

How projects can contribute to the performance of Brazil's public sector: A case study

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The New Public Management introduces operations management's concepts from private sector into public sector, one of these concepts is performance, that links system's inputs and outputs. This case study analyses the linkage between State of São Paulo's Finance Department project's scopes and the theory of three Es of performance (efficiency, effectiveness and economy).

INTRODUCTION

Nowadays, the performance measurement is an important topic in business and its concept is explored by management operations. They are usually presented separating the concepts of productivity, efficiency and effectiveness, which involve the discussion of the relationships between inputs and outputs of a production system.

Since the appearance of the New Public Management (NPM), the public sector began a process of introduction of private sector concepts' in order to improve its services performance and customer-citizens satisfaction. A performance concept in the public sector was given by Pollitt (1986) within the theory of the three Es in which the performance is split into efficiency, effectiveness and economy.

Then, this study aims to analyze the linkage between the largest projects' scope in the State of São Paulo's Secretary of Finance (SEFAZ-SP) and the performance theory of three Es in the public sector through the comparison of each analyzed projects' potential to impact positively on the efficiency, effectiveness and economy of services provided by SEFAZ-SP.

In order to achieve this goal, were raised: the projects that integrate the Support Management and Integration of Brazilian Tax Authorities Program (Programa de Apoio à Gestão e Integração dos Fiscos no Brasil - PROFISCO), the financing program of the Inter-American Development Bank (IDB) that focus on modernizing and improving the Brazilian tax authorities' performance, and those that are running on SEFAZ-SP. The data were obtained through a request for the Citizen's Integrated Information System of São Paulo State for the following data: (1) the SEFAZ-SP projects that are running with PROFISCO's funding, (2) what are the value of each project's investment, and (3) a description of each project.

Finally, among the ongoing projects, it was selected, through a Pareto analysis, the eight projects with the biggest investments in order to present a description of their scopes and perform the analysis of the linkage between the theory of three Es' concepts. Finally, a joint projects' analysis was done to assess their consistency with the mentioned theory.

LITERATURE REVIEW

Productivity, Efficiency and Effectiveness

Productivity is widely used in academic and business areas as a way to measure the performance of organizations, though there is still confusion in the use of the term. Andersson & Bellgran (2015) reinforced the frequent use of productivity measurement, although there is no common definition of the term, as it is a challenge to find a definition that can be used in some specific productive sectors.

According to Sumanth (1984), the term productivity was used as the "faculty of produce". In the early 1920s, the term productivity acquires a more precise meaning as the relationship between the outputs and the means used to produce these outputs.

Andersson & Bellgran (2015) defined productivity as how well a good or service were produced with certain resources consumption. In other words, the productivity will be increased when more and better goods are produced with the same resources, as well as when the same goods with the same quality are produced with fewer resources.

Therefore, two important features of productivity are: it is related with the use and consumption of resources (inputs) and with the value creation, a concept aligned with outputs.

In other words, inputs of a system usually refer to the labor (direct or indirect human resources), materials, energy and capital (fixed assets, equipment and inventories). On the other hand, outputs refer to products generated by the same system using the inputs described.

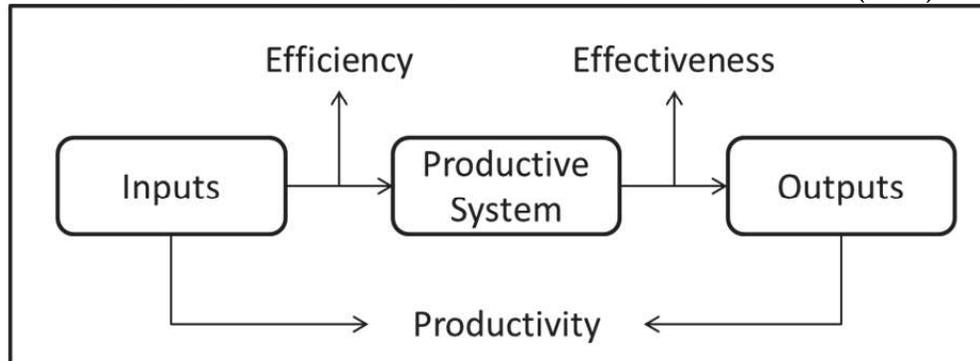
In order to deepen the performance measurement, the terms efficiency and effectiveness must be conceptualized, as they also don't have a consensus definition and they are confused with each other (Sumanth, 1984). Sumanth (1984) defines efficiency as the ratio between the actual outputs by the outputs expected. On the other hand, Andersson & Bellgran (2015) supported the idea that efficiency is related to the internal production system of an organization and its performance. Yet Radnor & Barnes (2007) conceptualized efficiency as the outputs divided by a process' inputs, aiming to productivity measurement and resources' use. Finally, Teng (2014) summarized efficiency as "doing things right".

Even disparate, the aforementioned efficiency's definitions converge on the fact that it is related to the efficient resource's use, either by comparing the expected outputs with the current outputs in the same inputs' consumptions' degree, or by comparing the expected and current inputs' consumption to obtain the same outputs, or even calculated by the ratio between current inputs and current outputs, focusing on the use of resources.

The definition of effectiveness also has divergences among authors. Sumanth (1984) defined it as the degree of objective's achievement. Andersson & Bellgran (2015) described that effectiveness has the focus outside organization, targeting the customer, and providing what customers wants, which is a very close to Radnor & Barnes' (2007) vision, who defined effectiveness as the notion of adequacy of process' outputs in relation to the company and customer needs. Finally, Teng (2014) summarized effectiveness as "doing the right things".

It is usual the combination of efficacy and process' outputs. In a more precise way: efficacy is the relation between the outputs' result and their suitability against market's requirement and organization's wishes. The figure 1 shows, graphically, how the concepts of productivity, efficiency and effectiveness will be represented in a productive system.

FIGURE 1
PRODUCTIVE SYSTEM - MODIFIED OF SINK & TUTTLE (1989)



Public Sector Performance

According to Fryer, Antony & Douglas (2007), the public sector is made of organizations that deliver governmental goods and services at local and national levels, pointing out that the key points that characterize the public sector are: (1) although there are financial controls and objectives, maximize profit isn't the main goal; (2) there are distinct areas for politics, management, and professional services that have to negotiate with each other; (3) it is not clear who are its customers; (4) there are several stakeholders; (5) the management of the organization is subject to the political will and, when there is a change of political administration, a management reorganization in the organization can happen.

Moreover, the constant search for performance improvements is a goal for the private and the public sector. Kwak & Anbari (2012) explained that the performance measurement in the government sector continues to grow, supported by laws and pressure from citizens. The public spending with projects attracts attention and demands transparency.

According to Radnor & Noke (2013), the NPM made public organizations to focus on improvement of internal operations by introducing a set of management techniques and methodologies to improve business processes. Silvestre & Araújo (2012) understand that the NPM's paradigm differs from the model adopted by the public sector in the end of the seventies, when the bureaucracy played a central role in political activities, what turned the focus of public sector bureaucracy to be in the inputs instead of outputs or results. Decision-making processes were static and there were no efforts in promoting new ways to perform public services in order to be more efficient or effective.

Furthermore, Björk, Szücs & Härenstam (2014) showed that NPM made the public organizations become more similar to the private sector, listing two features of this fact: achievement of internal processes' information and validation, and the pressure to keep a low public spending while the quality of the provided services are improved or maintained. Additionally, Curto & Dias (2014) assumed that the NPM has the dysfunctions' reduction as the main goal, like in any reform in public administration, and the decentralization as an essential process.

Pollitt (2002) listed the main guides of NPM: (1) a change of the managerial efforts from system inputs to outputs and outcomes; (2) a higher performance measurement; (3) the preference for a more autonomous and horizontal organization; (4) wider use of market tools; (5) enhancement and increased boundaries' permeability between the public and private sectors; and (6) a change in the values of the public sector, focusing on efficiency. This led the public sector to aim at continuous improvement and work with clear performance's goals, specifying costs and its intended results.

According to Crawford & Helm (2009), after two decades of reform and concern about improving the performance, the public sector suffers the same pressure as the private sector to satisfy its stakeholders. To achieve this, the public sector must demonstrate accountability and transparency, and uses its projects to pursue their strategic objectives. Rhodes et al (2012) explained that public organizations have begun to focus on the results, and, to meet the needs of public service customers. Then, they must target on deliveries and outputs instead of inputs.

Deepening the discussion of performance in the public sector, Pollitt (1986) described the concept of the three Es, also called triumvirate of virtues, which defines the performance in terms of efficiency, effectiveness and economy. The definitions of the three Es elements are explained by Pollitt (1986) as: efficiency is the improvement in the ratio of inputs to outputs of a system; effectiveness is the service's impact degree; and economy is the reduction of public spending to provide the same service.

Parker, Waller & Xu (2013) argued that the model of the three Es is one of the two models most applicable to service's organizations' performance. Despite the productivity of the public sector, it could be defined similarly the productivity of the private sector. The definition of outputs in the public sector requires a greater attention. Grönlund, Svärdesten & Öhman (2011) identified the three Es as the traditional elements for the public sector analysis due to the concepts being related to the public sector's main activities: the economy focuses on reducing the resources' cost; efficiency explains the relationship between outputs and inputs used to produce goods or services; and the effectiveness measures the objectives' achievement extension.

It should be noted that the three Es don't always have the same behavior. In other words, an increase in one of the features by itself will not lead, necessarily, to an increase in any other feature. Pollitt (1986) demonstrated the fact that the three elements don't walk together using three examples: (1) cost savings may reduce the effectiveness; (2) achieve efficiency may lead to a bigger money expenditure, affecting the economy; (3) achieve efficacy (e.g. increasing public service coverage) could lead to operations creation in remote locations, decreasing the efficiency of operations.

According to Jääskeläinen & Sillanpää (2013), the challenges of measuring performance in public organizations are related to the difficulty of solving the conflicts between the various stakeholders and defining a common goal for different stakeholders, who may have very different opinions concerning the measuring purposes (such as monitoring, report, strategic management or benchmark) and each purpose can lead to different needs to performance indicators in public organization. Azman, Abdul-Samad & Ismail (2013) says that public projects are essentially political. Crawford & Helm (2009) noted that the use of public funds for project execution attracts the media attention and could cause some political damage to the government who is responsible for its execution. Thus, it is certain that public projects need to aim performance improvement in order to not been seen as a non-responsible expenditure.

ANALYSIS OF PROJECTS IN SÃO PAULO DEPARTMENT OF FINANCE

Methodology

In this paper there were used the case study methodology to analyze the data from SEFAZ-SP related to PROFISCO's projects and their suitability with the theory of three Es' performance, understanding which of the three concepts are addressed by each project.

This kind of case study is recommended for the analysis of complex situations and it has the following characteristics: exploratory approach; understand an environmental context; use of various sources; search for comprehensively reality understanding; observe the execution of activities; and represent different points of view. The various sources of information that could be used are interviews, documentation, record files, direct observations, participant observations, among others.

For this study were used two sources of data, namely: (1) Documentation: through a request for the Citizen's Integrated Information System of São Paulo, there were raised all projects undertaken by PROFISCO in SEFAZ- SP with their investment value and a description of each project, and (2) Direct

observations: one author of this study is an employee at SEFAZ-SP, who could understand the context of the projects developed, even if he is not acting directly with their execution.

Four steps summarize this study's methodology: (1) obtainment and preliminary analysis of PROFISCO's projects' data, (2) selection of high investment projects, through a Pareto analysis, (3) description and understanding of the selected projects, and (4) linkage between selected projects and the theory of three Es' performance analysis.

Project's selection and description

SEFAZ-SP is a department in São Paulo state administration that began its activities in 1892 and it has the functions of tax, financial, budget, and credit administration. The department's mission is "To be recognized as a department of excellence in financial administration by public sector and society" and, to achieve its mission. It develops several projects in order to improve its performance and excellence.

In 2006, due to a request of the Brazilian National government, the IDB participated in the design of a new tax program to support the modernization of Brazilian states' fiscal management called Support Management and Integration of Brazilian Tax Authorities Program (PROFISCO).

Initially, the PROFISCO was structured to achieve the following objectives: improvement of the investment environment, improvement of the tax system, integration of tax authorities, and strength fiscal federalism. These objectives tried to achieve the modernization and improvement of Brazilian tax authorities' performance. Nowadays, more than twenty Brazilian States participate in PROFISCO.

In the middle of 2015, SEFAZ-SP had thirty eight projects with the IDB's program funding, with a total funding of R\$ 298,745,293.05. A Pareto analysis was made and the eight largest projects were selected, which have, individually, investments higher than ten million Brazilian Reais, and represent together 65.2% of the total PROFISCO funding. The selected projects are:

- Project 1 – The project involves the construction of five tax services offices, including acquisition the furniture, visual identification for the new physical structures, equipment upgrade and training the frontline staff.
- Project 2 – The project aims to the expansion of electronic document storage capacity for all the SEFAZ-SP's units and departments.
- Project 3 – The project aims the implementation of the new version of Electronic Purchase System defining, building, and implementing information, navigation and database architecture.
- Project 4 – The project consists in the development of a cost system and the definition of a cost methodology with the development of the procedures and policies manuals.
- Project 5 – The project focus on the development of communication among the SEFAZ-SP staff with the integration of communication channels (telephone, e-mail and workspaces), and improvement of tools and mechanism for remote access through mobile devices. The project covers the physical and technological structure and the creation of standards and procedures.
- Project 6 – The project intends to cover the renovation of SEFAZ-SP's physical structures training department's central unit and two regional units, including the update of computational equipment and the purchase of new furniture.
- Project 7 – The project focus on the creation of a tax services website that will be a single portal for electronic relationship with the taxpayer.
- Project 8 – The project aims to the implementation of an electronic system to monitor, in real time, the State of São Paulo financial data. The system should include reports for strategic, tactical and operational SEFAZ-SP staff.

Discussion about the selected projects

As mentioned above, all PROFISCO's projects seek to improve the performance of SEFAZ-SP. Each of project presented above was individually assessed focusing the potential positive impact they could have on each of the theory of three Es elements (efficiency, effectiveness and economy) relating them to SEFAZ-SP's services provided for São Paulo's citizens. The results are shown below:

- Project 1 - The expansion of tax services offices brings the SEFAZ-SP's staff closer to citizens, what makes the services more easily accessed by the citizens. The enlargement of the number of citizens who are able to use the services of SEFAZ-SP enhances the results of services, increasing the effectiveness of services. However, the processes were not changed, maintaining the efficiency at the same level and did not reduce the service execution costs, which did not affect the economy by the project.
- Project 2 - With digital document's storage's capacity expansion, the processes' efficiency within the SEFAZ-SP tends to increase, as the processes that rely on documentation become faster. However, this won't generate any saving in costs nor an increased service's effectiveness because it would not change the process outputs.
- Project 3 - The new version of Electronic Purchase System the State of Sao Paulo won't change the purchase bidding process, because it has necessarily to follow the same legal procedures, maintaining the same efficiency. There is, however, an improvement in process effectiveness. As the new system that has a better and easier usability, a larger number of suppliers could participate in the bidding process and offer lower prices, improving the results of the State of São Paulo procurement service. Performing the acquisitions at a lower cost, the purchase process economy will be improved.
- Project 4 - The implementation of a cost system makes the costs allocation process faster and automatic, increasing the process efficiency. The effectiveness is also increased because the system will reduce errors in costs allocation process, improving its outputs. It will also increase the process economy, because it would reduce staff allocation for the process that would be replaced by electronic automatic process.
- Project 5 – Through the creation of tools and mechanism that facilitate communication and collaboration among the public service staff, there would be an improvement in the efficiency of work performed by them, due to reduction of the delays related to inefficiencies in information access. The effectiveness will also be impacted because operations and analysis become more effective, when the staff starts to work collaboratively, avoiding results failures. Finally, the economy will not be changed because the costs involved in the process would keep unchanged.
- Project 6 – The SEFAZ-SP's training department, which is responsible for SEFAZ-SP's staff's training, its renovation and technological upgrade, would not affect organization's efficiency, effectiveness and economy directly. Besides, the staff's training would generate, in the long run, improvements in all three measures. When the staff have better skills and capacities, they will be more effective in performing their functions, proposing new ways of doing business that would lead to improvement in the economy and efficiency of processes.
- Project 7 - The electronic relationship model brings a new approach to SEFAZ-SP, changing the notifications of taxpayer from physical methods to electronic attendance. The project does not alter the effectiveness of the operation because it changes only the way in which the taxpayer is contacted, but does not change the notification results. The economy is increased because SEFAZ-SP saves the expenses related to the staff transportation to do the physical taxpayer notification, avoiding unnecessary costs. Also, the locations of the taxpayer become easier, increasing the efficiency.
- Project 8 - This project of electronic system aims to deliver data faster and with greater focus for the various SEFAZ-SP areas. The processes by which these data will be processed and analyzed would not be changed, what means that efficiency will not change. On the other hand, the effectiveness would improve because the more information available, the better would be the compliance with all the legal obligations. As the costs won't change the process economy won't be affected.

CONCLUSIONS

The complete results of the project's analysis performed in the previous section are presented in Table 1, which shows the linkage between the projects scopes and the theory of three Es' performance. In 75% of projects, the effectiveness was addresses, which is the most frequent concept.. Efficiency was addressed in 62.5% of the projects and the economy in 50% of the projects.

TABLE 1
LINKAGE BETWEEN THE PROJECTS' SCOPES AND THE PERFORMANCE THEORY OF THREE ES

	Efficiency	Effectiveness	Economy
Project 1		X	
Project 2	X		
Project 3		X	X
Project 4	X	X	X
Project 5	X	X	
Project 6	X	X	X
Project 7	X		X
Project 8		X	

As described in the literature, the analysis shows that the three concepts cannot be always achieved in the same project, fact that only happened in two of eight projects. The other six projects were only impacted by one or two concepts. It happens because the elements could be mutual exclusive. Then, the improvement of an element would be viable only with another reduction and the increase of one element is not sufficient condition to the increment of others.

It is also important to note that the selected SEFAZ-SP's projects, analyzed in this study, addresses all elements of the theory of three Es' performance in a greater or lower degree, demonstrating the validity of the concepts in the study of the public service provided by SEFAZ-SP for State of São Paulo's citizens. The results also demonstrate that the PROFISCO's investment represented by the sample analyzed, which represents 65.2% of total PROFISCO's investment in SEFAZ-SP, are reaching the IDB's goal of improving the São Paulo's tax authorities performance.

Provided that, this study has clear limitations related to the sample used to analyze the performance's improvement in public sector. The sample doesn't cover all the range of service provided. Other kind of limitation is related to the study case methodology that is not easily reproduced and the results may not be generalized for other situations.

Future researches can be developed in order to expand the analysis in mainly two ways: they may be extended in PROFISCO level covering projects of other Brazilian tax authorities, or may be expanded at the level of SEFAZ-SP, analyzing all the organization's projects funded and not funded by PROFISCO. Others performances theories could also be added to the analysis to confirm the linkage between them and the public services.

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