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From internal efficiency to societal benefits – Multi modal transport safety agency's socio-economic impact analysis

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ABSTRACT

Pressures to cut public expenditure and to reach high value for money of projects that use scarce public money are evident across the globe. At the same time there seems to be a lack of decision support tools for pin-pointing whether public services are yielding net benefits. Accountability is called for but the 'accounting systems' that validate the right choices in service delivery are not yet thoroughly established. As a response, an impact evaluation via a real-world case study of a multi-modal transport safety agency is presented. The main contribution of this article is methodological, including a summary of study cordoning; description of methods to map impact mechanisms; quantification of socio-economic impacts of services; the benefit to cost (B/C) appraisal of services and service bundles, and evaluation of an agency's overall B/C ratio by applying the findings to systems level. The described analytical process is repeatable elsewhere with modifications or as it stands.

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1. Introduction

Public agencies and their services are under greater scrutiny than ever before due to the scarcity of resources societies are able and willing to invest in them. This phenomenon has been recently further highlighted by the global economic turmoil. In addition to global competition between countries, another key reason for this is the trend of new public management (NPM) that has taken rapidly advancing steps across the globe (Dan & Pollitt, 2015; Gruening, 2001; Haque, 2004). Globalization has led the shift towards more market-oriented economies, but on one hand this trend is often dated to Margaret Thatcher's government in the UK. New models of public governance have also brought along the metrics of private sector's managerial processes: the outputs and effectiveness of public services should be measured in more tangible ratios in order to facilitate efficient management control. These managerial controls are often separated from the political control. On the other hand, in some cases dual roles may appear, as pointed out by Vasikainen (2014). Sometimes the governing body

(e.g. ministry) may in practice end up operating both as the governor/manager of an agency, and at the same time acting as a client for the agency's services or other outputs.

In general, the transport sector has been at the forefront of the renewal processes of different administration sectors. For example, the analysis unit of this article (Finnish Transport Safety Administration, hereafter referred to also as Trafi or 'the agency') is a fairly new entity in the national transport sector governance architecture. The historical evolution of the agency to its present form has been a series of radical privatizations, restructuring measures and mergers of agencies (Mononen, Leviäkangas, Roine, & Haapasalo, 2014). Despite systematic restructuring and search for well-functioning administrative architecture, several challenges remain:

- challenges to assess efficiency and effectiveness of public services;
- difficulties to draw clear-cut lines between fully public, semi-public and private (or to-be-private) services;
- lack of clarity and understanding of how to identify services that add no value (e.g. artefacts from previous governments that are no longer valid due to the surrounding operational and political environment having changed over time);

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- problems in setting effective, unequivocal, transparent and fair performance targets to manage the agency in line with policies and strategies.

The evaluation of any public agency's services would need to serve the purpose of providing administrations' management and the overseeing body, the information on how well the tasks and missions of the agency are fulfilled in terms of enhanced socio-economic well-being and adding to the value of different functions of the society. Without clear perception on performance, the government as a whole is in fact not able to do its job in making sure that agencies and other public bodies are functioning properly. Partly this management control is associated with the need of continuous change, as pointed out by the [OECD \(2010\)](#).

Prior traffic safety administration evaluation has been carried out by the [Finnish National Audit Office \(2013\)](#) and [Ministry of Transport and Communications Finland \(2013\)](#). These evaluations focused on the roles and responsibilities of the country's different traffic safety actors and Trafif's internal efficiency. These evaluations did not cover the agency's services, but did identify that the benefits and costs of the agency's functions would need to be assessed.

Performance contracts between public agencies and their controlling bodies – ministries or equivalent – are increasingly commonly used as tools for performance management ([Binderkrantz, Holm, & Korsager, 2011](#)). Management by Objectives (MbO) is a well-defined method of setting objectives to achieve the mission of an organization ([Drucker, 1974](#)). The Finnish state, among others, applies MbO throughout the administration in order to operationalize the mission and specify the targets of each ministry, agency and state institution.

While there is a history in research in evaluating the performance of businesses, projects ([Proost et al., 2014](#)) and programs ([Fuller et al., 2013](#)), evaluating impacts of an entire agency and its socio-economic impacts is not commonplace and lacks tradition. This is the case especially with regard to service intensive agencies. Namely, it is important to acknowledge that at public organizations that deal with investments, e.g. infrastructure maintenance or construction procurement, there is a long and established tradition to submit investment options to benefit cost appraisal ([Brent, 1996](#); [Gramlich, 1998](#); [Layard & Glaister, 1994](#)). Hence, the term 'lack of tradition' here specifically refers to the regulatory and administrative functions and services of public organizations, and not to the practices within investment decision justification. When reviewing relevant literature on service oriented public organizations, potential references on headline level are available (e.g. [European Environment Agency, 2013](#)) but these evaluations have not provided quantitative (monetary or otherwise) results. Advances have been made and are underway (e.g. [Saetren, 2014](#)) but the need of quantitative methods and metrics has been recognized by numerous initiatives and scholars ([Howlett, Tan, Migone, Wellstead, & Evans, 2014](#); [National Audit Office, 2001](#); [Papadimitriou & Yannis, 2014](#); [United Nations, 2010](#)). Furthermore, there is not enough understanding of either what form the benefits take or how they spill over to different beneficiaries and sectors. It is not self-evident that public services, such as for example, permits to transport certain goods or licenses to educate young drivers, are equally beneficial (or harmful) for all. These are the research gaps this article contributes towards by presenting one approach to evaluate an entire service oriented agency.

2. Objectives and research approach

The main objective of this article is to present the construction of a feasible process for evaluating the socio-economic benefits of a service oriented public organization. The main research questions

(RQ) can be formulated as follows. RQ1: with which process and methods can the socio-economic impacts of a public organization be investigated and quantified? RQ2: what are the B/C ratios of individual services? RQ3: what is the overall B/C ratio of the organization?

This study presents the socio-economic impact evaluation of a real-world public agency. The entire research process and its development is covered, including the data collection, research design, sampling, sample's impact analysis and scaling up the results to cover the agency as a whole. The earlier phases are only covered as a concise summary since they have already been reported elsewhere. The main contribution of this article is methodological and focuses on the final stages of the analysis, the discussion on the spill-over and distribution effects of the socio-economic impacts; and the results' implications with regard to the management and control of the agency.

Multiple Criteria Decision Analysis (MCDA) was applied to cordon the services of a public agency and services were clustered to formulate the agency's service impact profile. The profiles were constructed using key performance indicators set for the agency under its performance management contract with the governing ministry. A selected sample based on MCDA were used as cores around which the rest of the agency's services that carried similar profiles were clustered. The core services' impacts were evaluated one by one applying traditional cost-benefit analysis, on the basis of which the scaling-up of impacts was finally performed. The entire impact evaluation process as constructed in this research is depicted in [Fig. 1](#). [Fig. 1](#) also visualizes the structure and flow of the body of this article.

The unit of analysis was Trafif, which was studied with multiple levels of analysis. Instead of attempting to observe several analysis units in a comparative manner, single analysis unit approach was selected based on the limited earlier research of this kind. Research material consisted of published official documents and internal documents extracted from the analysis unit's enterprise resource planning system. The analyzed data cover a wide array of documents comprehensively describing the agency, its tasks, objectives and performance indicators. Furthermore, all available documentation and statistics with regard to planning, production and delivery of the agency's services were utilized. The impact analysis relied on earlier published research. The data were analyzed using the following methods:

- Full list of the agency service portfolio was compiled systematically. The list was valued with regard to 20 different impact criteria using an interactive workshop method (e.g. [European Union, 2010](#)). The valued data was used in the selection of sample with MCDA method ELECTRE III (e.g. [Belton & Stewart, 2002](#); [Bernard, 1973](#); [Clemen, 1996](#); [Jablonsky & Dlouhy, 2003](#)).
- The sample validity was analyzed with service clustering and cluster impact profiles, which were tested for uniformity with Spearman's rank correlation coefficients (e.g. [Marascuiolo & Serlin, 1988](#)), supported by visual inspection.
- Several methods were applied to constructs of impact mechanisms, impact evaluation, benefit to cost (B/C) ratio determination (e.g. [Brent, 1996](#); [Gramlich, 1998](#); [Layard & Glaister, 1994](#)), and benefit quantification/monetising. They are explained alongside the relevant research phase description. In this paper one impact mechanism example is shown as an example.
- The validity of the results from sample services' impact evaluations were analyzed with non-parametric tests (e.g. [Marascuiolo & Serlin, 1988](#)).
- The sample results were scaled-up to reflect the agency as a whole by first looking at the public funder's return for their

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