

Literary Review of Methods of Efficiency Evaluation in Public Sector

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Abstract

If an organization decides to introduce a new method or an instrument, it must compare the costs of implementing it with the benefits that the method would bring. This is true for public service organizations as well, mainly because of the fact that they manage public funds. The introduction of these methods can help increasing efficiency in the spending of public funds. If businesses want to survive and prosper in the public sector under the current global and competitive environment, they have to change their way of thinking and managing. It is common to see efficiency as a key problem in the public sector. The present paper deals with several methods of efficiency evaluation and tries to describe some of them. Based on our own research, methods of efficiency are divided into 5 groups. Each group is described separately, while the methods that we looked at, we can include cost-minimizing analysis (CMA), Technique for Order Preference by Similarity to Ideal Solution (TOPSIS), Common Assessment Framework (CAF), marketing mix in public administration products and many others. There are several methods which can be used for efficiency evaluation. Each situation should be analyzed individually and therefore we are not able to choose one of them and say it is the best or most appropriate.

Keywords: Efficiency; Methods of efficiency; Comparison; TOPSIS technique.



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1. Introduction

Literature outlines several options to measure efficiency in the public administration, and others focus either on individual methods or group of methods. This manuscript contains a list of individual efficiency measurement methods. The most prominent ones are also briefly described. The breakdown follows the complexity of the methods used and identifies 5 categories of methods (Balážová *et al.*, 2018; Gaster and Squires, 2003; Halásek *et al.*, 2002; Loskot, 2012; Pavlík, 2014).

- a) Evaluation methods based on one criterion,
- b) Assessment methods based on a number of criteria,
- c) Comparative methods,
- d) Management evaluation methods,
- e) Other selected evaluation methods.

In addition to the above-mentioned methods and practices it is possible to increase the quality and efficiency of processes at the municipal level through competition, improved budget management and public scrutiny.

2. Methods

2.1. Evaluation Methods Based on One Criterion

The methods are based on one selected criterion (indicator). These methods are therefore easy to implement, however, they are the most distorted. These methods can be broken down into:

Financial indicators: net present value, internal rate of return, profitability index, payback time, profitability index, pay back and others,

“input-output” methods: cost-minimizing analysis (CMA), cost-benefit analysis (CBA), cost-effectiveness analysis (CEA), cost-utility analysis (CUA).

These methods were created for the purposes of the private sector, i.e. businesses. However, their modifications can also be used to evaluate public sector efficiency.

Financial ratios (also referred to as investment rating methods) can be divided into dynamic (a, b, c, d) and static (e, f), depending on whether calculations take into account time perspective.

The common characteristic of input-output methods is the measurement of costs that is being done in monetary units. The difference between them depends on how outputs are measured.

Table-1. Comparison of outputs of "input-output" methods

Method	Output measurement
CMA	is not measured
CBA	monetary units
CEA	number of output units
CUA	project's benefits

2.2. Evaluation Methods Based on Multiple Criteria

In order to make purposeful and effective decisions on management of the development of human capital both at the micro and meso levels there is a need in objective information basis and analytical tools for the analysis of the current situation and planning for further actions (Mustafin and Ignateva, 2016). Efficiency evaluation based on multiple criteria is a more complicated option, but on the other hand, this evaluation gives more insight into the real state of public sector efficiency. According to Vrabková *et al.* (2016), the basic advantage of these methods is the fact that they are not in a position to transform non-economic criteria into economic criteria at the cost of delicate, sometimes controversial operations. These methods include:

Scales and ranges (can be used separately or as a part of another method),

Methods of weight determination: equal importance, ranking, scoring method (qualitative criteria), Fuller's method (paired comparison method), Saaty's method,

Methods based on partial evaluation of variants: weighted sum method, basic variant,

Methods based on pairwise comparison of variants: lexicographic method, AHP (Analytic Hierarchy Process), TOPSIS (Technique for Order Preference by Similarity to Ideal Solution).

All multi-criteria evaluation methods work with criteria (indicators) that are non-negative and normalized, i.e. their sum is 1.

The method of equal importance is not able to distinguish between the greater or lesser importance of the observed criteria, i.e., all criteria are evaluated equally. Ranking is based on assigning a point value based on certain preferences. The scoring method is similar to the previous method, but works with cardinal variables (preference of individual indicators). The principle of the Fuller's method is to allocate the points to each pair of indicators and then to sum up the points obtained (Khasheva *et al.*, 2017; Vavrek *et al.*, 2015; Vavrek *et al.*, 2017; Vrabková *et al.*, 2016). Used this method to evaluate municipalities in the Slovak Republic. Saaty's method works much like the previous methods. The only difference is that it also determines the size of this preference. The weighted sum method is particularly suited to determine quantitative criteria, assuming a linear dependence of the utility rate on criteria (indicators). The basic variant method determines the best or desired values and then calculates the utility rate of each alternative.

The lexicographic method is based on the assumption that the most important criterion has the greatest influence. In the case of compliance, the second and the criterion after that shall be taken into account. When solving a problem the AHP method takes into account all the elements that affect the outcome (the links between them and the intensity with which they influence each other). The TOPSIS method chooses the variant that is closest to the pre-set ideal and at the same time the furthest from the basal variant (Šebestová, 2008).

2.3. Comparative, Managerial and Other Evaluation Methods

Comparative methods represent the foundation of management methods. According to Peková *et al.* (2002), they are based on a territorial or institutional comparison of the cost of public goods production. Their use assumes the right choice of comparative variables. For the greatest objectivity of comparison, it is required that the comparative indicators have the same scope and apply to the same constant. These methods include:

Comparison over time: at the local, regional or state level, at the level of the municipality or a set of municipalities, at the level of the managed entity (budget, contribution, other non-profit organizations),

Comparison with regard to place: at the local, regional or state level, at the level of the municipality or a set of municipalities, at the level of the managed entity (budget, contribution, other non-profit organizations).

Managerial methods have been known to the private sector for a long time. They improve the quality of management, which is together with modernization the main premise for increasing the efficiency of funds use. These methods include:

Benchmarking,

Benchlearnig,

CAF model,

Balanced scorecard (BSC method),

SWOT analysis,

Quality management system based on ISO standards,

The PDCA Improvement Cycle, Deming cycle.

The basis for benchmarking in public administration is the so-called metric benchmarking. The data obtained should be converted to indicators based on which it is possible to draw conclusions and make changes. break down the public sector performance indicators into four categories:

Workload indicators (outputs),

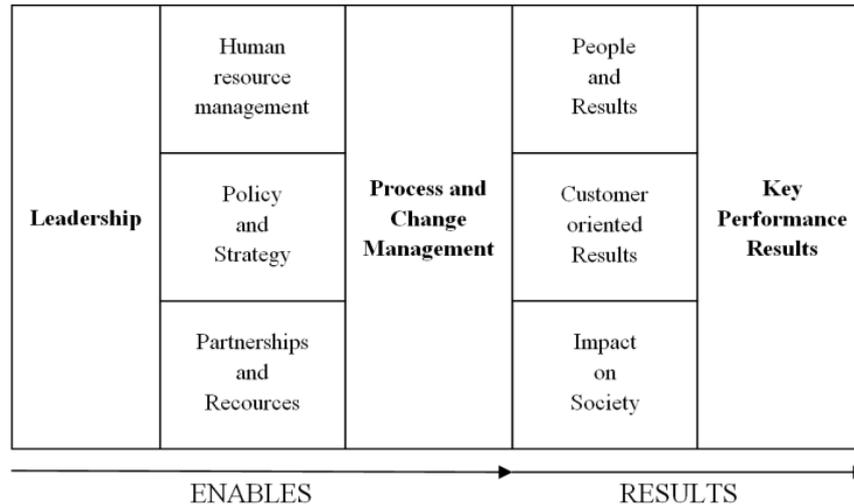
Effectiveness indicators,

Efficiency indicators (results),

Productivity indicators. points to its use in the public administration of the Czech Republic, especially by municipalities with extended competence. As an alternative to benchmarking offer benchlearning, which is also based on the notion of learning from others. The aim of benchlearning is to learn from other subjects everything they know better and to look for inspiration.

The CAF model is tailored to public sector institutions. It could be considers self-evaluation to be its basis since it helps organizations with identification of their strengths and it also provides an overview of the activities leading to continuous improvement in their performance. considers this model a comprehensive method that improves the quality of public sector institutions. According to [Provazníková \(2009\)](#)., the model is intended for/to: Setting up, mastering and developing the minimum quality management standard, Regular self-assessment and critical self-reflection of the current state of learning, Setting up a basis for external evaluation, comparison and cooperation, The unification of the quality management method ([Khasheva et al., 2017](#)).

Figure-1. Model CAF



The introduction of a Balanced Scorecard into the public sector can be, according to [Mustafin et al. \(2017\)](#), divided into several interconnected and sequential steps:

Formulation of the goal (in the public sector it is mostly fixed),

Implementation of a critical assessment of the current situation (in the form of SWOT analysis, PEST analysis, financial analysis or demographic study),

Defining a real vision (design of the future state and activities of the organization),

Plan for the implementation of methods (scope, team, implementation plan, support),

Identifying relevant perspectives and key success factors (development activities, citizens' attitudes),

Drawing up a strategic map (illustration and clarification of relations between the areas),

Defining strategic objectives and set of indicators (quantitative and qualitative indicators),

Identifying strategic initiatives (actions, measures and objectives for implementing the strategy),

Delegation of BSC to lower units and individuals.

see clarity, balance, measurability and creation of a basis for remuneration of employees as the main advantages of the BSC method ([Vavrek et al., 2015](#)).

2.4. Other Selected Methods for Evaluating Effectiveness

Methods included in this group have not been included in the previous categories or were listed only rarely. The methods include:

Community planning,

Healthy City Project,

Local Agenda 21,

Marketing mix for a public administration product,

EMAS environmental management system,

Citizen Charter,

Evaluation of the creditworthiness of the municipality.

Bělonohý I. understands Local Agenda 21 as a process that improves the quality of life in all its aspects through the improvement of governance, strategic planning and management and public engagement ([Vavrek et al., 2017](#)). According to , Local Agenda 21 and EMAS are instruments that apply the principles of sustainable development at the local and regional level (they focus on the citizen as a member of society). The Healthy City Project is a project of the Czech Republic that supports strategic planning and urban development and provides assistance when obtaining financial resources.

The marketing mix in public administration products (i.e., a public property), which is shown in the following table, aids and simplifies communication between citizens and offices.

Table-2. The marketing mix in public administration products

PRODUCT	PRICE	PLACE	SALES SUPPORT
Range	Level	Location	Advertising
Quality	Discounts	Accessibility	Personal sale
Level	Cost effectiveness	Distribution method	Promotion
Image	Perception of customer service value	Flexibility	Publicity
Production Board	Differentiation		Public relations
Guarantees			
Additional services			
PHYSICAL ENVIRONMENT	PEOPLE		PROCESS
Equipment	Employees:	Customers:	Policy
Colour	Education	Behaviour	Procedures
Disposition	Selection process	Contact	Mechanization
Noise level	Benefits		Space for decision making
Atmosphere	Motivation		Cooperation with customers
Material incentives	Demeanour		Customer guidance
	Interpersonal relationships		The course of activities
	Attitudes		
PARTNERSHIP			
Residents, private, non-profit and public sector			

Much like the marketing mix in the private sphere the marketing mix in the public administration products contains the core components described in Table 2. The difference lies in the fact it identifies the citizen as the core subject of the marketing mix.

According to, the method of evaluating the creditworthiness of the municipality is based on the assessment of the most important parameters of municipalities in order to assess their long-term stability. However, the method is not primarily designed to assess the ability of the municipality to guarantee compliance with debt obligations. Instead, it should be used to improve the performance of municipalities in the Czech Republic in a comprehensive way by means of benchmarking with other municipalities. With regard to functional structure of the budget and content the monitored parameters are subdivided into three groups:

Field P (revenues) - 6 indicators,

Field V (expenses) - 8 indicators,

Field R (the quality of the budgetary process and other characteristics of municipal management) - 8 indicators.

3. Discussion

Modernization and innovative development of economy are two interrelated sides of one fundamental process by which the state can optimize the accumulation, updating, distribution and use of tangible and intangible assets to increase capacities for sustainable development. Public economics involves economic activities of various economic entities that are owned by the state or other public organizations that are being directly influenced / financed by the state. The management of public expenditures from the point of view of processes involved includes various types of checks (e.g. financial, accounting, legal). According to, the essence of the management of public expenditures lies in the early detection of deviations from the original plan, their analysis and subsequent conclusions (Ochrana, 2007). states that the financial management in the public sector has three basic roles:

Management and validation of the accuracy and integrity of financial procedures, records and reports of organizations,

Checking the purpose for which funds were used,

Checking the effectiveness, economic efficiency and efficiency (3E) of expenditures in accordance with established priorities and rules.

In the field of public administration an emphasis is being put especially on the economy, efficiency and effectiveness of government organizations, tools, programs and higher quality of services provided. Less attention is paid to adherence to formal procedures, rules and processes. However, the tendency towards inefficiency is considered to be the main problem from the long-term point of view.

Based on our own experiences, there must always be a certain compromise between efficiency and righteousness. Excessive preference for efficiency leads to social instability in society; on the other hand, too much emphasis on righteousness slows down the economic growth and development. Each of above mentioned method could be used in practice. Using each of them is determined by the method and also by method itself.

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