

DEMARICATION OF THE FIELD OF E-GOVERNMENT ASSESSMENT*

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Abstract

The assessment of e-government is a part of the appealing field of e-government which has recently attracted the attention of many researchers, who most of the time carry out measurements and evaluations of e-government maturity and do international comparative analyses that rank different governments, nations, or countries. The intensive production of literature in this field for about twenty years now creates a vast pool of studies, reports and papers that differ one from the other on the basis of too many different attributes.

The analysis of this literature is undoubtedly a difficult and challenging task which is beneficial to both researchers and end-users of these studies. We address this task in order to present a clear demarcation of the field of e-government assessment based on a comprehensive overview of thirty-seven written documents, studies and articles. We present a careful classification of the selected literature units according to four dimensions and attempt to draw clear lines between the terms – e-government measurement, evaluation and benchmarking, as they are often improperly used as interchangeable terms.

Keywords: e-government, assessment, measurement, evaluation, benchmarking, e-government maturity.

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1. Introduction

E-government is a process of introducing information and communication technologies (ICT) in the public sector for the purpose of creating a flawless, responsive, and citizen-focused government by transforming the process of delivering on-line public services and by introducing a fundamental re-thinking of the way government departments and agencies work. This is a long-term process that requires large amounts of resources in each country, which implies that governments all over the world need 'to monitor the efficiency and effectiveness of public spending' (Codagnone and Undheim, 2008, p. 2) as well as determine the achieved level of e-government development. In turn, governments use those results to 'help politicians and other stakeholders compare their initiatives with similar ones in others countries, to make sure that their efforts are moving the government in the right direction' (Jansen, 2005, p. 1). Thus 'since the beginning of this century, e-government has become a particularly favored subject for benchmarking' (Bannister, 2007, p. 172).

The need for measuring e-government maturity caught the attention of the research community, consultant industry, policy makers, and public administration and instigated them to start working in this field (Andersen and Henriksen, 2006, p. 236). The results of their efforts have contributed greatly to the creation of an extensive corpus of literature (Helbig *et al.*, 2009) referred to as 'e-government benchmarking', 'e-government evaluation' or 'e-government assessment'. 'In much of the literature addressing e-Government the two terms 'evaluation' and 'measurement' are often used ambiguously and inconsistently, with the impression that the two may be synonyms' (Savoldelli, Misuraca and Codagnone, 2013, p. 373). The corpus became so large and important that many meta-analyses which make comparisons between different assessment efforts (studies) have been performed. This, in turn, sometimes resulted in criticism of this emerging field primarily aimed at positively affecting its further development (Janssen, Rothier and Snijkers, 2004; Kunstelj and Vintar, 2004; Heeks, 2006; Bannister, 2007; Ojo, Janowski and Estevez, 2007; Salem, 2008; Codagnone and Undheim, 2008; Berntzen and Olsen, 2009).

The meta-analysis articles compare the assessment efforts according to different attributes: scope, type of measurement criteria and approaches used, concepts, taxonomy, conceptual issues and the symbiotic nature of benchmarking, evolution of indicators, and some of them even examine the forms of reporting (Bogdanoska Jovanovska and Todorovski, 2011). Also, they share features such as: suggesting recommendations for further development of the field (on a positive side); comparing a very limited number of studies and using ambiguously and interchangeably the different terms – measurement, evaluation, benchmarking (on the negative side). The starting point of this paper is related to this observation which refers to the limitations of the existing meta-analysis articles.

In this paper I perform a demarcation of the field of 'e-government assessment' by providing a comprehensive overview, both in terms of including a large number of assessment efforts as well as their profound critical analysis. The first step toward achieving the goal presented in Section 2 is providing a general overview of

the e-government assessment field by including thirty-seven studies and articles and their classification according to four new attributes. Furthermore, Section 3 summarizes and discusses the results of the classification; finally, Section 4 concludes the article with a brief summary and few recommendations for further research.

2. Overview of the studies

The overview of the literature of the so-called 'e-government benchmarking field' in this research encompasses thirty-seven studies and papers, presented in Table 1.

Table 1: Studies and papers on e-government benchmarking field included in the research

No.	Study	Abbreviation
1	Accenture [1]	
2	Australian Government Information Office [2]	AGIMO
3	Australian National Audit Office [4]	ANAO
4	Audit Office [15]	AO
5	Birch [8]	
6	Benchmarking Info. Society: e-Europe Indicators for European Regions [9]	BISER
7	Booz Allan Hamilton [13]	BAH
8	Brown University in USA [65]	BU
9	CapGemini Ernst & Young [17]	CGE&Y
10	The Commonwealth Network of IT for Development Foundation & United Nations Educational, Scientific and Cultural Org. [20]	COMNET-IT & UNESCO
11	Economic Intelligence Unit [23]	EUI
12	Erin Research Inc. [24]	Erin R. Inc.
13	Gerhson [25]	
14	Hart Research Ass. and R. Teeter [26]	Hart-Teeter
15	HM Government [29]	HMGov
16	International City/ County Management Ass. and Public Technology, Inc. [31]	ICMA & PTI
17	INRA Europe, EuroBarometer [32]	EuroBarometer
18	Ipsos MORI [33]	
19	Key Elements for Electronic Local Authorities Network [36]	KEeLAN
20	Millard et al. [42]	
21	National Science Foundation and Momentum Research Group of Cunningham Communication. [43]	Momentum
22	National Association of Countries [44]	NACO
23	National Audit Office [45]	NAO
24	The National Office for the Information Economy [46]	NOIE
25	The National Office for the Information Economy and DMR Consulting [47]	NOIE andDMR
26	Nordic Council of Ministers [48]	NCM
27	Organization for Economic Co-operation and Development [49]	OECD
28	Office of Envoy [50]	OE
29	PLS Rambøll Management A/S & EWORX S.A. [52]	PLS RM A/S
30	Society of Information Technology Management [56]	SOCITM
31	Statistical Indicators Bench-marking the Information Society [55]	SIBIS
32	Strover & Straubhaar [58]	S&S
33	Taylor Nelson Sofres [21]	TNS
34	TrietoEnator Trigon AB [59]	TET AB
35	United Nations [61]	UN
36	WASEDA University [64]	WASEDA
37	World Economic Forum [67]	WEF

Source: Author's compilation

As the diverse literature opens a possibility for creating various taxonomies, we presented the trajectory of this field by taking into consideration the following unique attributes: authorship and commissioning (who makes it?); geographical scope and diversity (where it takes place?), frequency of publishing (how many times the measurement is repeated?) and focus or subject of the study (what is being measured?). Only one of these four attributes (focus of the study) is already used for making comparisons in the field by some of the authors of the meta-studies. Short comments for each attribute are given in the following separate sub-sections. The reason for this categorization derives from the idea that these attributes can be crucial for clarifying the problem that this paper tackles.

2.1. Authorship and commissioning

A careful review of the available literature through the prism of authorship, commissioning and providing finances for e-government maturity measurement shows that there is a wide range of different stakeholders who take an enormous interest in this issue. These stakeholders can be classified in six clusters as follows: *large international organizations* that deal with e-government measurement globally such as UN or OECD i.e., 'global projects conducted by international organizations' (Rorissa, Demissie and Prado, 2011, p. 3); *global independent organizations* such as WEF and EIU; *multinational consulting companies* such as Accenture, CGE&Y and TNS; *academic institutions and its non-profit research centers* such as BU in USA and WASEDA in Japan; *national institutions or national associations for ICT in the public sector* in a single country such as: OE, NAO and AO in UK; the European Commission in Europe; AGIMO, ANAO and NOIE in Australia; Momentum in USA; Erin R. Inc. in Canada; and *single researchers' groups* such as the groups working together with Bannister (2007), Heeks (2006), Salem (2008), Berntzen and Olsen (2007); Vintar, Kunstelj and Leben (2004); Janssen, Rotthier and Snijkers (2004); Ojo, Janowski and Estevez (2007) etc.

These different types of stakeholders who play the role of authors of the studies on measuring e-government maturity have different financial sources and commissioners. Some possible combinations of the authors are the following: *partnership*, where the authors work together in preparation of the study (e.g., UN works with ASPA, UNDPEPA, UNDESA); *working on behalf of somebody else*, where multinational consulting for-profit companies work independently or in collaboration with others (e.g., Accenture, Capgemini works on behalf of the European Commission) in research and development projects (TietoEnator Trigon ABA, BISER, SIBIS, EuroBarometer, KEELAN); *self-funded projects* or *independent work* where the authors realize self-funded projects or independent work of research groups.

2.2. Scope and geographical diversity

The studies that measure e-government maturity have different geographical diversity and scope. Most of them are international (truly global and partly global), but also there are a number of regional and national ones.

The studies with the international scope which belong to the category of *truly global* include: the BU's study (West, 2007) which covers 198 different nations; the UN's study (United Nations, 2012) with 190 countries; WEF's study (Dutta and Mia, 2011) with 138 countries; EIU's study (Economist Intelligence Unit, 2010) which covers 70 countries; and TNS (Dexter and Parr, 2003) which covers 32 countries from 3 different regions (North America, Europe, Asia Pacific). The category of *partly global* studies comprises studies with a limited scope of countries included in the research: (a) countries from all over the world (e.g., Accenture (2007) covers 22 of the world's national governments); (b) countries from Europe (e.g., PLS RE A/S (2003), SIBIS (2003), CGE&Y (2004) and KEeLAN (2002)); and (c) states from the USA (e.g., Momentum (2000) is an example of research which covers only member states of the USA).

There is a very limited number of studies with a regional scope – BISER (2004) which covers 28 European regions; then, there is this study whose author is the NCM (2002) and which covers 5 countries in the region: Denmark, Finland, Iceland, Norway and Sweden.

The national studies are numerous, created or commissioned by the national agencies of the respective countries as it is the case with Birch (2003), OE (2003), SOCITM (2004), NAO (2007) and Ipsos MORI (2010) in the UK; Erin R. Inc. (1998) in Canada; AO (Burgess and Houghton, 2002); NOIE (2001); NOIE and DRM (2003) and Gerhson (2008) in Australia; Momentum (2000) and Hart-Teeter (2003) in the USA.

2.3. *The frequency of publishing*

The deliberation of the publishing history of the studies yields an interesting insight: some of the studies have continuity whereas some of them do not. The studies that measure e-government maturity continuously and make comparisons between the previous and the upcoming measurement results, while providing comments, are presented in Figure 1. Their inception was instigated in the last decade of the past century and all of them have had a rather long life span to date.

In Figure 1 the x-axis presents the names of the authors/organizations that publish the studies and the y-axis presents the period of the first publication of the study in the edition. The horizontal line means that the study publishing has been taking place continuously in the years after its first publishing to date.

According to the available literature, there are fourteen benchmarking studies created by different authors with different starting points (e.g., EuroBarometer which was the first such study (since 1995) and WASEDA (since 2005) that produce benchmarking studies for e-government development). Most of the studies are created on a yearly basis and are listed as annuals (Accenture, CGE&Y, WEF, EIU, WASEDA, and BU). However, one is biannual (Erin Research Inc.) and two of them are published twice a year (SOCITM and NOIE). The scope of most of the studies encompasses the EU, whereas only some of them include the USA, Canada, the UK or Japan.

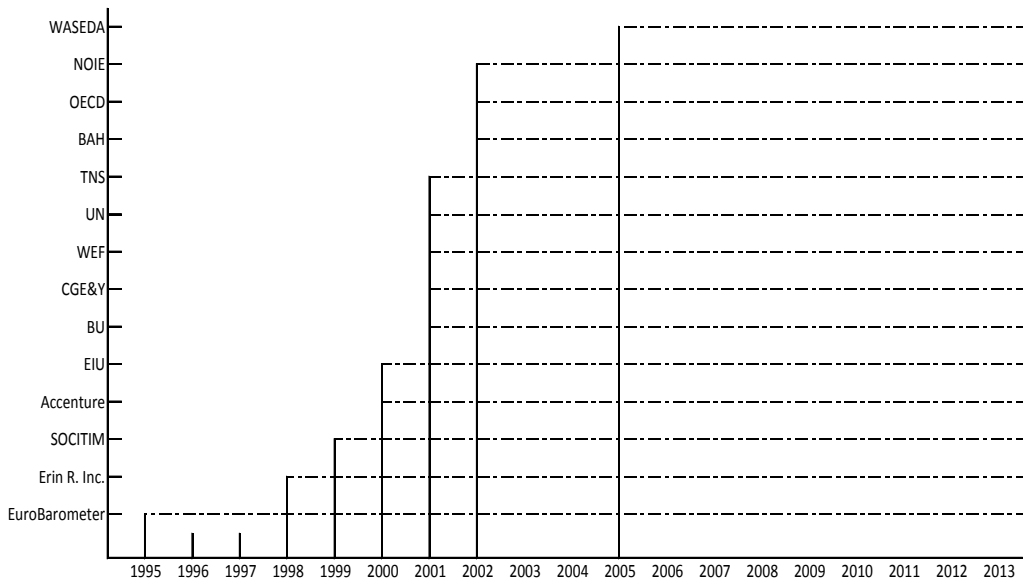


Figure 1: Publication time-table of e-government maturity measurement studies that have sequels

Source: Author's compilation

The companies that continuously write and publish reports, commonly, do that in a form of editions of studies. This implies that the reports normally have the same or very similar titles (e.g., the titles of the studies of the WEF are *The Global Information Technology Report 2003-2004: Towards an Equitable Information Society* (2004), *The Global Information Technology Report 2010-2011: Transformations 2.0.* (2011) where the title of the study is the same (*The Global Information Technology Report*), whereas each subsequent year the period mentioned in the title changes (2003-2004 or 2010-2011 etc.) as well as the second part of the full title of the study (*Towards an Equitable Information Society* (2004); *Transformations 2.0.* (2011)). This provides an easy identification of the edition of the study to which these publications belong, since very often only the names of the authors are changed (e.g., WEF, EUI and WASEDA).

Another category of studies in the pool of literature related to developing e-government measurement includes studies that present the situation of e-government development at one point of time. Their publishing also started in the last decade of the past century. The presentation of this category in Figure 2 is created in the same way as in the previous category of studies where the y-axis presents the names of the authors/organizations that publish the study and the x-axis presents the period of publication of the study.

Most of these studies have a national character (e.g., OE, NAO, NOIE and DRM, OE, Birch, and HMGov. in UK; Gershon in Australia; Momentum and NACO in USA). Some of these studies refer to the European Union (e.g., KEeLAN, SIBIS, TET and PLS RM A/S) and they, in fact, are the final reports of already realized projects. The international evaluation studies are not frequent at all (e.g., Demchak, Friis and La Porte, 2000); and there are only two regional studies (NCM and BISER). Each of

A thorough review of the studies discloses three main types of focus (e-readiness, ICT intensity and Digital divide) as well as several sub-types of ICT intensity (external intensity: supply and demand; and internal intensity). Figure 3 presents the coverage of the front office and the back office in different benchmarking and evaluation studies. The size of the oval displays has no importance related to the number of studies with a certain focus; it is only to represent different levels and under-levels of focus. Figure 3 shows that readiness nicely covers both aspects, while when it comes to the ICT intensity we can find a vast number of different approaches and indicators in the literature that dealt with the external intensity, i.e., the supply and demand for front-office e-government services, and digital divide is present mostly at front office. On the other hand, very few studies deal with the back-office or internal (back-office) ICT intensity).

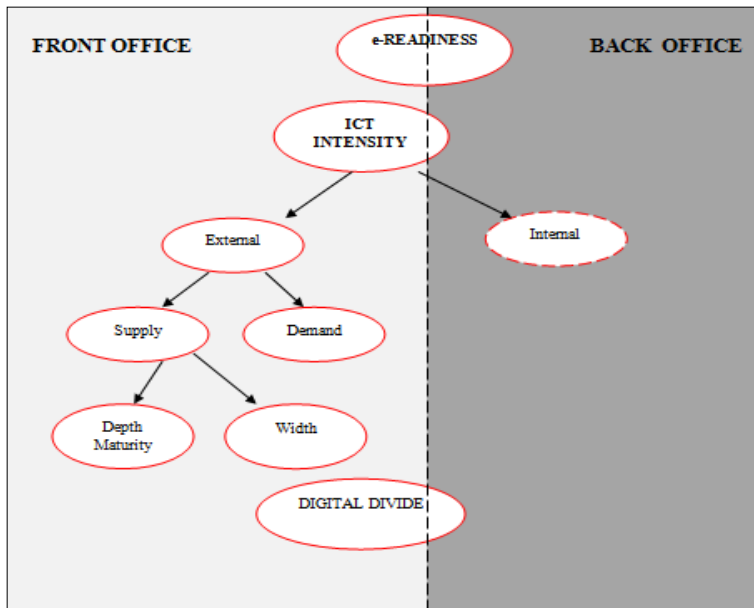


Figure 3: Presence of the different types of focus of the studies of e-government measurement

Source: Bogdanoska Jovanovska, 2012, p. 51

The review of literature depicted in Figure 3 reveals that the pool of literature which covers e-readiness is extremely wide. *E-readiness* is an indicator that measures the ability of firms, individuals and governments to adopt technology. Up to 2005 more than 1,506 e-readiness assessment exercises have been conducted globally (Bridges, 2005); at least 192 countries have been assessed at least once and 68 countries have been assessed between five and ten times by different organizations, while 69 countries have been assessed over ten times (UNDESA, 2009). Well-established international annual benchmark studies that measure this aspect of e-government development are: EuroBarometer (since 1995), BAH (since 2002), EIU (since 2000); the WEF (since 2001); UN (since 2001); WASEDA (since 2005); while NAO (2002) and BIS-

ER (2004) present single efforts of measuring e-readiness which provide just a yearly 'snapshot' of e-readiness.

Measuring the *intensity of ICT* use in the public sector has two aspects: external and internal. The *external intensity* is measured in terms of online services provided to end users (front office) while the *internal intensity* refers to the use of ICT for more effective management of workflows within governmental institutions, building ICT strategies (NCM, 2002), IT infrastructure, human resources, policies and regulations, environment (economical, political, cultural) in public administration institutions (Gerhson, 2008) i.e., the intensity of ICT usage in back office.

The well-established international annual benchmark studies that include the supply side encompass: Accenture (since 2000), CGE&Y (since 2001), UNESCO and COMNET-IT & UNESCO (2000) and TET (2001). The most common website features are measured by Erin R. Inc. (1998), Demchak, Friis and La Porte (2000), Momentum (2000), BU (West, 2001), PLS RM A/S (2003), BISER (2004), etc. The measurement of the internal intensity covers the measurement of ICT investment decision-making, project delivery, organizational capability, people, managing ICT budgets, procurement and ICT outsourcing, the use of best practices, views on existing whole-of-government arrangements, views on data centers, views on the ICT industry, and ICT arrangements in ministerial offices. There are only few reports that measure the internal intensity of e-Government development (KEeLAN, 2002; NCM, 2002; Birch, 2003; Millard *et al.*, 2004; Gerhson, 2008) whose main or supplementary part is dedicated to back-office assessment.

It is also worth noting that e-government readiness and intensity has a strong impact on another aspect of ICT use, i.e. the aspect of digital divide. The focus when measuring *digital divide* is on identifying the gap between e-readiness and its opposite – the state in 'which society [or an individual] is not e-ready' (Bridges, 2005). The digital divide refers to the gap between people who have an access to the Internet and those who do not. The latter group cannot acquire the essential computer skills, cannot access information that can provide them with economic opportunities, and cannot experience the benefits of e-government (Almarabeh and AbuAli, 2010). TNS studies (Mellor, Parr and Hood, 2001; Mellor and Parr, 2002; Dexter and Parr, 2003) and Hart-Teeter (2003) are amongst the rare studies that prioritize the measurement of digital divide.

Figure 3 shows that readiness nicely covers both front-office and back-office assessments. In contrast, ICT is mostly measured through different approaches and indicators that deal with the external intensity, i.e., the supply and demand for front-office e-government services. A very limited number of studies deal with the back-office or internal ICT intensity; subsequently, the digital divide aspects of the impact of e-government are mostly situated in the realm of the front-office services.

Furthermore, it should be taken into consideration that in the course of time some studies change their focus of measuring and benchmarking (e.g., CGE&Y at the beginning focused on the supply side only (CGE&Y, 2004), but later they changed their focus on the demand side of e-government (CG, 2014).

3. Results, synthesis and discussion

Table 2 below presents the above-mentioned attributes of the thirty-seven studies included in this research.

The order in which these studies are presented in Table 2 is not the same as their order in Table 1, as Table 2 depicts their order after their classification according to the already mentioned attributes. More precisely, our efforts have been directed towards getting a visual presentation of the field, in other words, taking into consideration the attributes which were previously explained, the reader can clearly distinguish between the two categories of benchmarking and evaluation studies.

Following Table 2, one that is most obvious attribute that gives clear separation of the field is the *third attribute* related to *frequency of studies publishing*. In fact, only in this part there is a clear border: the studies from no. 1 to no. 12 in Table 2 have a continuous and long period of publishing in consecutive years and these are the benchmarking studies. The rest of the studies underwent publishing only once and these are the so-called evaluation studies. If we take into consideration this first most evident difference among the analyzed studies in this field, than we can proceed and detect other related attributes in the same category.

Thus, for instance, the studies that undergo publishing frequently are studies with an international scope and are categorized as *truly global*, except for the two studies: study (no. 6 in Table 2) which belongs to the category *partly global* and the last one in this category (no. 12 in Table 2) which is a national study. Almost 50% of the studies with an international scope are created by multinational consulting companies, and all of them take the front office of e-government's maturity as in the focus of their measuring efforts. The rest of the attributes are unevenly distributed, so they cannot be used as a base for further observation in this paper.

As a result of the above presented overview of literature related to the field of 'e-government benchmarking', our discussion proceeds in two directions – firstly, we give a quantitative confirmation of some of the observations already made by other authors, and secondly, we point to the improper usage of the term 'e-government benchmarking'.

The fact that this research provides quantitative support for previous claims solely confirms the complexity of this field. Thus, for instance, this research confirms that there are six clusters of stakeholders and four possible combinations of the authors in the process of study creation (subsection 2.1); four possible types of geographical scope (subsection 2.2); three different frequencies of publishing of the studies (subsection 2.3) or, in total, seventeen different attributes and numerous combinations of these attributes in the process of creating these studies. Hence, by means of these findings based on a unique classification of the studies according to different attributes (not mentioned previously by other authors of comparative studies) we provide quantitative support for the Banister's (2007, p. 178) contention that 'e-government benchmarking' field is 'an eclectic mixture of exercises undertaken in different ways for different purposes at different times by different people and with different audiences in mind'.

Table 2: Overview of the e-government assessment field with respect to the four attributes

No.	Name of the study	Authorship and Commissioning /section 2.1/								Scope and Geo- graphical Diversity, /section 2.2/		Frequency of publishing, /section 2.3/			Field of study /s. 2.4/
		Large international organizations	Global independent organizations	Multinational consulting companies	Academic institutions/ its non-profit research centers	National agency	National agency and consulting/ research companies	Association for ICT	Research project	International Number of countries in give year	National Name of country	Annual base	Biannual base	Once	Front Office (FO) and Back Office (BO)
1	UN [61]	X							190 /2012/		X			FO	
2	OECD [49]	X							31 /2009/		X			FO	
3	WEF [67]		X						138 /2011/		X			FO	
4	EUI [23]		X						70 /2010/		X			FO	
5	Accenture [1]			X					22 /2001/		X			FO	
6	CGE&Y [17]			X					31 /2003/		X			FO	
7	BAH [13]			X					9 /2002/		X			FO	
8	EuroBarometer [32]			X					15 /1999/			X		FO	
9	TNS [21]			X					32 /2003/		X			FO	
10	BU [65]				X				198 /2007/		X			FO	
11	WASEDA [64]				X				50 /2011/		X			FO	
12	ERIN Research [24]					X				Canada	X			FO	
13	OE[50]					X				UK			X	FO	
14	NAO [45]					X				UK			X	FO	
15	AO [15]					X				UK			X	FO	
16	HMGov. [29]					X				UK			X	FO	
17	Birch [8]					X				UK			X	FO	
18	Ipsos MORI [33]						X			UK			X	FO	
19	SOCITIM [56]							X		UK			X	FO	
20	NACO [44]					X				UK			X	FO	
21	Momentum [43]						X			USA			X	FO	
22	Hart-Teeter [26]						X			USA			X	FO	
23	S&S [58]							X		USA			X	FO	
24	ICMA & PTI [31]						X			USA			X	FO	
25	NOIE [46]				X					AUS			X	FO	
26	NOIE and DMR [47]					X				AUS			X	FO	
27	Gerhson [25]					X				AUS			X	FO	
28	ANAO [4]					X				AUS			X	FO	
29	AGIMO [2]					X				AUS			X	FO	
30	TET AB [59]			X					19				X	FO	
31	PLS RM A/S [52]			X				X	18				X	FO	
32	BISER [9]							X	28 EU reg.				X	FO	
33	KEeLAN [36]							X	7				X	BO	
34	SIBIS [55]							X	16				X	BO	
35	COMNET-IT & UNESCO [20]	X						X	62				X	BO	
36	NCM [48]								5				X	BO	
37	Millard et al. [42]					X		X	18				X	BO	

Source: Author's compilation

Furthermore, this study proves that this impressive amount of literature, is, in fact, a painstaking process which inevitably leads to confusion. The confusion here mainly emerges due to the fact that researchers very often use the terms: 'evaluation e-government', 'e-government measurement' and 'e-government benchmarking' interchangeably, i.e., as if they were synonyms. For example, Janssen, Rotthier and Snijkers (2004, p. 122) selected and analyzed 'eighteen international benchmarking studies on eGovernment' but they also use the sub-title 'An analysis of several international comparative eGovernment evaluation studies' (Janssen, Rotthier and Snijkers, 2004, p. 123), which points to the fact that they use these two terms as synonyms. Kunstelj and Vintar (2004, p. 134) give an 'Overview of existing approaches to evaluating e-government development' when 'the research is based on critical analysis of existing approaches to monitoring and benchmarking e-government development' (p. 132). Their comparison of few studies (CGE&Y; NOIE; Vintar, Kunstelj and Leben, 2004; TET; Accenture; PLS RM A/S; NCM; and Birch) also presents a mixture of different benchmarking, evaluation and even research papers. Salem (2008) reviews 44 e-government benchmarking reports and does a deeper analysis of the 10 most important, according to him, 'initiatives for benchmarking studies' (Salem, 2008, p. 8) where two of them are evaluation not benchmarking studies (e.g., BISER, and Millard *et al.*).

However, if one compares the definitions of these terms, some marked differences in their meanings emerge straightaway. Namely, the term *measurement* is defined in the World English Dictionary as 'an act or a process of collecting quantitative data and comparing a quantity with a standard unit'. Furthermore, the term *evaluation* is a process, a monitoring function, usually used to determine the quality of a program by formulating a judgment (Hurteau, Houle and Mongiat, 2009), which is focused solely on measurable program outcomes or evaluation findings and which is usually seen as a 'snapshot' of trends and practices (Wimmer, Codagnone and Janssen, 2008). Finally, the term *benchmarking*, is depicted 'as a systematic and structured' (Camp, 1989) data-driven ongoing process of continuously and rigorously measuring and comparing an organization's products/services, procedures, work processes, and practices (Spendolini, 1992), regarding the 'best-in-class' organizations (both public and private); a standard tool that uses various indicators; a long-term process used in turn to compare and/or rank over longer periods of time with the goal to locate and improve organizational performance (Camp, 1989; Rigby, 2011); a systematic learning of the best ones, with knowledge enrichment as a result (Knez-Riedl, 1996); a learning organization tool (Leibfried and McNair, 1994). All these facts make benchmarking distinguishable from the other two categories which are commonly treated as synonyms.

The analysis presented in this paper sheds light on the fact that the term 'e-government benchmarking' is often used as an 'umbrella' term that covers: (i) measurement as a systematic assignment of numerical quantitative values and qualitative descriptions of the characteristics of e-Government development, (ii) evaluation as an assessment, i.e., a study that provides a snapshot which is designed to assist governments in assessing e-government development, and (iii) benchmarking as repetitive mea-

surements over a period of time as a result of the realization of consecutive measurements carried out in different time sequences (twice a year, annually, or biannually).

4. Conclusion

Based on the comprehensive overview of e-government assessment efforts, this study also confirms that the corpus of literature related to this field is a heterogeneous mixture of many different approaches and methods. The study reveals that there is an ambiguous use of the base terminology; in other words, the terms assessment, measurement, evaluation, and benchmarking are often (wrongly) used as synonyms. The term 'e-government benchmarking' is by far too often used as an 'umbrella' term for all different kinds of assessment studies which cause confusion on the part of researchers.

The results of the overview point to the fact that only several studies out of thirty-seven in total belong to the category of benchmarking, or in other words not all the articles and studies that claim to be in the category of e-government benchmarking truly belong there.

The analysis also points to the fact that the authorship; the scope; the title of the study/studies; and the frequency of publishing; can, in fact, provide us with indications as to whether that is a case of a benchmarking or an evaluation study. Namely, benchmarking is easily identified when the study is created by large/global independent organizations, multinational consulting companies or non-profit research centers at academic institutions which have international (truly or partly global) scope and belong to the edition of studies with the same title (but different year of publishing); and there is a regular frequency of publishing. In contrast, an evaluation study is easily identified when the authors of the study are national institutions or national associations for ICT in the public sector whose scope is national and the title of the study is not connected with any other study title (or if it is an abbreviation of a name of a project, e.g., SIBIS, BISER) and has undergone publishing only once.

Furthermore, the analysis of the field results in the conclusion that the focus of the studies cannot be used as an indicator which determines the category to which a study belongs – both categories of studies (benchmarking and evaluation) have mixed focuses; some of the focuses are even more frequently used (e.g., front office) than the others (e.g., back office).

Last but not least, this analysis confirms some previous recommendations of authors who claim that because of the fact that the main focus of e-government assessment is the front office of e-government maturity, there are almost no benchmarking studies with the back-office in their focus, which consequently, implies that there is a 'lack of methods/frameworks for back-office assessment'. The fact that only 5 out of a huge number of studies put their focus on the back office (four of which are national and only one is regional) leads to the conclusion that it is extremely difficult to measure the back office, and even more difficult to compare it due to its specificities in different countries. Hence, it is of paramount importance to create indicators which

could measure the common features of the back office in different countries (such as the document-flow among the stakeholders in the public service delivery process). Thus, we feel rather confident to propose that the further research in this field should be directed towards discovering and proposing frameworks for assessment of e-government back office by using the appropriate tools of measuring, and towards creating specific (purpose oriented) indicators and indexes that will be used during the e-government back-office benchmarking process.

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