Measuring e-Governance as an innovation in the public sector

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ABSTRACT

Since 2001, the United Nations (UN) and affiliated organizations have measured e-Government initiatives of more than 178 Member States of the UN, by devising "e-Government Readiness Index" (e-GRI) and "e-Participation Index" (e-PI). The UN has published rankings for its Member States in terms of e-GRI and e-PI, through e-Government Readiness Assessments (Surveys). Member States of the UN and digital government research community as well as academicians and practitioners regularly use the e-GRI and e-PI as a point-of-reference; this fact alone signifies the importance of evaluating the existing UN methodologies assessing e-Governance. Since e-Governance is one of the greatest innovations in the public sector, this research uses conceptual content analysis on the Surveys using the Innovation Management Measurement Framework (IMMF), which is one of the most widely accepted theoretical frameworks for measuring innovation initiatives. The resultant percentage normalized scores (PNS) lead to a set of recommendations for developing better informed, more balanced, and more powerful e-GRI and e-PI for the future.

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1. e-Governance: An innovation in the public sector

The United Nations (UN) defines e-Government as "utilizing the internet and the World Wide Web for delivering government information and services to citizens" (United Nations, 2001, p.1). Government services can be managed and offered through a variety of different forms of information and communication technology (ICT) platforms and applications (United Nations, 2001, 2003, 2004, 2005, 2008). Due to the inherent nature of governance, e-Government initiatives are often collaborative in nature, bringing together various units of government, private sector, nongovernment organizations, and citizens as key stakeholders. Various attributes of *e-Governance* can be mapped onto characteristic features of *innovation*, thereby equating e-Governance with an innovation in the public sector.

An innovation is "an idea, practice, or object that is perceived as new by an individual or other unit of adoption" (Rogers, 1995, p.14). Until the end of the 20th century, offering government services to citizens through electronic media was essentially a very new idea, and hence a new practice in the public sector. In other words, e-Government was a *new trend* then and not a regular practice (United Nations, 2001). Web portals, kiosks, and mobile technologies were some of the emerging means of offering government services, with dissemination of relevant information in the electronic mode (Kushchu and Kuscu, 2004). Gradually, government units all over the world started taking initiatives for adopting e-Government practices (The Advisory Committee, 2008). Thus, in the first decade of the 21st century, offering and managing government services

through information and communication technologies (ICTs), that is, e-Government, has undoubtedly emerged as one of the greatest innovations in the public sector (Committee, 2008; Fose, 2002).

In the context of the UN's definition of e-Government which is an innovation in the public sector, e-Governance can be referred to as an innovation management process in the public sector. Since 2001, in order to evaluate e-Governance, the United Nations Public Administration Network (UNPAN), the United Nations Department of Economic and Social Affairs (UNDESA), and the United Nations Division for Public Economics (UNDPE) collaboratively devised their own e-Government Readiness Index (e-GRI) and e-Participation Index (e-PI) (United Nations, 2004, 2005), collectively referred to as the Indices, hereafter in this paper. These Indices are a composite measurement of capacity and willingness of Member States of the UN for e-Governance. The UN's evolving understanding for e-Governance periodically informs the design of the Indices (Potnis and Pardo, 2009). The UN calculates values for the Indices using the UN e-Government Readiness Assessments. These are issue-based surveys; hence, they are referred to as Surveys hereafter in this paper. The Surveys assess "how willing and ready the governments around the world are to employ the opportunities offered by ICT to improve the access, and quality, of basic social services to the people for sustainable human development" (United Nations, 2004, p. ix). The UN has used the Indices as metrics for evaluating more than 50,000 online features and government services of more than 178 Member States across six economic and social sectors.

Since these Indices are used regularly as a point-of-reference by Member States of the UN, the digital government research community, academicians, and practitioners, it becomes necessary to evaluate the Surveys (Potnis and Pardo, 2008). Governments around

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the world perceive e-Readiness assessments as enablers for decision-makers from both the private and the public sectors, for devising appropriate levels of investments and policy formulations required for e-Government initiatives (DIT, 2004). The Surveys also have the potential to serve as a complementary methodology to measure the UN Human Development Index. Importantly, the Surveys offer "insights into the different strategies and common themes in e-Government development among regions and across them" (United Nations, 2005, p.13). The global outreach of the impacts generated by the UN e-Readiness assessments signifies the necessity of valuating the advancing Indices. Milestones in the development of the Indices make it possible to track the UN's evolving understanding for e-Governance, reflected through the Surveys (Potnis and Pardo, 2009). Hence, the Surveys are chosen as a medium to analyze the composition of the Indices which rank willingness and capacity of Member States of the UN for e-Governance.

Resources invested in any innovation can be managed optimally only if innovation management process is evaluated effectively (Adams et al., 2006). The Surveys assess e-Governance, which is an innovation in the public sector; as a result, a comprehensive methodology that could assay innovation management process in the form of e-Governance is required. Value and need for measuring innovation management processes are heavily desired by both the public and private sectors (The Advisory Committee, 2008). To assess e-Government initiatives of Member States of the UN, a holistic innovation measurement methodology in the form of Innovation Management Measurement Framework (IMMF) (Adams et al., 2006) is applied. The IMMF is one of the most widely accepted, the most updated, and one of the most comprehensive frameworks available in the literature on assessing performance of innovations. By running a conceptual content analysis on the Surveys, the IMMF measures the degree to which the existing Surveys assess *innovation* in e-Government initiatives run by Member States of the UN. The results of measuring e-Governance as an innovation in the public sector, if incorporated with the existing e-Government readiness assessment practices, could lead to better informed and more balanced Indices, thereby allowing us to measure e-Readiness of Member States of the UN in a more powerful fashion.

The second section synthesizes scholarly research in the field of innovation, which has been used by Adams et al. (2006) as a foundation for developing the IMMF. The third section depicts the overall research design of this research study and various precautions taken in running the conceptual content analysis. The fourth section presents results obtained by processing all the 5 Surveys with the help of Concordance Software. The fifth section proposes possible ways for improving the existing practices of evaluating e-Readiness of Member States of the UN. Finally, the conclusion section illustrates the benefits of improving the Indices, using recommendations based on this study.

2. The Innovation Management Measurement Framework (IMMF)

This section delineates the composition of the IMMF in terms of its seven constructs and contributions of each construct in measuring the performance of any innovation. The term innovation is inherently ambiguous and has been defined differently by a number of scholarly research studies. For the purpose of defining *innovation*, Adams et al. (2006) considered the United Kingdom Department of Trade and Industry's (Department of Trade and Industry, 1998) broad definition of innovation, which considers the successful exploitation of new ideas as the central theme for any innovation. In order to manage innovations, many organizations often struggle to define the scope of innovations, quantify the measures of innovations, create benchmarks for the innovation management processes, and, finally, evaluate innovation management processes (Frenkel et al., 2000). Innovation management literature consists of conforming as well as contradic-

tory opinions, approaches, and practices of innovation. The innovation management measurement is a uniquely synthesized framework grounded in the diverse literature on innovation, innovation management, and measurement of innovation in the public as well as the private sectors. The IMMF is a product of theoretical saturation of analytical review of all the possible innovation measurement-related theories from myriad of academic backgrounds (Adams et al., 2006). The IMMF offers a unique opportunity for public as well as private sector managers to evaluate innovative activities in their organizations against proposed framework of innovation management measurements.

The IMMF measures innovation management using the lens formed by seven inductively derived constructs: inputs, knowledge management, innovation strategy, organization and culture, portfolio management, project management, and commercialization (see Table 1).

Management of *Inputs*, the first construct, focuses on resource management with resources ranging from human and physical resources, financial resources, and the process of generating innovative ideas (Miller and Friesen, 1982; Adams et al., 2006). Factors related to research and development are also used as input variables (Parthasarthy, 2002; Deeds, 2001; Greve, 2003).

The IMMF defines *Knowledge Management*, the second construct, as "obtaining and communicating ideas and information that underlie innovation competencies, and includes idea generation, absorptive capacity and networking" (Adams et al., 2006, p.8). Knowledge management is comprised of idea generation, knowledge repository, and information flows (Davis, 1998; Nonaka, 1991; Blackler, 1995). Accumulated tacit and explicit types of knowledge in organizations, and knowledge absorptive capacity of organizations contribute significantly to the abilities of organizations to carry out innovation (Chen, 2004; Cohen and Levinthal, 1990; Cooper, 1984; Koen et al., 2001; Tsai, 2001).

Organizations' new products, and evolving management and business-related processes often represent their *innovation strategy*, the third construct from the IMMF, in the context of competitive environments (Dyer and Song, 1998). In many areas, governments hold a monopoly in offering their services to citizens; this underplays the role of innovation strategy in the context of government services. Risk-taking, pro-activeness, and persistent commitment to innovation are the three approaches taken by any organization while devising innovation strategy (Saleh and Wang, 1993). Strategy adopted by top management largely decides the success of innovation (Cooper, 1984). Buy-in from the top management is absolutely essential for

Table 1
Seven constructs from the IMMF (adapted from Adams et al., 2006).

No.	7 constructs from the IMMF	Subconstructs
1	Inputs	• People • Physical and financial resources • Tools
2	Knowledge Management	• Idea generation • Knowledge repository • Information Flow
3	Innovation Strategy	• Strategic orientation • Strategic leadership
4	Organization and Culture	• Culture • Structure
5	Portfolio Management	• Risk/return balance • Optimization tool use
6	Project Management	• Project efficiency • Tools • Communications • Collaboration
7	Commercialization	• Market research • Market testing • Marketing and sales