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MEASURING E-GOVERNMENT AND E-PARTICIPATION

ABSTRACT

The subject of this paper is an examination of the connection between the most quoted and widely used indexes of the e-government and e-participation presented by the United Nations and the actual use of basic e-government activities of individuals (as a part of the electronic participation) in the European Union.

My main question is the following: could the UN's mostly infrastructural readiness-based indexes tell us anything about the actual level of government-to-citizen interactions? In this paper my primary goal is to answer the question above.

INTRODUCTION

In the early 2000's many organisations started to publicate comparative international rankings and reports about the development of electronic („e-„) government and e-participation. They focused mostly on the involved countries' readiness to adopt the newest infocommunication technologies in the field of public administration.

The most known and widely quoted report is the United Nations' mostly biennially published E-government Survey, which operates with two main indexes: The EGDI shows a country's e-government development level, and the EPI tell us about a country's efforts to achieve a higher level of e-participation.

In this paper – after the presentation of some basic definitions which are necessary to investigate the issue more closely – I'll take a deeper look into the connection between the UN's indexes and the actual use e-government instruments by citizens.

My basic hypothesis about this question is the following: *In a country with a higher level of general e-Government development, citizens manage their everyday queries electronically more often, i.e. e-participation is essentially higher* (in our study we describe that with a citizen-to-government connection number).

To verify my hypothesis, I use the EUROSTAT's „E-government activities of individuals via websites” dataset as the indicator of the actual use of e-government services by citizens.

1. The basic definitions

In order to look deeper into the supposedly connection we have to clarify some basic definitions.

1.1. Defining e-Government

Defining electronic (or „e-„) government is not an easy task. According to the professional literature the words e-governement, digital (or ”d-„) government, e-governance, or d-governance are often used to grasp the same phenomenon.

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However we can find some basic, generally quoted definitions:

One of the oldest publications of the OECD on e-Government is *The E-Government Imperative*, published in 2003, focused on the difficulties faced by governments in introducing e-Government solutions. E-Government was first defined by the organisation in this document as follows: the use of information and communication technologies and particularly the Internet, as a tool to achieve better government.²

The United Nations consistently uses the concept of electronic government and whereas governance is the most common process in its interpretation, characterised by interactions between the public and society in the interests of collective decision-making, describes it as a governmental use of the most innovative infocommunication technologies. The ultimate goal is to provide more advanced public services, reliable information and wide-ranging knowledge for all citizens.³

This European Commission uses the term eGovernment. The definition itself focuses on the impact of the ICT on the common market:

- a) The electronic government supports administrative procedures, improves the quality of services and increases the internal efficiency of public administrations.
- b) E-Government supports administrative processes, improves the quality of the services and increases internal public sector efficiency.
- c) Digital public services reduce administrative burden on businesses and citizens by making their interactions with public administrations faster and efficient, more convenient and transparent, and less costly.

In addition, using digital technologies as an integrated part of governments' modernisation strategies can unlock further economic and social benefits for society as a whole. The digital transformation of government is a key element to the success of the Single Market. (European Commission, 2016).⁴

Bannister and Connolly, in a study published in 2012, recognised the problems arising from the difficulties of determination and used the broadest possible definition to facilitate the interpretation range of the analysis, even if it was not technically considered to be the most appropriate approach. Against this background, in their study e-Government is understood to mean all administrative and governmental applications of infocommunication technologies that have been used as described above since the introduction of the Internet in the 1990s (Bannister & Connolly, 2012).⁵

As Csáki-Hatalovics pointed out in a previous study,⁶ we see the subject that the definitions cover is not only a public administration in the classical sense, but also a wide spectrum of

² OECD: *The e-Government Imperative. OECD e-Government Studies*, OECD Publications, Paris, France, pp. 3-11. DOI: <https://dx.doi.org/10.1787/9789264101197-en>

³ UNITED NATIONS: *Benchmarking E-government: A Global Perspective*. [Report], 2002, pp. 53-54. Retrieved from <https://publicadministration.un.org/egovkb/Portals/egovkb/Documents/un/English.pdf> (2019.09.11.)

⁴ EUROPEAN COMMISSION: *EU eGovernment Action Plan 2016-2020 Accelerating the digital transformation of government*. COM (2016) p. 179.

⁵ BANNISTER, Frank. & CONNOLLY, Regina: Forward to the past: Lessons for the future of e-government from the story so far. *Information Polity* 17, 2012. pp.211-226. DOI: 10.3233/IP-2012-000282

⁶ CSÁKI-HATALOVICS, Gyula Balázs: Új trendek Európában az elektronikus közigazgatás területén. *GLOSSA IURIDICA JOGI SZAKMAI FOLYÓIRAT* 4, 2015. pp. 71-103.

administrative activities (such as judicial administration or education administration). So we can use the term of e-Government in all those situations where one actor is a citizen, and the other actor is the state or a local government organisation, and the interaction between them (C2G or B2G⁷ type) is achieved through the use of modern infocommunication technologies. This interaction can be also described as electronic administration.

1.2. Defining e-participation

Before we define e-participation we have to clear the term of democratic participation. Macintosh pointed out that democratic participation is an effective channel between local, regional or national governments and civil society using innovative information and communication technologies (ICT) to deliver more open and transparent democratic decision-making processes.⁸

We can find many other definitions, but their common, fundamental point is the exercise of the impact on decision-making for citizens. As predicted by Macintosh's position above, the development of technology (including primarily ICT solutions) has opened up new perspectives for participatory mechanisms in the recent years.

This is why electronic participation enhanced from democratic participation, as an expression. The UN's regularly published E-Government Survey reports have been using the concept since 2003. According to the United Nations⁹, e-participation is defined as a participatory, inclusive, deliberative process for decision-making. This type of decision-making is facilitated by:

- a) use of ICT technologies to increase the availability of useful information for consultation and decision-making processes;
- b) the use of ICT technologies to reinforce, broaden the consultation and
- c) use of ICT technologies to support decision-making by helping people to participate in G2C and C2G interactions.

In another definition from 2008, e-participation could be interpreted as a contribution to the political and administrative decision-making processes of individuals and legal entities and their groups using ICT technologies.¹⁰

The European Commission believes that e-participation helps people to engage in politics and policy-making and makes the decision-making processes easier to understand, thanks to Information and Communication Technologies.¹¹

⁷ Business-to-Government

⁸ MACINTOSH, Ann: (2008). E-Democracy and E-Participation Research in Europe. In Chen H. at al. (eds) *Digital Government, Integrated Series in Information Systems*, vol 17, Springer, Boston, MA, 2008. p.86. DOI: https://doi.org/10.1007/978-0-387-71611-4_5

⁹ UNITED NATIONS: UN Global E-government Survey 2003. [Report], p. 16. Retrieved from <https://publicadministration.un.org/egovkb/Portals/egovkb/Documents/un/2003-Survey/Complete-Survey.pdf> (2019.09.11.)

¹⁰ ALBRECHT, Steffen. at al: E-partizipation – Elektronische Beteiligung von Bevölkerung und Wirtschaft am E-government. *Studie im Auftrag des Bundesministeriums des Innern*, Ref. IT 1. Institut für Informationsmanagement Bremen GmbH, Bremen, Germany, 2008. p.5.

¹¹ EUROPEAN PARLIAMENT: Potential and Challenges of E-Participation in the European Union, 2016, p. 16. Retrieved from

2. The UN's measuring methods

2.1. The first comparative analyses

The early programmes and publications from the 1990's about e-government and e-participation did not include real, detailed and well-defined comparative analyses.

That changed at the UN Forum in March 2001. With the participation of 122 countries, the forum had a key objective of sharing e-Government good practices and ideas, aiming at the new foundations for governance.¹² On the basis of this, the UN's Department of Economic and Social Affairs (UNDESEA) first made a comparative analysis of member states electronic administrative preparedness.¹³ In addition to the UN, other organisations, such as the World Economic Forum¹⁴ or Brown University¹⁵ issued their first international comparative analysis for the same time periods. In many cases, reports with rankings have become extremely popular. The publishing organisations are the focal point of attention as a result of the publication of their results and their professional prestige is clearly increasing. On the other hand, there is no doubt a positive rating in an international comparison is the interest of governments in the countries concerned. In this way, we can say that the reports also have an impact on the orientations of specific government investments in e-Government, beyond influencing the scientific discourse.¹⁶ In this context, it is not surprising that more and more reports have been published every year.¹⁷

Despite of the many reports, the UN E-government Survey remained the most fundamental and generally used in the scientific discourses.

2.2. The E-government Survey's methodology and its main indexes (EGDI and EPI)

As we have shown that above one of the first comparative study for e-Government was published by the United Nations. From the outset, the UN measures the performance of member states in the field of e-Government. The primary indicator of this measurement is the e-readiness index, which has been called the e-government development index (EGDI) since the 2008 report.¹⁸ *EGDI* is a mathematical reference to the weighted average of normalized

http://www.europarl.europa.eu/RegData/etudes/STUD/2016/556949/IPOL_STU%282016%29556949_EN.pdf (2019.09.11.)

¹² ROCHE, Edward M. *UN E-Government Survey for the Period 2001-2016, External Ex Post Facto Evaluation*, 2017 pp. 1-2. Retrieved from <http://workspace.unpan.org/sites/Internet/Documents/UNPAN97454.pdf> (2019.09.11.)

¹³ UNITED NATIONS: *Benchmarking E-government: A Global Perspective*, 2002. [Report] Retrieved from <https://publicadministration.un.org/egovkb/Portals/egovkb/Documents/un/English.pdf> (2019.09.11.)

¹⁴ WORLD ECONOMIC FORUM: *The Global Information Technology Report 2001-2002*. Oxford University Press, New York, USA, 2002.

¹⁵ WEST, Darell M.: *Global e-Government*, 2001. Brown University, USA, 2001.

¹⁶ LNĚNIČKA, Martin: E-government Development Index and its Comparison in the EU Member States. *Scientific Papers of the University of Pardubice. Series D, Faculty of Eco-nomics & Administration*. Vol. 22 Issue 34, p.75.

¹⁷ The EU's E-government Benchmark Report, Waseda-IAC E-government Ranking, etc.

¹⁸ UNITED NATIONS: *UN E-Government Survey 2008 – From E-Government to Connected Governance*, 2008. Retrieved from <https://publicadministration.un.org/egovkb/portals/egovkb/Documents/un/2008-Survey/unpan028607.pdf> (2019.09.11.)

numbers represented by the Online Services Index ('OSI', originally: 'Web Measure Index'), the Telecommunications Infrastructure Index ("TII") and Human Capital Index ('HCI'). The main indicators of OSI are the national portal, the e-Government portal, the e-Participation portal and the websites of certain priority ministries. TII is determined by personal computers, Internet users, the main telephone lines, mobile telephones and broadband Internet subscriptions per 100 inhabitants. The indicators of HCI are the percentage of literacy rate of people over the age of 15, the enrollment rate and the expected and actual time spent in education. The EGDI value may fall between 0.0000 and 1.0000 based on the methodology used from 2003 (the latter value indicates higher performance).

EPI as an additional indicator has three dimensions¹⁹: E-information is used to describe the extent to which government websites provide access to specific policies, programmes, budgets, taxes, legislation and other public-interest information. In addition to access, it is an important objective for citizens to actually use these services. Widespread dissemination may require continued access to public information, web forums, mailing lists, newsletters and chat rooms. In terms of E-consultation, government websites provide information on E-consultation mechanisms and about the tools of consultation. The E-consultation should provide for the possibility of access to real-time and archived discourses in the areas of individual public policies, while encouraging citizens to participate. On the basis of E-decision making, the government makes it clear that citizens' comments and suggestions are validated during the decision-making process.

2.3. The potential problems of the UN's framework

If we take a closer look on the two indexes presented above their structure suggests that they focus more on the involved countries' infrastructural readiness on ICT and the government-provided possibilities of participation rather than on the actual civic participation. The indicators contains only a few information on how much of the population actually takes advantage of these opportunities.

Based on this fact it is questionable whether we can draw real conclusions from the numbers of EDGI or EPI about the evolution of the number of C2G e-administrative links in that country.

3. Testing the hypothesis

The only way to answer the aforementioned question is to take a test. To examine our hypothesis, first we need a dataset measuring citizen-to government relationships. Among the data available in the EUROSTAT database, I've selected the 'E-government activities of individuals via websites' study's²⁰ dataline that shows the activity of all the individuals regardless of the citizen's age. Year-by-year, the report shows the percentage of individuals in

¹⁹ UNITED NATIONS: Global E-Government Readiness Report 2004 – Towards Acces for Opportunity [Report], 2004, p.19. Retrieved from <https://publicadministration.un.org/egovkb/Portals/egovkb/Documents/un/2004-Survey/Complete-Survey.pdf> (2019.09.11.)

²⁰ Source: <http://data.europa.eu/euodp/data/dataset/OKHImLCOG7UCNZS9igYdRA>

a country who have used an Internet tool to interact with public authorities. In view of the fact the UN's reports mentioned above basically cover a period of two years, the average number of interactions for the two years concerned by the report was compared with the EGDI and EPI values from there. As the database is limited to EU member states, we can perform a test only for the twenty-eight EU member states, or in short term the EU28.

The EU 28's average EGDI and EPI slightly increased in the past ten years, as well as the percentage of individuals who have used the Internet tool to interact with public authorities as shown below:

Period	EGDI	EPI	percentage of individuals who have used an Internet tool to interact with public authorities
2008-2010	0,6547	0,4260	39
2010-2012	0,7483	0,4302	42,5
2012-2014	0,7300	0,6153	44
2014-2016	0,7556	0,7476	47
2016-2018	0,8015	0,8652	50,5

Table 1: the change of the EGDI, EPI and the Eurostat database's relevant dataline form 2008 to 2018.

Source: Author

We can see that without a more in-depth study, the higher EGDI or EPI value has a beneficial effect on the use of internet tools using by the individuals to interact with public authorities. However, the assertion can also be statistically verified by correlation analysis. During the analysis, the average number of users was used as variable 'A', and the variable 'B' was first considered as EGDI and then EPI. For the EU28, we received a correlation coefficient of 0.92 for EGDI and 0.96 for EPI. By the method above, we confirmed our hypothesis (H2): In a country with a higher level of general e-Government development, citizens manage their everyday queries electronically more often, i.e. e-participation is essentially higher. This is, of course, only true if we accept that EGDI and EPI provide a realistic picture of the development of the country's e-Government.

4. Summary

In this paper I have shown that the well-known international ranking of electronic government development and electronic participation presented by the UN focuses on the infrastructural readiness of a country rather than what it was made for.

Despite of this fact I have successfully confirmed by statistical methods there is a link between the development and the actual use.

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