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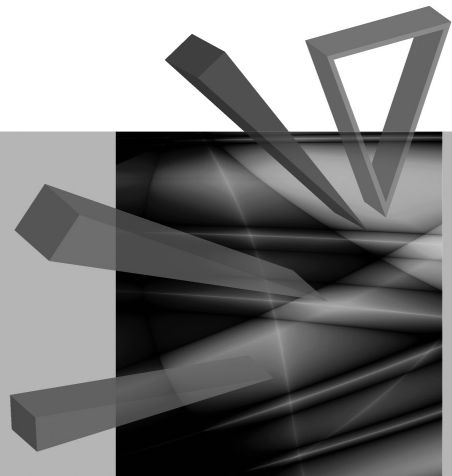
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Stanisław Korenik

Niki Derlukiewicz



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Magdalena Łyszkiewicz

Gdansk School of Banking, Gdańsk, Poland

COST ASSESSMENT IN THE DELIVERY OF MUNICIPAL SERVICES

Abstract: This article presents selected management methods appropriate to the municipal sector, a subject that is important from both theoretical and practical perspective. As every economic activity involves costs, a well-thought-out selection and planning of activities related to cost management is one of the basic factors enabling public service providers to operate on an economically sound basis. It is so, because costs are the main determinant in the effective use of municipal resources.

Keywords: costs, management, public sector.

1. Introduction

According to art. 3, item 1, par. 31 of the accountancy act of 29 September 1994 [Ustawa z 29 września 1994], costs incurred in the reporting period diminish profits and thereby the assets, or increase liabilities and reserves, meaning that they reduce the amount of equity or increase its deficit in other way than through disinvestment. The structure, level and dynamics of costs are vital aspects in the delivery of municipal services; hence cost management is one of the main responsibilities of those who provide them.

High costs are frequently thought to render organizations economically ineffective. Yet, cost cuts are not enough to turn the situation around. A cost management system with methods allowing cost-generating operations to be appropriately planned and monitored against the organization's short-term goals and strategies is necessary in the first place [Kinney, Raiborn 2008, p. 24]. This comprehensive approach to cost management is applied in all parts of the world.

2. The unique character of municipal services

In the literature, a “service” is usually defined by referring to an economic activity that is undertaken to meet the direct needs of people by delivering things of value to the market [Koch 1997, p. 270]. A service is a benefit that one party (the provider) offers to another party (the customer). A. Smith viewed a service as a useful activity of usually short duration that one does for another person [Smith 1954, p. 124]. For J.B. Say, a service was a production-enhancing activity done to create new utility [Say 1960, pp. 128, 129]. K. Marx viewed a service as nothing else but the useful aspect of a good or labour [Marks 1951, p. 204], whereas J.B. McCarty and H.H. Lindberg [1966] characterised a service as something that is perishable, unstorable and having to be consumed at the right place and time, delivered through interaction with the customer.

The most popular of all, however, has become the definition developed by O. Lange. According to this definition, a service is any piece of work other than the production of goods, whose direct or indirect purpose is to meet population needs. The types of work that fall under the definition are the following:

- publicly useful work,
- human work, mostly done by people organised into teams,
- work aimed to produce a specific outcome representing new utility,
- work that an individual or a team do for the customer using their production factors [Lange 1978, p. 21 ff.].

Municipal services representing a large and heterogeneous group of municipalities’ activities and programmes have a unique character. Municipal services are all activities that local authorities perform to meet the needs of local residents; their range includes the issuance of ID cards, maintenance of roads (running repairs), snow removal, the supply of pipe water or the provision of water carts when needed, etc. All these services fall under the category of public goods, which means that no one can be denied the right to use them [Wańkiewicz 2004, p. 2].

One of the basic economic responsibilities of local authorities is to make sure that the supply of municipal services is sufficient, that they are accessible, and represent the expected quality standard. The delivery of municipal services is not a purpose in itself, though, but a task serving the residents who use them.

3. The basics of cost management in municipal services

The public sector is increasingly aware that traditional cost management should be left behind, particularly because the costing and reporting system it uses is of little use in explaining and monitoring the behaviour of costs. This inefficiency is attributed to the fact that costs are usually structured following the financial or tax reporting requirements that tend to disregard the demands of active cost

management. This situation gives a special position to cost accounting as an element of municipal service management, for its ability to generate operating cost estimates on all municipality-controlled entities. The incorporation of systemic solutions into cost management not only provides insights into the mechanisms and causes of costs, or shows what their structure should be. The long-term benefit is that current expenditures can be cut down while investment spending increases, which makes the municipality more attractive for investors.

Cost management should not limit itself to seeking the optimal structure of costs. As municipalities function in a market economy environment that changes with technological progress, they must constantly monitor for differences between the projected use of municipal assets and the actual performance of their plans. Identifying possible gaps and adjusting the plans accordingly is not enough, though; analytical and control methods must be employed to make plans more realistic and credible.

As the rationalisation of public service management is a very complex matter, it calls for more than just analysing costs by their division (into fixed and variable) provided by the accountancy act, which, incidentally, enables also the determination of the breakeven point. Costs specific to public services also need to be identified, so that their particular types could be analysed as amounts and percentages of the total process costs.

Focus on the results and efficiency of operation, characteristic of the modern approach to public management and strategic management in the public sector, is also important. The European Commission is sensitive to this issue too, as proven by its official documents on the evaluation of the EU co-financed projects that lay strong stress on the role of the input, output, result and impact indicators (Figure 1).

The input indicators show the performance of funds, real inputs, and human resources directly involved in the programme. Most input indicators built into in the monitoring system concern the use of the funds, budget overruns (in percentage terms), EU funds as a percentage of the total budget, or the number of the implementing institutions. The indicators monitor progress by juxtaposing activities and financial transfers with the projected costs [Ledzion, p. 8].

The second group of indicators is output indicators that measure real outputs and services generated or delivered during the project. These indicators use physical or monetary units of measurement (the length of the railway tracks laid, the number of enterprises supported financially, etc.).

The third group is result indicators showing the direct and immediate results of a programme for its direct users (how the programme influenced their behaviour, capacity or activity, etc.). These indicators can be real (physical) or financial.

The EU documents contain also a fourth group of indicators called impact indicators which are employed to quantify programme results other than immediate, i.e. delayed in time but closely connected with the programme and

having a direct effect on its beneficiaries. These results are global in the sense that their impacts are long term and influence a wider population.

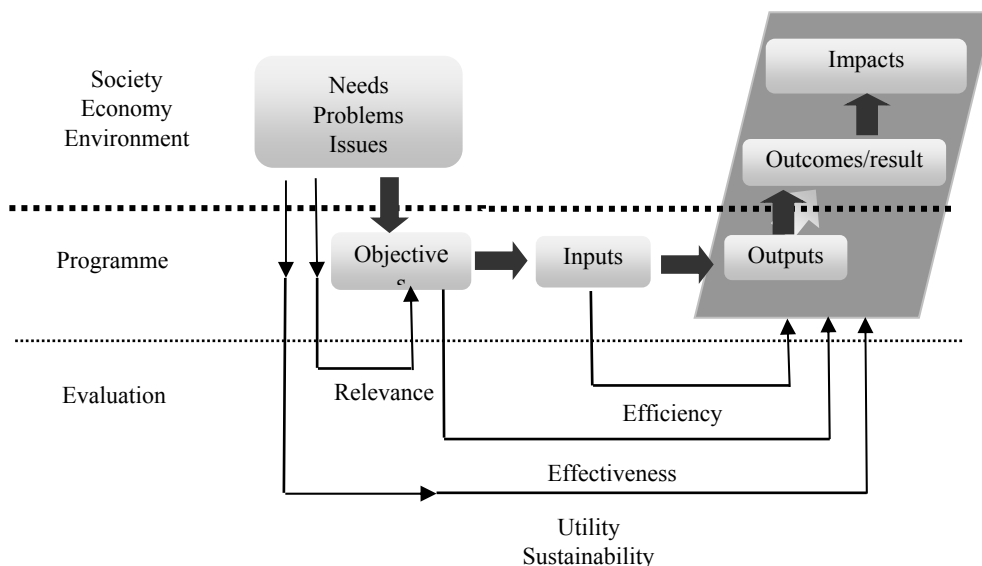


Figure 1. The programme and its environment

Source: [Komisja Europejska 2006].

All these indicators measure performance, i.e. compare outcomes with targets. They also indicate the level of efficiency defined as a ratio between programme's products, results, impacts and performance, on the one hand, and the inputs (particularly financial) consumed to generate them, on the other [Komisja Europejska 2006].

4. The main methods for cost management

The introduction of comprehensive cost management solutions allows the amount and structure of costs to be estimated, as well as giving insights into the development of costs and showing how to restructure them in the desired manner. The activity-based costing (ABC) approach is a tool that aids decision making in the management of municipal assets and explains how particular decisions may affect performance and costs.

The first to use the term "activity-based costing" was J. Deere, who conducted an early investigation into this innovative method of costing in mid-1980s. In 1988, R. Cooper used the term in his article *What is an activity-based cost system?* published in the *Journal of Cost Management* [Zymonik 2003, p. 52].

The purpose of the ABC approach is to measure and analyse the costs and efficiency of operations comprising a process, and then to aggregate them. Unlike traditional cost methods where the final product is considered, ABC treats an organisation as a system of operations that generate costs. It focuses on the intermediate costs of operations and processes necessary to create and sale products and services. The operations and processes generate costs, because they consume resources that must be purchased in the market [Jarugowa et al. 1997, pp. 42–45].

An ABC-based system of management supplies the organisation with the information it needs to plan, manage and control its activities in such a way as to improve processes, products and services, to eliminate waste, and to accomplish its operational and strategic goals [Miller et al. 2000, p. 4]. The ABC method is capable of generating the following types of information:

- the costs of business processes defined as sequences of operations;
- process and operation efficiency with respect to the quality of products, services, and customer service, as well as speed and productivity;
- the costs of products and services by market, customer, and distribution channel;
- cost factors [Miller et al. 2000, p. 4–9].

A municipality that uses the method to manage its services maps the costs of activities comprising economic processes, which gives it the necessary knowledge to set the costs and profitability of public services it provides at the appropriate levels. The benefits of the ABC method as applied to municipal property management include the possibility of defining processes and operations, of identifying the impacts of different variables (e.g. the costs of particular operations, etc.) on the final profitability of cost objects, of enhancing asset-oriented strategies by translating strategic goals into activities, and of deciding whether, or not, a private entity should be allowed to manage municipal real estate.

There are two more methods that are important for measuring the efficiency with which municipal services are managed: the cost-benefit analysis (CBA) applied to activities that can be measured in monetary terms and the cost-effectiveness analysis (CEA) used in cases when the physical units of measurement are more appropriate¹.

The two methods are applied in a similar manner. The process starts with the determination of the target and then the feasible scenarios for achieving it are developed. Each scenario is provided with budget and operating cost estimates, quantified in monetary or physical units. Finally, the least expensive scenario is selected.

The fundamental costing principle states that to proceed with a project or a programme its total expected benefits must exceed its total expected costs.

¹ This method allows local authorities to assess their activities allowing for the unique character of public goods where a considerable amount of benefits cannot be directly expressed in monetary terms (an attempt at this would be either difficult or irrational).

Mathematically, this comes down to the estimation of the predicted flows of costs and benefits:

$$\text{Net benefits (net costs)} = \text{total benefits} - \text{total costs}.$$

The first thing that the CBA method requires to be done is to identify the main groups of population that will be benefit from the projected activity and then to estimate its costs and benefits per beneficiary [Drobniak 2002, p. 109]. The alternative scenarios are assessed by calculating costs-benefits ratios for each of them. The process starts with a traditional analysis of investment performance (the Net Present Value, NPV), where the discounted flow of expenditures is deducted from the discounted flow of revenue.

The CBA method uses the following rules for making “proceed” decisions:

- if the public programme under consideration is neutral to revenue distribution, a “yes” decision can be made only if the NPV is greater than zero;
- when one has to choose between mutually exclusive scenarios, the one promising the highest NPV should be given the green light;
- when a decision is made under scarcity of resources, public programmes must be combined in such a way as to enable the maximisation of total net benefits under the existing constraints [Samuelson 2009, pp. 657, 658].

Unfortunately, public programmes pose many problems related to the estimation of their future revenues, or the estimates are ambiguous. This complication has, for instance, been found with environmental, educational, healthcare or social welfare projects. For the purposes of the public sector, the profit maximisation criterion must therefore adopt a different definition of profits – in this specific case this should be the degree to which local community’ needs will be met or the technical or social infrastructure will be improved. A more rational use of financial outlays expressed in terms of savings should not be a purpose in itself because it cannot be proven that the benefits a public project will generate for the community will outweigh its costs. All this causes that the CEA approach is more appropriate in this case.

By calculating the effectiveness-cost ratio (ECR) and the cost-effectiveness ratio (CER) the programme implementation scenarios can be ordered for choosing the most cost-effective solution. However, even if economically attractive, the values of the ratios still do not guarantee that the accepted scenario are be the best possible.

$$ECR = \text{total effects/costs},$$

and

$$CER = \text{total costs/effects}.$$

While the equations seem fairly simple, finding accurate cost and benefit estimates may be very difficult, particularly because the costs of public programmes or projects addressed to certain groups in the population are frequently paid by all taxpayers.

The source of problems that the methods, particularly the CEA, pose is related to the assessment of the likely impacts and benefits of public programmes. The benefits are broadly divided into five categories:

1) elimination of costs that would have to be incurred if the problem was left unaddressed;

2) lower amounts of the current spending on particular purposes;

3) revenue changes resulting directly or indirectly from the project (revenue changes that would occur anyway are not considered);

4) end-user benefits other than shown through the revenue – local authorities' pricing policy may release the user from having to pay the full cost of a service, such as entry to a national park or access to library resources (as difficult as this can be, an attempt at quantifying the service benefits should be made);

5) benefits for wider groups in the community, e.g. police services available to all local residents or unplanned advantages for groups other than the direct beneficiaries (e.g. a public transport project may reduce the amount of pollution); in this case, too, the price is usually not proportional to the benefits [Kuczmierowska 2008, p. 5].

Benefits are assessed with methods appropriate to the type of activity. One of them is the stated preference method. In the public sector, the main purpose of the benefit assessment methods is to measure change in the value of a good, making allowance for a change in its "quality." It must be borne in mind, however, that when the costs and benefits of public projects that cannot be measured in monetary terms are assessed, the causal relations between them must also be examined.

The declared preference method is a direct contingent valuation method using one-on-one interviews and questionnaire surveys to identify respondents' willingness to pay for a service or a good. The valuation they make is "contingent" because the investigated good or service may not be delivered. The survey questions may require the respondent to give a dichotomous response (yes/no) to a specified maximum amount, to choose a value from a list of incremental amounts, or may allow the respondent to choose their own amount [Fiedor (Ed.) 2002, p. 177].

The quality of analyses based on the above methods is very much dependent on the quality of the input data. Because of that, a detailed sensitivity analysis must be conducted with every cost-effectiveness analysis to show how changes in parameter values affect the outcomes.

Sensitivity analysis is crucial to cost accounting for its ability to capture variations in the basic indicators and general conclusions caused by adjustments to project parameters. This helps identify the critical factors ("critical variables") and

critical model parameters. They are critical in the sense that their increases or decreases in relation to the best baseline estimates have the greatest effect on the IRR or NPV estimates. The criteria for identifying the critical factors should fit the profile of the project. Although their choice should be made precisely on a project-by-project basis, it is advised to use parameters that increasing or decreasing by 1% change the IRR value by 1 percentage point or the base NPV by 5 p.p. [European Commission 2008, pp. 60–62].

A sensitivity analysis is performed in three steps:

1) the identification of key input parameters that have a major impact on project costs and benefits, as well as being likely to have a wide range of values;

2) another run of cost analysis, addressing the minimum and maximum values of the parameters (the outcomes are compared to find the best scenario generated from each analysis);

3) evaluation of the outcomes.

Sensitivity is defined as the amount by which a parameter must change for the base scenario to change. The parameters are classified as follows:

- a parameter is not sensitive when the selected scenario does not change even if the parameter decreases by 50% or increases by 100%;
- a parameter is sensitive when the selected scenario is influenced by its changes within 10–50%;
- a parameter is very sensitive when its change by 10% or less affects the selected scenario [Lagas 1998, pp. 35, 36].

One of the methods employed to analyse sensitivity is the Monte Carlo method [Chyliński 1999, pp. 148, 149] that allows assessing the odds of the project achieving its target and quantifying the impacts of the likely adverse occurrences. As a result, it indicates the amounts of cost and time contingencies that should be set up to make the project secure.

5. Final remarks

The conclusion arising from the above presentation is that the knowledge of the costs and appropriate cost planning are central to sound economic activity, because costs are among the main factors determining how effective management will be. A prerequisite to effective management of costs is reliable cost accounting, because it can show the mechanisms and causes of costs, reduce total and unit costs, and control product costs and cost structure.

Cost management should not exclusively focus on seeking the appropriate structure of costs. Because municipalities function in the market economy environment characterised by high dynamics of changes arising mainly from technological progress, they must also monitor for differences between their asset-oriented plans and their actual performance. However, finding a deviation and

adjusting the plan accordingly is not enough – analytical and control methods must be used to make plans more realistic and thereby increase their credibility.

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ZARZĄDZANIE KOSZTAMI W PROCESIE ŚWIADCZENIA USŁUG KOMUNALNYCH

Streszczenie: Niniejszy artykuł prezentuje podstawowe zagadnienia związane z problematyką zarządzania kosztami w sektorze komunalnym. Jest to niezwykle ważny temat, gdyż wprowadzenie systemowych rozwiązań w zarządzaniu kosztami pozwala nie tylko na poznanie mechanizmów i przyczyn powstawania kosztów, czy też kształtowanie pożądanej ich struktury w procesie świadczenia usług publicznych. W dłuższym okresie przyczynia się również do redukcji ponoszonych wydatków bieżących na rzecz wydatków majątkowych, które pozytywnie wpływają na atrakcyjność inwestycyjną gminy. Problematyka właściwego zidentyfikowania i zaplanowania działań związanych z zarządzaniem kosztami jest jednocześnie jednym z podstawowych wyznaczników racjonalności działania jednostek zajmujących się świadczeniem usług publicznych. Koszty są bowiem podstawowym czynnikiem decydującym o poziomie efektywności gospodarowania zasobami majątkowymi gminy.

Słowa kluczowe: koszt, zarządzanie, sektor publiczny.