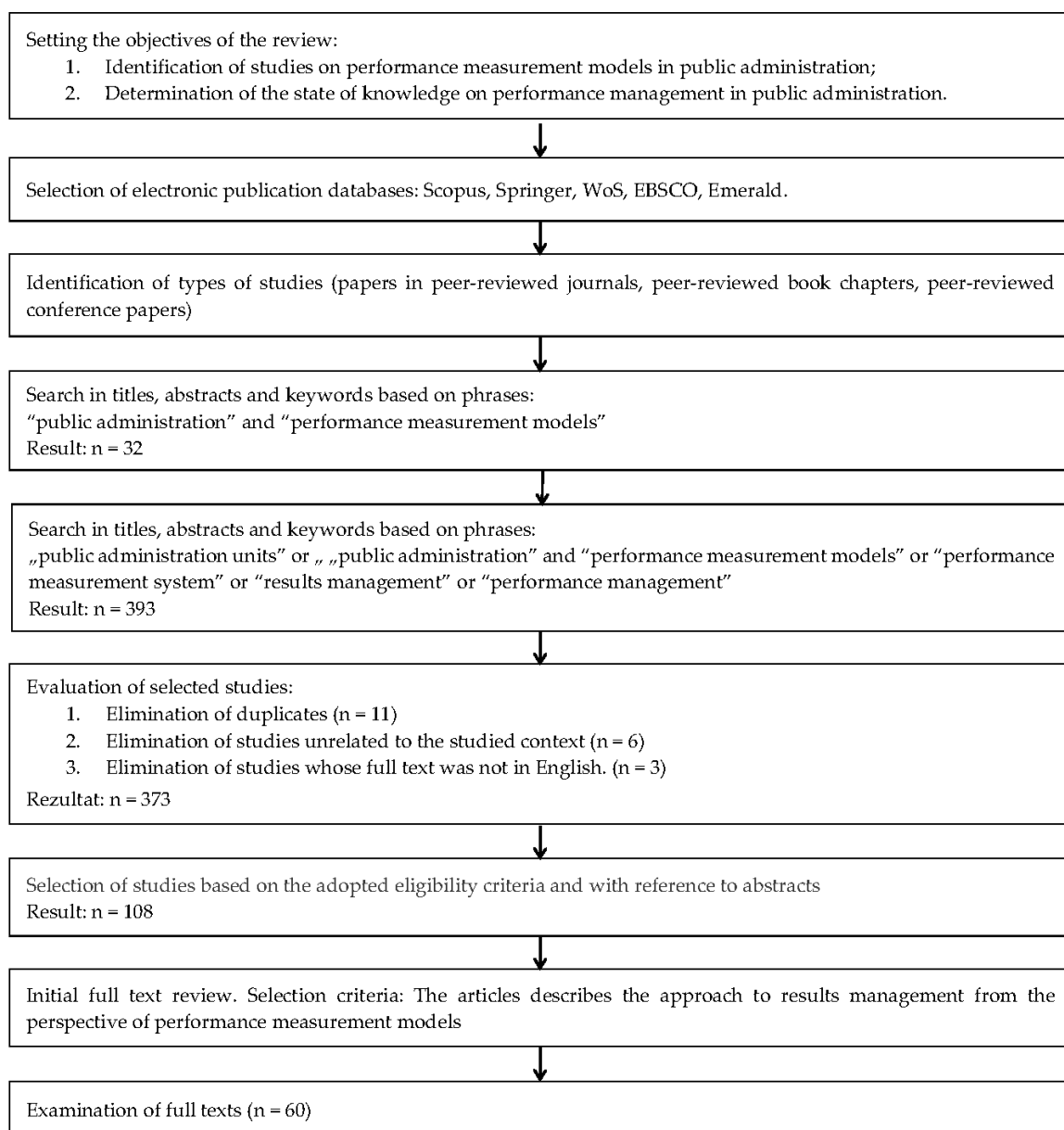


Figure 1. Schematic representation of the research procedures. Source: authors’ own elaboration.

Based on the relevant abstracts and the assumed criteria, individual studies were selected. Next, 108 full texts were initially reviewed. Consequently, in line with the criterion of the *adopted approach to performance management from the perspective of performance measurement models*, 60 full text publications were accepted for more in-depth analysis. Our goal was to identify differences in the approach to public sector performance management in the context of using different performance measurement models that are relevant to the conceptualisation of the problems in question (Petticrew and Roberts 2006, p. 39) rather than providing an overview of all empirical research results obtained in the area under consideration. The qualification of the studies was based on two principles. The review was conceptual in nature and was limited to the articles published in peer-reviewed journals dealing with performance management in the public sector. We particularly paid attention to the fact that, among the full texts taken into account, there were studies directly referring to performance measurement models applied in public administration and to performance management at large. The papers used to the largest extent were those published in the periodicals representing the area of public sector management and accounting. The following are the journals used the most: *Public Administration Review*, *Public Performance & Management Review*, *Public Money & Management*, and *The British Accounting Review*.

4. Results

Measuring the performance of public administration bodies first calls for some criteria to be defined. The academic and practitioner literature on performance indicators (PIs) generally draws upon two models of organizational performance that are related but not entirely consistent (Midwinter 1994; Boyne 2002). The first one is the 3Es model (i.e., economy, efficiency, and effectiveness), while the second one is the IOO model (i.e., input, output, and outcome) (Boyne 2002). The 3Es model is intended to help managers assess performance and then to improve it. This model works with the following three basic concepts. The first is *economy*, which is “frequently equated with the level of spending on a service but is more accurately defined as the cost of procuring specific service inputs of given quality” (Boyne 2002, p. 17). The *economy* criterion assesses the cost incurred to obtain specific resources, expressed as the amount of money spent on services. This indicator should be minimised, assuming that the services meet the quality criterion. The *economy* criterion is rather disputable because, for instance, minimising the consumption of resources required to develop an output product ensures cost-effectiveness but may also bear some adverse consequences reflected in the quality of the products delivered. *Efficiency* can be brought down to compare results and outlays. *Efficiency* means achieving specific effects with minimised involvement of resources, i.e., an optimal relationship between the expenditures incurred in pursuit of specific goals and the effects actually achieved. *Effectiveness*, on the other hand, stands for the measurement of the degree to which pre-assumed goals have been achieved. The individual criteria adopted in the model can be coherently combined with one another, while *efficiency* can be perceived as a hybrid of *economy* and *effectiveness*. Unfortunately, these three main parameters do not take any qualitative criterion into account, which is a very important problem when pursuing the objective of an utterly comprehensive measurement of effects. Moreover, one should note that maximising *efficiency* may exert a negative impact on the quality of the services rendered. Therefore, it seems that finding a balance between *economy*, *effectiveness*, and *efficiency* is the key to proper performance management. Hence, the conclusion is that the 3Es model needs to be complemented, since it does not refer to the effects on which the basis of both *efficiency* and *effectiveness* are evaluated, and it is indeed complemented by the input-output-outcome (IOO) model, also referred to as the input-result model. It is widely used in implementation of reforms in the sphere of public management (Binnendijk 2002). The assumption adopted for this model is that the resources allocated for individual entities are transformed under the processes they implement into specific products (output), being the initial link of the planned chain of results, causing society’s needs to be satisfied by obtaining outcomes in a mid-term perspective (outcome) and a long-term perspective (impact). Since this model duplicates cause-and-effect relationships (referred to as a logical results chain), it allows for the reasons why certain results have been achieved to be identified.

The results chain can be “analysed against three interrelated elements: chain of goals (main goal, specific goal, operational goal), chain of implementation (activities, processes, actions, sub-tasks, tasks, functions), and the chain of effects (output, outcome, impact)” (Kinyuira and Kenyatta 2019).

With regard to the foregoing, the output is generated as the operational goals are fulfilled, while the pursuit of the strategic goals translates into the outcomes and impacts attained. In other words, the model contains references to all the perspectives: micro, mezzo, and macro. The output indicators relate to activity. They are measured in physical or monetary units. The outcome indicators relate to the direct and immediate effect imposed on direct beneficiaries. They provide information on changes. Such indicators can be either physical or financial. The impact indicators refer to the consequences of the programme extending beyond the immediate effects. Specific impacts are those effects which occur after a certain lapse of time but which are nonetheless directly linked to the action taken and the direct beneficiaries. Global impacts are longer-term effects affecting a wider population (Binnendijk 2002).

Pollitt and Bouckaert (2011) suggest that input-output thinking can also be applied to public institutions and that performance can be related to public value. Public value can be reflected, for instance, in better living conditions for society as a whole, whereby public organisations create value when they satisfy the needs of citizens.

However, this model is essentially unsustainable, placing the emphasis more on the interests of external stakeholders than on those of the internal ones. As such, it does not take into account the level of satisfaction of internal customers as well as that of external customers, the latter being determined by the former. Moreover, the IOO model is strongly focused on the evaluation of the outcomes brought to the customer understood as a recipient of administrative services. This model also marginalises the role of the citizen. In light of the above, the model concentrates on evaluating the quality of services rather than on development of the standards of democracy (Boyne 2002). Therefore, one can draw a conclusion that this goal can be achieved by adding indicators of democratic outcomes to the indicators of service (Boyne 2002).

It should also be noted that yet another criterion assumed for measurement of the functional efficiency of public administration should also be citizens’ satisfaction (Alford 2002), making it possible to verify not only compliance in the fulfilment of the goals but also the degree to which society’s needs have been satisfied. The above observations correspond with the concept proposed by Boyne (2002), who has created a list of indicators measuring the performance of public administration (Table 2). They have been broken down into five organisational dimensions comprising 15 specific dimensions of performance.

Table 2. Dimensions of organisational performance in local government.

Organisational Dimensions (Main PI Domains)	Subdomains
Outputs	Quantity Quality
Efficiency	Cost per unit of output
Service outcomes	Formal effectiveness Impact Equity Cost per unit of service outcome
Responsiveness	Consumer satisfaction Citizen satisfaction Staff satisfaction Cost per unit of responsiveness
Democratic outcomes	Probity Participation Accountability Cost per unit of democratic outcome

Source: (Boyne 2002).

According to G.A. Boyne (2002, p. 18), the effectiveness assessment included in the 3Es and IOO models is not sufficient to evaluate the provision of public services. In a sense, these limitations are overcome by the performance measurement model proposed under the Balanced Scorecard (BSC). The interest in the balanced scorecard in the public sector originally emerged in the context of Hoque's public sector reform (Hoque 2014). It is a multidimensional concept oriented towards the interests of all stakeholders which, when applied in public administration, makes it possible to formulate and measure the degree to which objectives are fulfilled both from the political and administrative points of view as well as from the citizens' perspective. On the one hand, using it may serve to increase internal efficiency, and on the other hand, it may provide the foundation for outward reporting and accounting for execution of the tasks at hand before local communities and politicians. The BSC is a managerial method aimed at strategy implementation by translating it into a consistent set of objectives, measures of their fulfilment, as well as the actions planned. In the public sector, as opposed to the private one, this ensures that management is oriented not so much towards the financial dimension but mainly towards the one where development takes place. The fundamental assumption underlying this method boils down to a statement that there are cause-and-effect relationships between individual domains. In the original version of the model, four domains are mentioned: the customer perspective, the financial perspective, the internal business process perspective, and the learning and growth perspective. In public administration, the customer dimension is connected with the local community which receives the public services and, on the other hand, provides the required funds; participates in job creation as well as evaluates the actions undertaken; and expects the best attainable living and working conditions, service, and natural environment. Besides the inhabitants, this dimension also pertains to other entities, among which, on account of the importance of economic development, entrepreneurs and investors are considered particularly important. It is their numerousness, activeness, and the nature of their activity that determine the unemployment rate, the population's income, as well as the proceeds to the local budget, and consequently also the local community's standard of living. In the short-term perspective, it is not easy to measure the results of the activities performed in this sphere, since the effects of, for instance, decisions concerning education, health care, or environmental protection are not discernible until some time lapses. That is precisely why it seems reasonable to use the indicators which indirectly reflect the effects obtained in this dimension (Niven 2008, p. 6). These may include, for example, GDP per capita, unemployment rate in the municipality or region, scale of social poverty, accessibility of health care facilities, average life expectancy of inhabitants, average level of education of inhabitants, their satisfaction/happiness level, average share of days with the CO₂ emission standard not exceeded over a year, surface area of walking and recreation parks, and forests per capita expressed in ha per person.

The dimension of internal processes is directly linked with the provision of specific public services. What matters particularly in this respect is ensuring consistency between the services provided and the resources used, and the availability of specific services, which are determined by the office hours of diverse public agencies, location, or technological equipment. Besides the aforementioned, another important criterion relevant for the perspective of evaluation of the implementation of internal processes is also the duration of the implementation itself. What has also been recently growing in importance is flexibility in the implementation of internal processes resulting, among other reasons, from popularisation of public consultations. The outcomes of processes depend on the time in which consumers affect the performance of the given process as well as the moment in which this actually takes place. Finally, from the point of view of evaluation of the process implementation efficiency, the gist of the problem is the rational use of resources, i.e., provision of services in a manner which minimises consumption of resources. A factor which hinders such an assessment may be the immateriality of the processes being implemented.

With regard to the financial dimension, according to many authors (Wisniewski and Ólafsson 2004), its role in the public sector differs from that in the private sector. It is not the key criterion, and obtaining a specific financial result is not the operational goal in itself but rather a condition for the activity

performed (Moore 2003). Despite its nature, this dimension cannot be underestimated because it refers to the specific objectives planned or the budget adopted, and it provides the grounds for substantiation of the expenditures incurred. This dimension should comprise objectives pertaining to ways of raising capital from various sources, i.e., bank credits and loans, or European funds. Tax policy and financial risk are further important elements. The measures which can be applied in this respect may consider the share of own income in total income, the share of operating surplus in total income, the share of property-related expenses in total expenses, the share of total liabilities in total income, the share of nonrepayable funds in total funds, the percentage share of budget deviation, as well as local charges and taxes.

The fourth dimension, i.e., development and education, creates a kind of infrastructure for the pursuit of the objectives defined in the other dimensions. In order to achieve high satisfaction of the local community and social trust as well as efficient, flexible, and effective implementation of internal processes, changes are required in the areas of human resources, technology, and the procedures being developed, while the public institution itself must be transformed into a learning organisation. What matters in this respect is assessment of the personnel's potential as well as measurement of their satisfaction with work, loyalty, and commitment to work. The evaluation measures used in this dimension pertain to the qualifications, competences, and motivation of employees as well as the capabilities of the information and IT systems in disposal. Bearing this perspective in mind, one should stress the aspect of the organisation's operational continuity, which is closely linked with the tenure system of the people in charge.

Recognising the need to adjust the BSC model to different operating conditions, Kaplan and Norton (2001a, p. 137) proposed a modified form of the BSC model intended for the public sector. It comprises five perspectives and refers to the costs incurred, value creation, authority support, internal processes, as well as learning and development. The former three are of overriding nature, since they stem directly from the organisation's mission and vision. The nature of the objectives and indicators falling under the internal process perspective is, on the other hand, executive towards the first three perspectives, while at the same time, they affect the learning and development perspective.

The BSC enables decomposing the strategy onto the level of strategic goals, followed by cascading them to the level of operational goals. Moreover, its adequate utilisation makes it possible to link the results obtained with the mission and strategy of the given public entity. This creates opportunities to measure and evaluate both short- and long-term performances of public administration. Furthermore, this also takes into account a wider group of stakeholders than in the IOO model, and more emphasis is put on the improvement of services and processes. It opens the possibility of applying nonfinancial indicators, which seems to be reasonable since goals are often defined in nonfinancial terms in public administration. When this measure is used, it is stressed that outcomes are to be evaluated by numerous stakeholders, who may and typically have conflicting expectations. However, when studying the literature on the subject, one can come across statements suggesting that it requires some adjustment to be effectively used in the public sector as well as fine tuning to the sector's organisational culture and values (Northcott and Taulapapa 2012; Moullin 2011).

Moreover, the research by Drevetton (2013) shows that development of the BSC in French organisations can help them to implement their respective visions and to introduce key and operational performance indicators. Gao (2015) claimed that "In this regard, the BSC not only acts as a diagnostic control but also provides an interactive system that allows different stakeholders to overcome information asymmetries in decision making."

Table 3 summarises the three models reviewed above, highlighting their strengths and weaknesses.

The research performed by the authors of this publication has shown that the 3Es, IOO, and BSC models all enable performance measurement and that all have significant limitations. They do not fully correspond to the current needs of public administration. The analysis of the strengths and weaknesses of each model has revealed that the BSC model shows great potential in the area subject to the study, since among the alternatives examined, this one takes into account the needs of various stakeholders to

the largest extent, making it possible to capture both the short- and long-term perspectives. Moreover, it enables performance measurement even in a longer time horizon, in conjunction with the adopted long-term mission and strategy. The possibilities it offers once implemented are well aligned with the current trends, which imply that the performance measurement models used in public administration should cover more than short-term output measures and attach greater importance to the measures of outcome and impact, among which nonfinancial measures which address the qualitative aspects play an important role (Moullin 2017). The perspectives comprising the BSC include customer orientation as their inherent component, which enables organisations to measure the satisfaction of both service recipients and citizens. The results obtained in this area provide grounds for confronting the validity and quality of the efforts undertaken with the opinion expressed by their target population. Furthermore, the BSC allows for the evaluation to assume diverse perspectives, which is not found in the 3Es and IOO models. This opinion is shared by other researchers, who also highlight the need for the public sector’s specifics to gain more significance in the model, even referring to the model as the Public Sector Scorecard (PSS) (Moullin 2017). According to R.S. Kaplan and D.P. Norton (Kaplan and Norton 2001b, p. 98), in order to make the BSC fully usable in public sector organisations, customers should be placed at the top of the hierarchy. A similar approach is suggested by P.R. Niven (2003, p. 32), who claims that the top of the scorecard should be reserved for operational mission, followed by the customer perspective (society) and then by the other three original perspectives.

Table 3. Comparative analysis of the performance measurement models used in public administration.

Model	Performance Measurement Criteria	Advantages	Disadvantages
3Es	economy, efficiency, effectiveness	<ul style="list-style-type: none"> - easy to use - enables assessment of the cost-effectiveness and efficiency of the use of public funds - applies both financial and nonfinancial parameters 	<ul style="list-style-type: none"> - comprises no qualitative criteria - measurement concentrates on assessment of short-term parameters - involves assessment of effects that have not been incorporated into the model - measuring economy, efficiency, and effectiveness does not guarantee that the appropriate actions resulting from the needs of different stakeholders are subject to assessment - disregards customer needs - creates no opportunity for holistic performance measurement
IOO	input, output, outcome	<ul style="list-style-type: none"> - allows for both short- and long-term perspectives to be captured - refers to the micro, mezo and macro perspectives 	<ul style="list-style-type: none"> - different stakeholders may have different views on the performance measurement (Hartley and Fletcher 2008) - multitude of stakeholders is conducive of divergence of interests - measuring outputs, outcomes, and impacts does not guarantee that the appropriate actions resulting from the needs of different stakeholders are subject to assessment - customer perspective may pass disregarded - citizen’s role is marginalised
BSC	<ul style="list-style-type: none"> - customer perspective - financial perspective - internal business process perspective - learning and growth perspective 	<ul style="list-style-type: none"> - allows for both short- and long-term perspectives to be captured - takes the needs of different stakeholders into account - enables measurement of satisfaction of both internal and external customers as well as of citizens - makes it possible to decompose the strategy onto the level of strategic and operational objectives as well as to measure the results achieved in this sphere 	<ul style="list-style-type: none"> - the organisation’s achievements, monitored using performance measures, manifest themselves at different times because the activities performed under the four perspectives do not proceed simultaneously - the hierarchic top-down control creates the temptation to manipulate the lower levels of the organisational structure and to modify the outcomes to match managers’ expectations (Anthony and Govindarajan 2004) - performance measurement may show dysfunctions (marginalising long-term investments, maximising short-term benefits, etc.) (Hoque 2014) - can only be used by the organisations for which an operating strategy has been formally adopted

Source: (Hartley and Fletcher 2008; Anthony and Govindarajan 2004; Hoque 2014).

It was for the analysis in question that our research became focused on the solution proposed, making the most of the advantage of the models analysed and reducing their limitations at the same time. In this way, for individual perspectives adopted from the BSC model, we proposed performance measurement indicators for local government authorities (Table 4). The indicators were developed on the basis of the concept proposed by G.A. Boyne (2002), provided in Table 2 of this study and supplemented with reference to the literature analysed.

Table 4. Performance measurement indicators recommended for local government authorities, grouped according to the Balance Scorecard (BSC) model perspective.

	Perspectives as per the BSC Model	Measurement Indicators
External factors	Customer value creation perspective	Consumer satisfaction Citizen satisfaction Public trust level Social initiatives Investor satisfaction Labour market development
	Support for authorities	Probity Participation Accountability Impact
Internal factors	Cost perspective	Cost per unit of output Cost per unit of responsiveness Cost per unit of service outcome Cost per unit of democratic outcome Equity Efficiency
	Process perspective	Quantity Quality Formal effectiveness Execution time for internal processes Flexibility in implementation of internal processes Fitting to the needs of the environment Process innovativeness
	Learning and development perspective	Staff satisfaction Employee loyalty and commitment to work Employee level of qualification, competence and motivation Level of use/implementation of information and IT systems Participation in development activities

Source: (Kaplan and Norton 2001a, p. 136; Boyne 2002).

5. Discussion and Conclusions

The evidence from our research suggests that the performance measurement model showing the greatest potential in the area subject to the study is the one proposed as part of the balanced scorecard. In our opinion, the measurement indicators proposed, grouped with regard to the BSC model-derived perspectives, create an opportunity to measure the performance results obtained by local government authorities in both short- and long-term horizons. Their important advantage is that they refer to the possibility of satisfying the needs of different stakeholders and of assessing the performance results obtained from the perspective of both recipients of public services and citizens representing a given community. The indicators proposed have been divided into two main groups. The first group refers to external factors which affect the level of perception of the given local government

authority by external stakeholders, while the second group consists of internal factors which provide information about the efficiency of the local government authority, e.g., a public office. The essence of the solution proposed is to take into account the measurement of various aspects of the operations of local government authorities, including social, economic, organisational, and democratic aspects. The concept proposed by the authors can be considered a kind of foundation to be built upon by local government authorities in terms of their specific needs and conditions.

The need for addressing the impact of the balanced scorecard on the social and organisational performance in the public sector is also suggested by [Hoque \(2014\)](#). His research indicated that, over the last 20 years, there have been many publications elaborating upon the public sector reform which pertain to the problems of balanced scorecard implementation. However, given the diverse social, economic, political, and other issues, one should definitely address the model's impact on efficiency improvement in public institutions.

"Performance measurement is a highly dynamic field that involves constant change, uncertainty, ambiguity, and negotiation." ([Gao 2015](#), p. 87). This complies with the principles of the contingency theory, which predicts that the relationship between an organization's characteristics, such as its performance measurement system, and organizational performance depends upon specific contingencies ([Donaldson 2001](#)). Performance measurement systems are not universal in nature, but one can still distinguish a certain framework in this respect. The choice of a specific model and a variant of performance measurement in public administration depends primarily on the public organisation type. The solutions adopted in the health care sector differ from those used in higher education schools, and still, different ones are applied in local government offices. Moreover, the decision on the criteria and the measurement method is determined by national, cultural, and organisational conditions.

When implementing the measurement system in the local government, one cannot forget that it should be deployed gradually, since measurable benefits cannot be observed in the short term ([Yetano 2013](#)). What one must also seek to achieve is integration of a performance measurement system with annual budget planning ([Ammons and Roenigk 2015](#)). Moreover, as shown by empirical studies ([Ammons and Roenigk 2015](#)), nearly half of local government leaders have linked strategic goals to performance management programmes. The municipalities and administrative districts which have linked performance with strategic objectives have experienced higher expected benefits from performance management.

In summary, performance measurement is a very complex matter which depends on numerous variables. Its legitimacy is sometimes questioned with regard to public organisations ([Boyne et al. 2006](#)), and yet, as argued by [Andersen et al. \(2016\)](#), the very consideration of this body of problems provides grounds for discourse of the potential improvement in this sphere. In terms of public organisations, it is all the more complicated than in the private sector, which stems from the numerous stakeholders for whom results are to be produced.

Similar conclusions were formulated by [Flynn \(2007\)](#), and [Dunn and Miller \(2007\)](#). Measuring performance in public administration requires far more than the mere choice of an adequate measurement model. According to [Bititci et al. \(2012\)](#) and [Melnyk et al. \(2013\)](#), the concept of performance measurement has evolved over the years from performance measurement itself (what to measure) to performance management (how to make use of the measurement results to manage the organisation's performance)². A similar position has been taken by [Smith and Bititci \(2017\)](#), emphasising that performance measurement should be complemented by performance management. The literature on performance measurement recognises that the process of performance management must support the organisation's learning ([Davenport 2006](#); [Upadhaya et al. 2014](#); [McAdam et al. 2014](#)).

² In terms of local government, [J. Wang \(2018\)](#) defined performance management as "a systematic approach to improving results through evidence-based decision-making, continuous organizational learning, and a focus on accountability for performance for local government".

By that means, one can depart from the short-term findings of the status quo achieved towards future-oriented organisational learning (Greiling and Halachmi 2013). The information obtained from the measurements should be used to a greater extent to continuously improve the organisation's efficiency.

Behn (2014) argues that performance management requires an organisation to make efforts to achieve a specific public goal by eliminating or reducing obstacles. This implies the need for objective setting and tracking as well as performance analysis based on which corrective policies are developed. In other words, performance management includes measuring or monitoring as well as suggesting improvement actions that can be used by public administration bodies as the input for their managerial decisions (Ammons and Roenigk 2015, p. 524). Performance management includes planning, measuring, evaluating, reporting, and implementing corrective measures (Cepiku 2016). Moreover, performance management should be understood as a process which consists of (1) the results obtained, (2) the manner in which they have been obtained, and (3) the approach to be adopted to improve them. The purpose of performance management is to integrate information and data on performance results into the policy design and budget allocation related activities (Van Dooren et al. 2015).

In performance management, factors such as organisational culture, learning capabilities, employee empowerment, training, rewards, penalty and feedback systems, use of performance-related information, role of sponsors or other stakeholders, strategic planning and decision making, leadership, collaboration, or links between performance and trust play important roles (Gao 2015, p. 90). This knowledge should be used to empower employees while decentralising the decision-making authority at the same time. The literature implies that empowerment of employees, decentralised decision making, and participatory management are key to continuous performance improvement (Lee et al. 2006; Fernandez and Moldogaziev 2011).

Balanced Scorecard (BSC) with all of its perspectives makes it possible to measure and manage performance in order to increase the effectiveness of public institutions, but with its development perspective, it also enables improvement measures to be undertaken. The research by Greatbanks and Tapp (2005) shows that the use of balanced scorecard in the public sector can have a positive impact on efficiency increase, more successful pursuit of strategic goals, and customer service improvement. Its modified form clearly defines the employees' capability and engagement and fosters innovative solutions (Hoque 2014).

However, it should be noted that, in the pursuit of operationalisation of the BSC, placing the emphasis on the learning and education dimension, as well as departure from accountability evaluation, one may come across diverse issues. These can be cultural, psychological, and institutional in nature (Van Dooren et al. 2015). Special attention should be paid to the requirement of management decentralisation, organisational culture change, and substitution of trust mechanisms for control mechanisms (Van Dooren and Hoffmann 2017). To succeed in creating a culture of learning would mean that employees have ceased to be afraid of making mistakes. Mistakes and failures would rather be treated as learning opportunities instead of being used as the mere basis for employee assessment (Olejniczak and Newcomer 2014). The information being thus obtained can also be utilised more effectively once involvement in the dialogue on performance with diverse stakeholders has increased and once space for data analysis and interpretation is created (Moynihan 2009).

One should also note that the most recent performance management initiatives are oriented towards dynamic performance management. They were developed in response to the lack of a holistic approach to manage the complexity of public sector performance (Sardi 2019, p. 4). The dynamic approach to addressing the complexity of the public context requires the economic, environmental, social, and national factors to be taken into consideration. Unfortunately, so far, this approach has remained in the embryonic phase, practically represented only in mere computer simulations of specific health problems. The dynamic approach has not yet been implemented in local government bodies, on either the state or self-government levels (Sardi 2019, p. 12).

6. Practical Implications and Contribution

Considering that perfect performance measurement in the public sector is virtually impossible in reality, in our opinion, the effects of their analysis can expand the existing knowledge about the models of performance measurement used in public administration. This article expands the discourse on models that can potentially be applied, highlighting the need for the three perspectives—micro, mezzo, and macro—to be taken into account along with a number of diverse indicators, particularly those oriented not only towards performance measurement but also towards performance management for long-term achievements. Its primary contribution is a selection of implications for practical use. In the first place, the study emphasises the strengths and limitations of the popular 3Es, IOO, and BSC models. Secondly, the authors argue that the BSC model has indeed the greatest potential to meet the expectations of various stakeholders and that it needs to be adapted to the specifics of public administration and to take into account the diverse issues which may arise.

It is important to understand how the application of a specific model supports the measurement of effects in a longer time perspective. This could help organisations in formulating their expectations towards the system of indicators they are to implement. Even more importantly, it would enable them to make the most of it in designing their development plans.

The internal and external performance measurement indicators proposed for local government authorities, grouped according to the BSC model perspective, support proactive performance management. The information they provide can support the decisions made by the persons in charge, thus fostering and facilitating professionalisation of the public sector management. This can provide initial guidance on how performance information can be used. However, potential risks must also be taken into consideration. When the control aspect of performance evaluation exceeds the value of information, such evaluations are unlikely to have any positive impact on performance (Jacobsen and Jensen 2017). Another significant correlation was observed by Taylor (2014), who pointed out that, where information about performance is not used in practice, even though it is available to managers, the organisational culture of public institutions may be a barrier. One should also note that performance management can serve purposes other than improving performance itself, like ensuring the accountability of organisations towards the public and improving the legitimacy of managers and public organisations (Van Dooren et al. 2015). The analysis by Vogel and Hattke (2017) implies that the use of performance-related information is importantly correlated with performance itself, but these correlations depend on the goals of control. What becomes particularly important is a change in the actual utilisation of performance-related information as well as departure from strict assessment and sanctions in favour of soft information use in order to ensure space for data analysis and interpretation before conclusions are formulated.

There is a certain weakness in the objective perception of the indicators proposed under the BSC concept, since it does not eliminate the important problem of the possibility that the results once obtained are tampered with. The research by Chan and Gao (2008) on the Chinese performance measurement system has shown that, if the performance measurement is designed primarily to ensure political compliance, the chance of real performance improvement is insignificant, since the relevant targets can be set at a level which guarantees their fulfilment. The potential for elimination of this undesirable phenomenon should be sought in the implementation of appropriate organisational culture and building of a motivational system.

Unfortunately, the strategic scorecard as such cannot be recommended to every organisation because the prerequisite of its implementation is that the organisation has adopted a formalised strategy. This is an obstacle that some public administration bodies may indeed encounter. There are further aspects to be taken into consideration, namely the ability to use the information obtained from measurements and to integrate them into the development plans of not only the public institutions themselves but also of the entire communes, municipalities, and regions.

7. Limitations and Future Research

The analysis provided in the paper has many limitations, which also inspire future research at the same time. What we have proposed is not the only available solution, but in our opinion, it is worth being taken into account as it highlights numerous different aspects of performance management in public organisations. The research in question was based on the literature on the subject, and so, an attempt to test its findings in practice would definitely be worthwhile, starting from qualitative studies and then extending them in the quantitative terms. The future research in this field should be aimed at identification and examination of the models used in practice to measure the outcomes attained, accompanied by an assessment of the degree to which the information thus acquired is actually utilised in short- and long-term perspectives. What also seems to be growing in importance is studying the impact of strategic or environmental aspects on the choice of a specific performance measurement model. Such findings are required to complement and expand the existing knowledge on the subject.

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