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Editorial

Digital government evolution: From transformation to contextualization

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ABSTRACT

The Digital Government landscape is continuously changing to reflect how governments are trying to find innovative digital solutions to social, economic, political and other pressures, and how they transform themselves in the process. Understanding and predicting such changes is important for policymakers, government executives, researchers and all those who prepare, make, implement or evaluate Digital Government decisions. This article argues that the concept of Digital Government evolves toward more complexity and greater contextualization and specialization, similar to evolution-like processes that lead to changes in cultures and societies. To this end, the article presents a four-stage Digital Government Evolution Model comprising Digitization (Technology in Government), Transformation (Electronic Government), Engagement (Electronic Governance) and Contextualization (Policy-Driven Electronic Governance) stages; provides some evidence in support of this model drawing upon the study of the Digital Government literature published in Government Information Quarterly between 1992 and 2014; and presents a Digital Government Stage Analysis Framework to explain the evolution. As the article consolidates a representative body of the Digital Government literature, it could be also used for defining and integrating future research in the area.

1. Introduction

An increasing share of cultural, political, economic and other human activities taking place in the digital space risk amplifying existing problems of division, inequity, exclusion, fraud, insecurity, imbalance of power, and many others. For example: 3 billion people are using the Internet, but 90% of the rest live in the developing world (ITU, 2014); digital natives make 30% of the youth population (ITU, 2013) but less than one in four young citizens are voting (Pilkington, 2014); Facebook has 1.44 billion and YouTube 1 billion active users (The Social Media Hat, 2015), but 12% of social media users report that someone has hacked into their social network accounts and pretended to be them (Symantec, 2014); smart phone users spend 89% of their mobile media time interacting with apps (Nielsen, 2014) but 48% of them would limit their use of apps unless their personal information was better safeguarded (GSMA, 2014); Google holds 68% of the U.S. online search market (Zeckman, 2014) and Alibaba holds 80% of the e-commerce market in China (Lee, 2014), far ahead of their nearest competitors; etc.

While it is clear that governments and policymakers cannot leave the digital space unattended or ungoverned, a question is how exactly should the core government functions — providing public services and infrastructure, formulating and implementing public policies, maintaining social order and security, operating social programs, promoting economic growth, etc. be performed in both physical and digital worlds. The answer partly lies in existing government digitization initiatives that take place around the world and the experience and lessons learnt from them, and partly in research and reflection on such experience. However, with no universal model existing to inform government digitization efforts in different national, local and sectorial contexts, progress can be only achieved through the simultaneous pursuit of multidisciplinary research, which itself is rooted in the administrative, economic, engineering, legal, social, and other disciplines, policy and practice. This interaction between practice and research gives direction and progress to what we call Digital Government (DG).

This paper tracks the evolution of the Digital Government concept considering three questions:

1. How is the interest in the Digital Government concept evolving?
2. What evidence exists in support of the Digital Government Evolution?
3. How to explain and interpret the Digital Government Evolution?

Concerning the first question, following Janowski (2015), we propose a Digital Government Evolution Model with four increasingly complex phases in the evolution of the concept: Digitization (Technology in Government), Transformation (Electronic Government), Engagement (Electronic Governance) and Contextualization (Policy-Driven Electronic Governance). The model also offers a characterization of the phases depending upon three binary variables: 1) whether digitization adds to internal working and structures of government but largely without affecting them, or it transforms the internal working and structures of government; 2) whether the transformation is internal to

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government but not affecting its customers, or it transforms the internal working and structure of government as well as its relationships with citizens, businesses and other stakeholders; and 3) whether the transformation depends on a particular application context, e.g. of a country, location or sector, or is context-independent. For example, all three variables are negative for the Digitization phase, all three are positive for the Contextualization phase, and some of the variables are positive and others negative for the remaining phases. The model is depicted in Fig. 1, partly adapted after Janowski (2015).

Concerning the second question, the paper presents some evidence in support of the model based upon year-by-year study of selected research literature, particularly 292 relevant research articles published in Government Information Quarterly between 1992 and 2014 and how their focus on Digital Government has evolved over the years.

Concerning the third question, the paper proposes a Digital Government Stage Analysis Framework that examines various social, economic, political and other factors that put pressure on governments; governments adopting the latest in mobile, cloud, social, virtual and other available technologies and innovating with such technologies to respond to the current pressures; and new paradigms of technology-enabled public governance emerging through the repeated process of technology-enabled innovation. We also examine how the framework explains the four evolutionary stages of Digital Government.

The rest of this paper is structured as follows. Section 2 presents research methodology. According to the methodology, related work is described in Section 3, characteristic variables underpinning the Digital Government Evolution Model are described in Section 4, and the model is presented in Section 5. Section 6 offers some evidence in support of this model, while Section 7 presents and applies the Digital Government Stage Analysis Framework to explain the origins, mechanisms and consequences of the four evolution stages. The final Section 8 offers some conclusions.

2. Research methodology

The research methodology is depicted in Fig. 2 and described below.

Step 1 in the methodology aims at identifying related work. It involves conducting a systematic search on Scopus — the largest abstract and citation database of peer-reviewed literature (Elsevier, 2015), of the research literature on the topic of Digital Government Evolution. The outcome of this step is described in Section 3.

Step 2 in the methodology aims at defining a set of characteristic variables to identify and formalize different aspects of the Digital Government Evolution. Each variable is expressed as a binary question to ensure objectivity of the analyzed aspects of the evolution, and its validity is supported by a number of references to previous research literature identified in Step 1. The outcome is described in Section 4.

Step 3 aims at constructing the Digital Government Evolution Model. The model is obtained by logical construction from the set of characteristic variables defined in Step 2: each stage of the model corresponds to one permutation of the values of the variables, determining the presence of characteristic features at this stage. The outcome is described in Section 5.

Step 4 aims at validating the Digital Government Evolution Model, obtained by logical construction in Step 3, based on 292 articles published about Digital Government in Government Information Quarterly between 1992 and 2014. Government Information Quarterly was selected as the source of research evidence due to its status in the area (Scholl & Dwivedi, 2014). The outcome is described in Section 6.

Step 5 aims at interpreting and explaining Digital Government Evolution through the lenses of the Digital Government Evolution Model — what are the reasons and consequences of different stages according to the Digital Government Stage Analysis Framework provided by the paper. For different stages, the framework identifies various social, economic, political, ecological and other pressures on governments, how governments respond to such pressures by innovating around existing technologies, and how such innovations result in new forms of technology-enabled governance. The outcome is described in Section 7.

3. Related work

According to the research methodology, Step 1 involves a systematic search of the research literature on the topic of Digital Government Evolution. Conducted on Scopus, the search identified relevant documents by the presence of "evolution" and one of "e-government", "e-governance", "electronic government", "electronic governance" or "digital government" in titles, abstracts and keywords.

The search produced 316 documents published between 1992 and 2015, the peak year being 2011 (59 documents), followed by 2009 (33 documents) and 2012 (32 documents), and with 21 documents published annually on average since 2013. The number includes 160 conference papers (51%), 85 journal articles (27%) and 25 book chapters (8%). The largest contributors among journals being "Government Information Quarterly" (Elsevier) with 9 published articles, followed by "Electronic Government" (Inderscience) with 7 published articles and "Transforming Government: People, Process and Policy" (Emerald) with 4 articles. The review of the list produced 24 documents, which are referred later in this section to describe the state of the art in Digital Government Evolution.

STAGE	APPLICATION CONTEXT	CHARACTERIZATION		
		Internal government transformation	Transformation affects external relationships	Transformation is context-specific
Digitization	Technology in government	no	no	no
Transformation	Technology impacting government organization	yes	no	no
Engagement	Technology impacting government stakeholders	yes	yes	no
Contextualization	Technology impacting sectors and communities	yes	yes	yes

Fig. 1. Digital Government Evolution Model.