

Electronic Governance for Context-Specific Public Service Delivery: A Survey of the Literature

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ABSTRACT

Based on the latest trends of government digitization efforts, this paper presents a survey of the literature illustrating how governments are using Information and Communication Technologies (ICT) to deliver public services pursuing concrete development goals and taking into account specific needs of the local context. Based on the survey, we illustrate examples of context-specific public service delivery and propose a research framework to guide future research on the area. The relevance of this work relies on the latest commitment of governments to pursue the 2030 development agenda, since the framework provides a roadmap to further investigate how to locally design public services to achieve sustainable development goals leveraging on ICT.

CCS Concepts

Social and Professional Topics → Government Technology Policy

Keywords

Policy-Driven Electronic Governance; Context-Specific Public Service Delivery; Sustainable Development Goals

1. INTRODUCTION

Within the latest stage in digital government (DG) evolution, context-specific public service delivery refers to specific efforts undertaken by national, regional and local governments in delivering public services to pursue specific public policy and sustainable development goals. In particular, context-specific public service delivery denotes specializing DG initiatives, including their objectives, design, operations and outcomes, to different local, sectorial and local-sectorial contexts to ensure that outcomes of public service delivery significantly contribute to public policy and development [1]. As an example of government efforts in contextualizing public service delivery, the UK Government implemented the “Delivering Differently in Neighbourhoods” Programme to provide financial support and expert advice to 25 local authorities to redesign services to be delivered at neighborhood level with the involvement of local people and organizations.

The provision of public service is increasingly challenged by diverse social needs, disparities of opportunities, ageing societies, digitally-savvy populations, economic pressure, income

inequality, and unequal conditions for public service delivery existing within and across countries. For example, the failure of public service delivery in many developing countries is not just due to the scarcity of resources but also to the problems of incentives, accountability and governance that vary from one context to another [2]. Such challenges and variations in contexts become more relevant at the time that many governments around the world are embarking in the 2030 Agenda for Sustainable Development which defines actions on specific areas – poverty, hunger and food, health, gender, water and sanitation, energy, employment, and others, as well as gives a prominent role to local governments to build cities and human settlements inclusive, safe, resilient and sustainable.

Facing conflicting pressures for efficiency and inclusion, Public Service Delivery (PSD) is increasingly digitized. The aim of this manuscript is to survey the literature about the relationship between technology, governance, and PSD and develop a research framework that takes into account lessons from the literature. After this introduction, Section 2 introduces the concept of policy-driven electronic governance. Section 3 presents an extended survey of the literature of context-specific public service delivery organized around the six main themes defined in [1]. Section 4 concludes and discusses our agenda for future work.

2. CONTEXT-SPECIFIC PUBLIC SERVICE DELIVERY

Policy-driven Electronic Governance is introduced as a new stage in DG evolution [1]. It refers to government efforts in leveraging the use of ICT to pursue concrete policy objectives and development goals. In particular, it denotes ICT-driven initiatives that are characterized by three main features: 1) supporting transformations in the way government operates, 2) engaging non-government actors on such transformations, and 3) ensuring that such transformations contribute to achieving specific public policies or goals defined based on local or sectoral needs.

DG proponents argue that governments in the digital age can use ICTs to reduce corruption and increase government transparency, accountability, efficiency and citizen participation. Many researchers have found positive relationships between the use of e-government and e-participation to improve transparency, accountability, and political trust [3][4][5]. Others highlight the role of ICTs in helping governments restore confidence in public institutions, create greater involvement, and foster greater interaction and political participation [4] [6].

However, other recent studies suggest that the role of DG in developing effective, transparent, and accountable institutions is context-specific [1]. Some empirical work shows that in countries where corruption is endemic, the effect of transparency on trust and perceived legitimacy can actually be negative due to public

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disappointment with information overload and confusion and the way decision-making is conducted [7] [8]. In addition, Grimmelhuisen et al. [9] argue that national cultural values influence how individuals perceive government transparency. The authors show the importance of accounting for the effect of cultural differences between countries when considering the relationship between transparency and citizens' trust in government. Others have also shown that DG only increases trust of those that are already engaged and participating in e-government [10].

There is a large and growing body of empirical works stressing the need to consider context in PSD systems. The following sections organize this literature by context-type as suggested by Janowski [1]: 1) national; 2) regional/local; sectorial; 3) DG oriented towards development; 4) DG to address policy-relevant problems (trust, transparency, accountability, and participation); and 5) DG to support vulnerable groups. The empirical evidence collected from these references will be employed in section 4 to elaborate our research framework for analyzing DG for context-specific public service delivery.

2.1 DG in National Contexts

Several empirical studies seek to highlight how institutional, administrative, and cultural differences in national contexts impact the design, adoption, implementation, and evaluation of DG initiatives. Recent work by Stier [11] tests the effect of political regime type and government capacity on the level of e-government performance measured by the Online Service Index, a subcomponent of the United Nations E-Government Development Index (2002-2013). The study reveals that structural variables, such as population size, internet penetration, and the Human Development Index are important predictors of e-government performance. More importantly, the results indicate that democracies show higher levels of performance than autocracies, particularly during the early years of the panel, but that this gap is shrinking. In line with prior research, [12][13] suggest that this result can be partly explained by the investment in pro-regime activism using e-government tools witnessed in autocratic regimes. The findings also indicate that government capacity is increasingly important to explain differences in e-government performance.

Despite the existence of many single country case studies, cross-national and/or cross-cultural research is still largely absent in the DG literature. Khalil [14] investigated the role of national culture values and practice to e-Government readiness in 192 countries and found that gender equality, institutional collectivism, performance orientation, and uncertainty avoidance values to be significant predictors of e-Government readiness. Aladwani conducted a field study to explore cross-cultural differences between Kuwaiti and British users' perceptions of e-government quality attributes. The analysis showed significant variation between the two groups in terms of perceived performance of quality attributes. The author alerts for the need to consider persuasive features in e-government design practices when attempting to understand cross-cultural e-government quality variations.

Some country case studies address context-specific elements that explain successful approaches to DG. Hamner and Al-Qahtani adopt a people-centric approach to determine the overall acceptability of electronic government to people in Saudi Arabia [15]. Using survey data from Sri Lanka, Karunasena and Deng find that the delivery of quality information and services, user-

orientation of information and services, efficiency and responsiveness of public organizations, and contributions of public organizations to environmental sustainability are critical factors for evaluating the public value of e-government [16].

There are also examples of country-wide DG policies targeting location-specific problems. The Chilean government issues SMS tsunami warnings to all cell phones located near the coast (<http://www.sae.gob.cl/>).

2.2 DG in Local Contexts

Ochieng' et al. develop a prototype of an Online Transaction Service System in the Municipality of Eldoret, Kenya, that can be adopted to improve the overall level of e-service delivery in local authorities in that country [17].

Using data from 1,176 municipalities in 2005, Arduini et al. show that the combination of internal competencies and context-specific factors is different when explaining decisions to start e-government activities *versus* the decision to intensify such activities [18]. Local PAs involved in e-government are larger, carry out more in-house ICT activities and are more likely to have intra-net infrastructures than PAs offering no digitized services. They are also located in regions having large shares of firms using or producing ICTs, where many other municipalities offer digitized services, and where population density is low.

"Madame Mayor, I have an idea" is a program designed by the Mayor of the City of Paris, Anne Hidalgo, to allocate €500 million euros to projects submitted online by citizens and discussed in face-to-face meetings. This participatory budgeting exercise involved the 20 districts in Paris and targeted population on economic need, with the poorer, outer suburbs allocated 15 times the amount put aside for central Paris (<https://idee.paris.fr/>).

2.3 DG in Sectorial Contexts

Ntaliani et al. present a framework for identifying appropriate and cost-effective mobile government services for the agricultural sector and illustrate it with an application to a case study in the agribusiness sector [19].

Several studies have been conducted in the health-care sector. Andersen et al. [20] investigate the impacts of social media use in Danish public health care and find that social media transform the access to health-related information for patients and general practitioners, even if with an increased cost and subject to legal and privacy concerns. Kaushik and Raman study and report the modified enterprise architecture (EA) of Tamil Nadu Health Management Information Systems (TNHMIS) designed to providing easily accessible, affordable healthcare and universal health coverage to all citizens in Tamil Nadu (India) [21]. The system consolidates state-level data in real time, links all health institutions, and makes it possible to track individual health indices. This data is used for planning healthcare, managing drug inventory, and planning health initiatives at the state level.

Rosa et al. [22] explore the risk factors associated with the use of e-justice platforms in the courts. Despite the promises of improved efficiency resulting from a decrease both in time and number of pending processes, the authors find several risk factors present in the design, development and implementation of such systems. They illustrate with a case study in the African country of Cape Verde. Chen et al. [23] discuss the need to integrate data flows and business processes across federal, state, and local government organizations to support water quality management. This work provides novel techniques to incorporate numerous

water quality monitoring data sources, to resolve data disparities, and to retrieve data using semantic relationships among data sources taking advantage of customized user profiles. Preliminary user feedback indicates that these techniques enhance quantity and quality of information available for water quality management.

2.4 DG for Development

Visser and Twinomurizi [24] studied the role of e-government in a service delivery programme concerned with social grants in South Africa and found that e-government was not aligned with the Batho Pele (“people first”) service delivery philosophy. Their findings stress the need for ICT4D, particularly DG in developing contexts, to be aligned with the current over-arching government philosophies if they are to have an effective impact on service delivery. In addition, case studies illustrating how e-Government can contribute to sustainable development are discussed in [25].

2.5 DG for Policy-Relevant Problems

The role of ICTs to bridge the knowledge gap between citizens and governments can contribute to enhance citizens’ trust as well as their sense of internal and external political efficacy [5][26]. Research conducted in the Republic of Korea reports how the development of an anti-corruption DG system for the Seoul Metropolitan Government served as a prototype for the adoption of a similar system at the national government level [27]. The authors found how the regulatory dimension was most effective, and strong leadership was crucial to its success. Lio et al. [28] investigate the effect of internet adoption in the reduction of corruption in a panel of 70 countries and find support for a moderate relationship.

The relationship between e-governance and trust in government has also been addressed in empirical studies undertaken in several countries. Parent et al. conducted an Internet-based survey of 182 Canadian voters and find a positive relationship between the use of e-government services and increased trust and perceived government responsiveness. Evidence from the Republic of Korea suggests that the degree of trust in government is negatively influenced by the amount of time spent using the Internet, presumably because citizens are exposed to larger amounts of misinformation causing the social amplification of risk [29]. In turn, lower trust also decreases levels of citizen compliance. Interestingly, the negative effect of Internet time on trust can be mitigated with higher levels of e-government use, since this promotes a relatively unified and consistent message capable of attenuating citizens’ distrust [30].

DG initiatives have also been linked to administrative burden reduction in many countries [31]. Arendsen et al. [32] study administrative burden reduction on business in The Netherlands and find that organizational characteristics are the most important factors in predicting the effectiveness of e-government policy. Cordela and Tempini [33] propose using ICT to support rather than eliminate bureaucracy. The authors provide evidence gathered from Venice (Italy) suggesting that bureaucracy should be preserved and enhanced through e-bureaucracy policies to achieve functional simplification and closure.

2.6 DG for Vulnerable Groups

DG policy programs and tools can be designed to improve gender equality, protect minorities, and to bring about social inclusion of people with disabilities and the elderly. *Conectar Igualdad* is a program in Argentina aiming at delivering laptops to all children and had a positive impact on gender equality in the use of technology and access to internet (www.conectarigualdad.gob.ar).

The role of ICT to bridge service provision gaps for ethnic minorities has also been a matter of interest by DG researchers. Jin and Liang study the status of the Mongol ethnic minority in China in access to and use of information services [34]. The results indicate that three Mongolian groups mostly prefer the service in Mongolian, access different communication devices, need different information, but all have a positive attitude toward government information services. The authors conclude that governments in countries with ethnic minorities should carefully examine the ethnic characteristics of minorities, particularly their language and culture, and use easily accessible and practical approaches to provide minority-centered information services.

Yi evaluates the virtual accessibility of public libraries’ websites in the US by testing the compliance with Section 508 (mobility, sight, and hearing impairments) from the perspective of underrepresented user groups [35]. Findings concerning the twenty public library systems with the highest percentages of people with disabilities and older adults indicate that most public library websites do not comply with Section 508, and thus, suggest that public library websites are not suited to deliver effective information services for underrepresented user populations who need special assistance.

3. A RESEARCH FRAMEWORK

Aligned with the dimensions identified for policy-driven electronic governance, we propose a research framework for context-specific PSD as depicted in Figure 1. The framework includes three main elements: 1) *Governance Networks* - comprising government and non-government actors collaborating in public policy processes and coproducing public services [36]; 2) *Public Service Delivery Context* - considering the different government levels at which policies are defined and services are delivered, including two dimensions: a) government level, such as international, national, regional (state or provinces) and local; and b) government sector, like health, education, justice and others; and 3) *Sustainable Development Goals (SDGs)* – including the 17 goals of the 2030 development agenda. The elements are combined with two different types of interactions. Governance Networks interact with the PSD Context through the five actions of the public administration and civic engagement framework defined by the International Association of Public Participation (<http://www.iap2.org/>). Finally, interventions in PSD Context contribute to the SDGs, and such interventions need to be monitored, measured and shared.

We argue that the elements of the framework are validated by the dimensions identified in [1] and the literature review presented in Section 3. For instance, public services and DG initiatives delivered at national and local level as explained in Sections 3.1 and 3.2 are depicted by the second (national) and fourth (local) row of the PSD context. The sectoral dimension, as illustrated in Section 3.3, is depicted by the various columns, like health, education, justice, etc. The development dimension, as discussed in section 3.4 is depicted by the sustainable development goals (SDG1 to SDG17) pursued by public policies defined in the various contexts described by the table in the middle of the figure. The policy-relevant problems, as presented in Section 3.5, are identified, assessed, addressed and solved by the governance networks. Examples of solutions to such problems are services delivered to specific recipients, as services to vulnerable groups, discussed in Section 3.6.

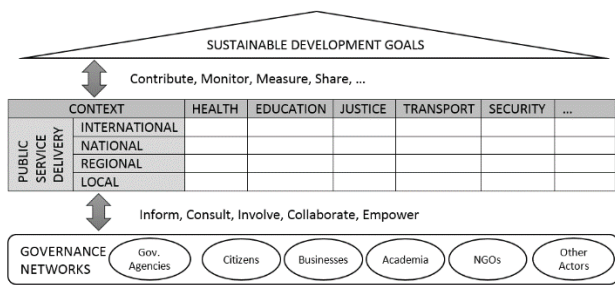


Figure 1. Context-Specific PSD Research Framework

4. CONCLUSIONS AND FUTURE WORK

Through a survey of the literature, this paper illustrated the meaning of context-specific PSD and its contribution to achieving the SDGs. Based on the discussed examples, the paper proposed a framework to guide future research on the area. Examples of research lines contributing to context-specific PSD include: 1) how ICT can enhance the interactions among governance network actors to deliver public services according to context-specific needs; 2) how ICT can contribute to inform, consult, involve, collaborate with, and empower actors, for them to be engaged in public policy processes and PSD in specific contexts, and 3) how ICT-based tools can monitor and measure the contribution of context-specific PSD to achieving SDGs, among others.

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