

# Evaluation of e-Government Policies: Overlooked Aspect of Public Interest

Dalibor Stanimirovic, Mirko Vintar

Institute for Informatization of Administration  
University of Ljubljana, Faculty of Administration  
Ljubljana, Slovenia

dalibor.stanimirovic@fu.uni-lj.si, mirko.vintar@fu.uni-lj.si

**Abstract**—The majority of existing methodologies for evaluation of e-government policies is underdeveloped and partial, preventing comprehensive and objective evaluation. This situation consequently results in poor quality of planning and implementation process, while further diminishing positive effects and decreasing public consumption of e-government services. One of the most frequently overlooked aspects of e-government policies evaluation is the concept of public interest, which is not given sufficient attention within existing evaluation methodologies, reducing the legitimacy of policy making in the field. The significance of public interest is often elusively defined, while its dimensions are somehow rendered particularly within the financial benefits. Paper provides an analysis of more than 50 methodologies for evaluation of e-government policies, exploring the presence of public interest aspect within. Analysis offers an insight into the current evaluation practice enabling detection of its deficiencies as well as their mitigation, and could facilitate a significant contribution to more evidence-based evaluation of e-government policies.

**Keywords**—e-government policy; evaluation methodology; public interest

## I. INTRODUCTION

Various studies indicate that further e-government development is one of the most important factors of public sector rationalization [1][2][3], as well as faster countries' development [4][5][6]. Despite considerable investments in e-government in recent years (European Union (EU) countries are investing approximately 2.2% of Gross Domestic Product (GDP) in Information and Communication Technology (ICT) in the field of public sector [7][8][9]) the expected effects in terms of reducing costs and increasing the effectiveness of public sector are still rather ambiguous, while user acceptance of e-government services is far below government anticipations. Disclosed issues and present public finance situation along with increasingly stringent austerity measures require careful direction of further e-government investments, particularly focusing on proficient evaluation of e-government policies and their effects – be it on national, local or sectoral level.

Past experience in the field necessitates the development of methodologies for evaluation of e-government policies (the collective term “methodologies” is used denoting approaches, studies, indicator models, measurement frameworks and similar undertakings for evaluation of e-government policies) which could enable e-government decision-makers to conduct more qualified and quantified preparation, execution and evaluation of e-government policies including their broader societal implications. Considering e-government development so far, we have been witnessing a big gap between supply and demand of public e-services in most countries, which can be prevalently attributed to “politically driven” development rather than “evidence based” evaluation and selection of e-government policies [10][11][12].

Notwithstanding the increasing number of different evaluation methodologies emerging in the last years [13][14][15], some aspects of e-government policies evaluation have been largely disregarded, particularly public interest as one of the foundations of public policy making. This rather unsatisfactory state of affairs has led to growing calls for a reassessment and rebalancing of the rationalisations in evaluation of e-government policies, and in particular for a greater weight to be given to the public interest [16].

The paper discusses the main features of existing methodologies for evaluation of e-government policies and analyses their evaluation foci trying to establish the extent to which existing methodologies facilitate evaluation of public interest. Deriving from the aforementioned research objectives the paper is focusing primarily on the following interrelated research questions:

- 1) Overview and study of existing methodologies for evaluation of e-government policies and summary of their characteristics.
- 2) Analysis of the existing methodologies for evaluation of e-government policies regarding the aspect of public interest.

From the methodological point of view, research represents a typical in-depth analysis, while research activities are embedded in two-phase incremental methodological framework. Combining different techniques of qualitative research methods [17], the initial part of the study has focused on the analysis of primary and secondary

sources, whereas deriving from obtained research results, the conclusive part of the research is striving to integrate theoretical and practical aspects regarding the research subject. Selection of research methods was adapted to the research field [17][18] given the complexity of e-government evaluation initiatives.

Following the introduction, the second section of the paper presents the concept of public interest and an overview of the relevant literature while outlining various directions in evaluation of e-government policies and related issues and barriers. The third section provides an analysis of existing methodologies for evaluation of e-government policies and summary of their characteristics. The fourth section explores presence of the public interest aspect in the existing methodologies and sketches the research findings. The last section contains the review of the overall research, discussion on its limitations and subsequently submits the final arguments and observations regarding the research results and future work.

## II. CONCEPT OF PUBLIC INTEREST AND METHODOLOGIES FOR EVALUATION OF E-GOVERNMENT POLICIES – STATE OF THE ART

The public interest is not a unitary concept: different public interests are relevant in different scenarios and need to be weighted differently depending on the circumstances [16]. Public policy makers, expert public and citizens have to find the appropriate balance of the numerous public interests that may exist in any given situation. Finding this balance will not only involve comparing the relative importance of one public interest to another but also involve the contemplation of the interconnection of public interests and considering the broader impact that these may have in turn on other public interest networks [19].

Although there are different conceptions of public interest inaugurating different research perspectives, most frequently, public interest is viewed as a set of substantive ideals against which all policy proposals should be judged. The concept is thus recognized as a symbol to which all agree (few people are opposed to the public interest) and to which special interests appeal in order to rationalize their policy desires [20]. Regarding the contextual platform consisted of political and cultural framework of a particular society and the economic resources at its disposal, the public interest is defined as the aggregate of the fundamental goals that the society seeks to achieve for all of its members. Thus, the art of government consists of achieving a harmonious rather than a destructive balance among conflicting goals [21]. Some authors have studied the public interest concept from the aspect of substantive truths or principles. These truths or principals are not formal tests that any public policy must meet; however general they may be and however much skill may be required to apply them in particular cases, they provide substantive guidance to the proper content of public policy [22]. While others consider public interest and its dimensions primarily as a process of public action, primarily bargaining and competition between different interest groups, resulting in the overall social consensus [23]. Summarizing numerous

and occasionally complex definitions of the public interest concept, it can be generally regarded as a set of commonly agreed goals arising from the inclusive and transparent decision-making procedure, based on compromise and shared values of well-defined social community.

Despite its complexity and diversity of research approaches and perspectives, public sector concept is elaborated relatively well in theory, whereas it has failed to gain significant attention in majority of e-government evaluation undertakings. Consideration of public interest concept in methodologies for evaluation of e-government policies is often inadequate and superficial covering prevalently financial factors and omitting all other societal aspects while reducing the potential of evaluation process for objective and comprehensive evaluation.

### A. Methodologies for evaluation of e-government policies

In parallel to e-government development there have emerged numerous methodologies, trying to evaluate its development and effects on different parameters of government operation. According to their characteristics and subject of evaluation these methodologies could be classified in typical groups presented below.

#### 1) Front-office maturity and readiness

The most known benchmark measurements on the EU level have been conducted by Capgemini [7][8][9], while the most renowned benchmark measurements on the global scale have been carried out by the UN [14][24], Accenture [25] and Brown University [26]. While focusing primarily on web site analysis, indicators from these methodologies are not precise enough to ensure comprehensive evaluation and validation of e-government policies on the national level (see critical analysis of such benchmark measurements from [12][27][28], etc.). Some other important benchmark measurements dealing with e-readiness are: The Global Information Technology Report [15], Digital economy rankings [29] and United Nations e-Government Survey [14][24]. These benchmark measurements deploy different sets of indicators for benchmarking e-readiness and information society in general. Being predominantly focused on front-office change and infrastructural requirements, these rather extensive methodologies are hardly providing evaluation of public interest, incapacitating its incorporation in the process of further e-government development.

#### 2) Effects and impacts of e-government policies

Within a number of methodologies focusing on ex-ante and ex-post evaluation of e-government policies we could highlight: MAREVA [30], eGEP [31], WiBe 4.0 [32] and AGIMO [33]. MAREVA is dealing with ex-ante and ex-post evaluations of e-government policies on the basis of parameters such as profitability, risks, benefits, necessity; similar aspects are evaluated by WiBe 4.0. AGIMO and eGEP are striving to identify and analyse costs of establishment, provision, maintenance and performance as well as impacts of e-government services. In general we could find these methodologies very exhaustive in terms of the large number of indicators; however they rarely address the concept of public interest comprehensively, while some

particularised dimensions of public interest are normally amalgamated with financial benefits.

Considering significant organizational changes in the public sector organizations, induced by implementation of e-government policies, the research in the field is primarily focused on joined-up e-government model [34], organizational changes in the direction of network government [35], management and external factors which affect e-government development [36], business process change, information management capacity and organizational capabilities [37][38] and organizational culture [39]. An overview of related methodologies reveals there is no clear consensus on organizational changes caused by e-government implementation, and consequently no comprehensible methodology to measure implications of transformed public sector organizations for the various aspects and implementation of public interest.

### 3) National-level development

Surveys often highlight political and sociological factors as the most important external factors affecting e-government development. This aspect is partially discussed in United Nations e-Government Survey [14][24] through indicators such as e-participation, e-inclusion, e-consultations, and other research in the field [9][25][40] is focusing on political and sociological indicators such as accessibility, digital divide, human rights, social inclusion, economic sustainability and life-long learning. However, we can see that such indicators are very general and it is hard to incorporate them in a national context and determine their actual impact and correlation with e-government development. Despite economic activities on national level could significantly affect e-government development in individual country, research [11][41][42] dealing with national economic indicators and their implications for e-government is rather limited. Scarce studies [41] in the area are trying to define connections between national economic indicators and e-government development indicators specifically emphasizing correlations between GDP per capita, competitiveness, economic performance, government efficiency, use of ICT in the private sector, innovation index and internet access. The aspect of public interest within outlined methodologies is poorly elaborated and thus inadequately evaluated, while it appears that identification and formulation of vaguely indicated long-term public goals is hardly reached by public consensus.

### 4) Evaluation of e-government policies – issues and barriers

Evaluation of e-government policies is generally difficult [6][8][27][28], given the numerous obstacles to evaluation (Table 1) [43], complexity of public interest and frequent lack of clarity of objectives owing to the different and often competing stakeholder views. In addition, overlapping of initiatives and policies and their continuous fine-tuning related to volatile public opinion complicate monitoring and evaluation. The fact that e-government is relatively new is probably the main reason for fewer models and actual outcome experiences that can be used for benchmarking [43] and inclusion of public interest dimension. Effective evaluation including aspect of public

interest requires good metrics, regular monitoring and reporting, disciplined and professional use of robust evaluation frameworks and the use of long-term evaluation practices. These qualities depend on a government's overall evaluation culture [43]. E-government project failures could have been mitigated by appropriate and comprehensive evaluation in the course of their conceptualization and planning [12][44][45], the identification and elimination of the main obstacles to e-government evaluation, which obviously extend to several areas, such as: institutional, political, social, and cultural area, will require a broad consensus and strong commitment of all stakeholders.

TABLE I. OBSTACLES TO E-GOVERNMENT EVALUATION

Obstacle	Example
Lack of clarity of objectives - stated goals may not have associated measures of progress; there may be multiple objectives	Hard to measure "quality of life".
Hard to define success	If people are spending more time online, is that good or bad?
Easy to be too ambitious	Several countries have set targets of "all services online" by specific dates. But not all services are appropriate to put online.
Information paradox	The benefits of ICT investment may not be visible for some time.
Question of who are the clients; multiple clients	Should one evaluate benefits for the users, the employees, the government at large, partners, etc.?
Hard to measure shared benefits	Shared infrastructure, multiple projects benefiting from shared portal, etc.
Private sector tools may not work for governments	Governments place importance on social values that are not incorporated into private sector tools and objectives.
Available indicators may not be the good ones	Current indicators (such as number of employees with internet connections) are helpful, but have limits.
Government definitions and methodologies vary from one country to the next	Collecting data is easier at the local level, but at that level administrations are highly decentralised.
Incentives to misstate evaluation results	If an organisation succeeds in saving money, telling others may result in their losing that money.
Challenge of sharing results	Hard to get organisations to report unsatisfactory results.
What you measure may become focus of organisation	If you measure number of services online, but not service quality, priority will be on putting services online but not on service quality.

### III. ANALYSIS OF EXISTING METHODOLOGIES FOR EVALUATION OF E-GOVERNMENT POLICIES

The review of existing methodologies and various alternative approaches for evaluation of e-government policies was conducted in the second half of 2011. During that time we conducted an analysis of primary and secondary online resources, policy papers, reports, books, strategic documents, action plans and other documents containing e-government related research. In the initial phase of the review, we used key words of evaluation, assessment, measurement, monitoring, indicator models, e-government projects, e-government policies and effects (impacts) of e-government policies, and subsequently identified and

retrieved more than 380 related references in total. The frequency of references is becoming much higher in the second half of the last decade, proving the field is evolving rapidly and the interest of both the research community as well as policy makers on national and international level is increasing. In the second phase of the review, the identified references were tested by inclusion into the research framework containing two criteria, namely 1) identified reference must be completed project where evaluation of e-government policies is clearly outlined as the main research objective and 2) the reference must contain explicit indicators or benchmarks for evaluation of e-government policies. References which did not comply with both criteria as set out in the research framework were eliminated. After substantive verification and filtration, the vast majority of the items were excluded, leaving only 52 valid references. Identified methodologies and their publication types are catalogued in Table 2.

TABLE II. IDENTIFIED METHODOLOGIES FOR EVALUATION OF E-GOVERNMENT POLICIES

Author(s) – Year	Publication type
[30] [31] [32] [33] [46] [47] [48] [49]	Handbook / Tool
[9] [14] [24] [43] [50] [51] [52]	Policy paper
[11] [34] [35] [36] [38] [39] [40] [41] [42] [53] [54] [55] [56] [57] [58] [59] [60] [61] [62] [63] [64] [65] [66] [67] [68] [69] [70] [71] [72] [73]	Academic paper / Book
[13] [15] [74] [75] [76] [77] [78]	Report

Conducting our review we have identified basically three types of references dealing with our subject of discourse. Taking into account their development level we categorized the identified methodologies into three groups: 1) purely theoretical papers aiming to develop some kind of conceptual framework for evaluation of e-government policies, 2) research efforts developed up to the degree of pilot application and 3) methodologies developed in the practice for the practice (practical application).

Analyzing the diverse variety of evaluation methodologies identified in this area, certain general characteristics were identified and summarized below:

- Majority of the identified methodologies (30) for evaluation of e-government policies are presented in scholarly papers and books.
- Certain methodologies are rather abstract containing speculatively selected indicators often encompassing non evidence-based theoretical platforms, while their utilization does not facilitate the acquirement of quantifiable evaluation results.
- Accredited methodologies are to a large extent narrowly focused assessing predominantly one of the various evaluation aspects.
- More mature methodologies are consisted of a large number of indicators, which are normally aligned for evaluation of e-government policies in the originating countries.
- Majority of the identified methodologies are not providing a comprehensive evaluation of complex e-

government policies impacts and their potential long-term outcomes.

#### IV. PRESENCE OF THE PUBLIC INTEREST ASPECT IN THE EXISTING METHODOLOGIES

Quest for satisfaction of the public interest, as presented in theory [16][22][23], should be at the heart of every e-government policy making process, while its various dimensions should be comprehensively covered in the setting of long-term public goals. The latter assumption requires accountability of public policy makers and evidence-based decision making, which must be based on comprehensive and balanced methodologies facilitating evaluation of various aspects of the designated e-government policy, its effects and the potential far-reaching consequences. Deliberation between public stakeholders [83], transparent policy making process and ultimate public consensus will increase the viability of high investments in e-government and facilitate positive response to the e-government policy and more beneficial acceptance of new e-services while allowing the pursuit of public interest and overall social development.

Proliferation of advanced ICT solutions and development of e-government have changed the social structure and political-sociological paradigm of the country as the widest social community [14][79]. E-government demonstrates considerable potential for the achievement of various ICT-induced social changes which could hopefully result in the accomplishment of at least some of the objectives within the public interest domain.

Political-sociological effects of ICT and e-government on the society in general are very complex. They have a significant impact on changes of the social environment, they are affecting old and creating new forms of work and changing perception of the world and social relations [72][80][81][82]. Accordingly, existing methodologies are converging on the following aspects of public interest in e-government evaluation: accessibility [4][24][55], citizens' trust and confidence [25][70][71], digital divide [4][43][15][79], social stratification and cohesion, citizens' rights and democratic participation [5][15][40], openness, transparency and corruption [9][14][24]. Notwithstanding the importance of adequate evaluation of e-government impacts [6][9], integrated methodologies covering the aspect of public interest comprehensively, are rather scarce. Findings regarding the public interest aspect in the existing methodologies are categorized below:

- The aspect of public interest is assigned a peripheral role in most of the existing methodologies for evaluation of e-government policies.
- The concept of public interest is not clearly elaborated and categorized in the existing methodologies, preventing its comprehensive inclusion in the actual evaluation undertakings.
- Methodologies are applying large number of indicators when focused on evaluation of the costs, benefits and risks (the most segments of public interest aspect are usually incorporated with

benefits). However, the aspect of public interest in its individual form is usually allocated a very small number of indicators.

- Covering public interest in existing methodologies is particularized, usually including arbitrarily selected dimension of public interest.
- Aspect of public interest presented in methodologies is often inadequate and superficial focusing predominantly on financial benefits and omitting all other societal aspects while reducing the potential of evaluation process for objective and comprehensive evaluation.
- Existing examples of the integration of public interest aspect in the methodologies are speculative, since the segments of the public interest within the methodology were developed by policy makers without appropriate deliberation procedure and public consensus.

Accordingly, inclusion of the public interest concept into the comprehensive methodology for evaluation of e-government policies should encompass the following activities:

- Analyze the overall evaluation field and define the particular aspects of evaluation within e-government policy (e.g., infrastructural aspect, organizational aspect, political aspect, etc.).
- Define and clearly structure the notion of public interest and associated components. Constructs should not be too abstract, because it could prevent the acquisition of the required data, establishment of indicators and their measurement in practice, decreasing the overall evaluation success.
- Concept of the public interest should constitute a relatively autonomous category, preventing the dissipation of its components between other aspects of evaluation, which could significantly diminish its importance.
- Delineate the aspects of evaluation as much as possible and prevent overlapping and transition of the indicators from different aspects of evaluation.
- Conceptualize adequate and measurable indicators containing precisely specified object and unit of measurement, structure, context, etc.
- Indicators should be specifically focused on the evaluation of long-term public interest and goals that have been set out in the designated e-government policy. Evaluation of the public interest concept should be multidimensional including the demand side of e-government services (user preferences, needs and satisfaction, etc.), general value of e-government policy for all social groups, its contribution to sustainable and inclusive social development, human rights and liberties, development of democratic values, etc.
- Assign appropriate weight to the concept of public interest and its components in the final aggregation of the evaluation results.

## V. CONCLUSION AND FUTURE WORK

Research revealed a multitude of approaches which have been used in previous research studies and evaluation endeavors in this area, but still, their utilization in the process of comprehensive evaluation of e-government policies is only conditionally exploitable.

Despite limitations, seen mainly in the large diversity and absence of unified and clear theoretical framework, conducted analysis provides a valuable insight into the current e-government evaluation practice and facilitates exposure of inadequately evaluated public interest areas in the domain of e-government policies. The analysis results represent an advance in research of evaluation metrics and may eventually provide a solid platform for establishment of comprehensive methodology for evaluation of e-government policies including public interest aspect.

Problems in the development, usage and general success of e-government initiatives are evidently interrelated with the low quality and underdeveloped methodologies for evaluation of e-government policies and their public effects. Addressed shortcomings will have to be resolved, in order to ensure quality evaluation and disclosure of objective situation in the field, which could ultimately initiate the broader inclusion of public interest dimensions into the e-government policy-making procedures, and accelerate the overall development of e-government policies and appropriate e-services with added value for all stakeholders.

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