



ICT Innovation Maturity in the Public Sector

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ABSTRACT

The conduct of business, sharing of information and knowledge, and the delivery of services in both the private and public sectors have been influenced by the advancement of information and communication technology (ICT) innovation. The purpose of this study therefore is to understand how facilitating conditions shape (ICT) innovation maturity in the public sectors of developing countries. The specific objectives is to Determine the level of ICT innovation maturity in the public sector of developing countries and examine the facilitating conditions that shape ICT innovation maturity in the public sector of developing countries. This study is significant because little research exists on how developing countries public sector ICT Innovation maturity is shaped by facilitating conditions and what these conditions are. Furthermore, the study will provide details guidelines to the public sector agency studied and other similar organizations on what facilitating factors shapes ICT innovation maturity. Finally, the study will call for the need of governments in developing countries to promote clearly defined regulatory frameworks conducive for the implementation of ICT innovations particularly in the public sector. After this proposal stage, the researcher will continue with literature review in order to determine further gaps and appropriate theories for the research, gather and analyse data, come up with the findings and conclude the research within the allocated time frame.

Keywords: ICT, Innovation Maturity, Public Sector, Developing Countries, Ghana

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1. BACKGROUND TO THE STUDY

The advancement in ICT innovation has had influences on globalization, the production and sharing of information and knowledge, the conduct of transactions, and delivery of services in both private and public institutions (Lee at al., 2018; Reuver et al., 2017). ICT Innovation is defined as an intermediate technology product and/or a technologically driven process meant to promote a change (Xiao et al., 2014). Traditionally, governments deliver services through manual processes (Moe et al., 2017; Larkotey et al., 2017). However, the emergence and diffusion of ICT innovations have enabled novel electronic government service delivery (Pereira et al., 2017; Moe et al., 2017). The introduction of ICT innovations in the public sector has been referred to as e-government (Cupido & Ophoff, 2014) or transformational government (i.e. t-government) (Effah and Nuhu, 2017). ICT Innovation in the public sector is described as the use of technology to deliver information and services and enable digital interaction between government, citizens and other stakeholders (Cupido & Ophoff, 2014; Larkotey et al., 2017).

ICT innovation in the public sector has benefits such as: the decline in the lack of information flow between governments and citizens, thereby increasing stakeholder satisfaction; and the reduction in operational cost and increase in efficiency and effectiveness of public institutions (Grant and Chau, 2005; Brown and Grant, 2010). The use of ICT Innovations in the public sector exists in various forms, each dependent upon the relationship between user groups and government. There are four main types of public sector ICT innovation services. These are Government to Citizen (G2C), Government to Business (G2B), Government to Government (G2G) and Government to Employee (G2E) (Siau and Long, 2005; Bélanger and Carter, 2012 Kamaruddin and MdNoor, 2017). The use of ICT innovation in the delivery process of government information, tools, and services to its citizens (Larosiliere and Carter, 2013) consists of other processes and factors that support the progress of the development. These processes and factors are defined and developed by various stakeholder groups, such as service users, citizens, businesses, small-to-medium sized (SME) enterprises, public administrators, other government agencies, non-profit organizations, and politicians (Rowley, 2011; Larosiliere and Carter, 2013).



In addition, the implementation and upgrade of ICT innovative tools and services must provide a certain level of benefit to the public that would otherwise not be available (Pereira et al., 2017; Keramati et al., 2018).

Within public-sector settings, ICT innovation is viewed as a catalyst of growth and transformation (Gunawong and Gao, 2017; Pandey and Gupta, 2017). Governments are increasingly initiating innovative projects by leveraging the power of ICT (Ravishankar, 2013; Sandeep and Ravishankar, 2014). It is widely acknowledged that the diffusion of such ICT innovation projects is a key driver for inclusive development and better governance (Furuholt and Sæbø, 2018; Sandeep and Ravishankar, 2014). Unlike their private sector counterparts, which are almost always concerned only with business objectives, ICT innovation deployments in the public sector aim to use technology extensively to address issues of social inclusion, transparency, decentralized delivery of public services, public accountability and governance (Holgerson et al., 2017; Sandeep and Ravishankar, 2014). Increasingly, many ICT innovation projects are also launched with the objective of cutting costs in government departments (Gunawong and Gao, 2017; Boateng et al., 2009). While they share many characteristics with other public sector initiatives, public sector ICT innovative projects are distinctive in that their outcomes are intimately connected with the properties inscribed in ICT and with how human actors attribute multiple meanings to and socially shape, technology (Sandeep and Ravishankar, 2014)

2. STATEMENT OF PROBLEM

ICT innovation involves the introduction and use of ICT tools to enhance the development of a product or service (Effah an Nuhu, 2017). The information systems literature has discussed a number of organizational benefits of ICT innovation (Kahre et al., 2017; Wenzel et al., 2015). It is noted that ICT innovation can make processes more tailorable and malleable to the context of use, thereby making them more flexible and responsive (Fichman et al., 2014). Also, ICT innovation promotes intra- and inter-organisational collaboration even where actors are remotely located (Effah an Nuhu, 2017). ICT innovation offers an opportunity for large storage, multiple copying, and quick transmission of e-documents at a lower cost and faster speed (Fichman et al., 2014) compared to the physical counterpart. Furthermore, ICT Innovation promotes modernization and participation in electronic transactions (Schuppan, 2009).

In relation to the public sector, ICT innovation involves the deployment and use of ICT tools to convert traditional, bureaucratic and paper-based processes onto digital platforms (Janssen & Estevez, 2013). Here, ICT innovation is considered as re-engineering physical processes to promote efficiency and effectiveness (Irani et al., 2008; Weerakkody et al., 2011). ICT innovation in the public sector is noted to help promote democracy, transparency, accountability, and freedom (Falk et al., 2017; Effah and Nuhu, 2017). It also offers opportunities for governments to modernize public administration and engagement with citizens and businesses (Falk et al., 2017; Wenzel et al., 2015). One form of public sector modernization is process simplification through standardization of activities to increase efficiencies and reduce response time (Wenzel et al., 2015; Effah and Nuhu, 2017).

At the same time, ICT innovation leads to cost savings in public administration (Falk et al., 2017). Given its benefits, ICT innovation presents opportunities for governments to address problems of bureaucracy and inefficiency in traditional public sector processes (Davison et al., 2005). In general, ICT innovation helps to streamline costly and inefficient vertical and horizontal processes (Janssen & Estevez, 2013; Sun et al., 2015). For the benefits of ICT innovation to be fully realized in the public sector, government need to develop the capabilities of such innovations (Steenbergen et al., 2013). Capability development in support of a new strategy such as ICT innovation is a gradual process rather than a sudden event, that is cumulative and expansive (Steenbergen et al., 2013). Existing information systems research on public sector ICT innovation has focused more on public procurement of information technology (e.g. Moe et al., 2017), IT mediated customer service content and delivery (e.g. Tan et al., 2013; Larosiliere and Carter, 2013), development of public service platform (e.g. Larkotey et al., 2017).

From these studies we understand how the heavily regulated public sector makes it difficult to acquire complex information systems and the need to find a solution for the conflict between acquiring complex information systems to fulfill requirements and the strictly regulated environment of the public sector (Moe et al., 2017). Furthermore, we understand that it is important to distinguish between service content functions and delivery dimensions in designing and implementing public sector ICT innovation (Tan et al., 2013). Finally, we understand how the inability to change business processes is influenced by disagreements and entrenched positions of users on how the functional areas of systems should work and this stifle innovation during development (Larkotey et al., 2017). Despite the insights from the foregoing studies, there seems to be the following gaps in the information systems literature.



2.1 Thematic Gap:

There is little understanding about ICT innovation maturity in the public sector. Thus, there is the need for a study to investigate facilitating factors associated with ICT innovation maturity in the public sector (Larosiliere and Carter, 2013).

2.2 Context and Theoretical Gap:

There is also little knowledge about the context of a country shapes ICT innovation maturity. There is the need therefore to investigate the relationship between the economic state and ICT innovation maturity and test the country's characteristics for mediation ((Larosiliere and Carter, 2013).

3. RESEARCH PURPOSE

The purpose of this study is to understand how facilitating conditions shape information and communication technology (ICT) innovation maturity in the public sectors of developing countries. The implementation of ICT innovations in the public sector requires evaluation to understand and establish the influence of facilitating conditions that shapes the maturity of such innovations. The evaluation of facilitating conditions contributes to the understanding of the factors influencing the implementation and use of ICT innovations particularly in government institutions.

4. RESEARCH OBJECTIVE

The objectives of the research thus are to:

- ❖ Determine the level of ICT innovation maturity in the public sector of developing countries
- ❖ Examine the facilitating conditions that shape ICT innovation maturity in the public sector of developing countries
- ❖ Understand how the facilitating conditions shape ICT innovation maturity in the public sector of developing countries

5. RESEARCH QUESTION

The research questions for this study are therefore stated as:

- ❖ What is the level of ICT innovation maturity in the public sector of developing countries?
- ❖ What facilitating conditions shape ICT innovation maturity in the public sector of developing countries
- ❖ How does the facilitating conditions shape ICT innovation maturity in the public sector in developing countries?

6. RESEARCH SIGNIFICANCE

The significance of the research can be looked at in the following ways; research, practice and policy. For research, the study seeks to reveal the facilitating factors that influence ICT innovation maturity in developing countries public sectors. This is significant because little research exists on how developing countries public sector ICT Innovation maturity is shaped by facilitating conditions and what these conditions are. Furthermore, this study is significant for research because it seeks to extend existing frameworks used to evaluate the maturity of ICT innovations.

For practice significance, the study will provide details guidelines to the public sector agency studied and other similar organizations on what facilitating factors shapes ICT innovation maturity. It will inform the agency under study and other organizations about the factors that they need to take into consideration when they are evaluating the maturity of implemented ICT innovations. It is important to note that the implementation and use of ICT innovations in organisations has remained a key strategic weapon and to that extend evaluating the maturity of such innovations means the focus of the organization is geared towards achieving set aims and objectives.

For policy significance, the study will call for the need of governments in developing countries to promote clearly defined regulatory frameworks conducive for the implementation of ICT innovations particularly in the public sector. Furthermore, there is the need for developing countries' governments to promote the implementation of ICT innovations in the public sector as well as encourage the evaluation of such implemented innovations in order to measure their maturity. Doing so may encourage public sector agencies and other organisations to ensure the effective running of implemented ICT innovations.



7. THEORETICAL FOUNDATION

The study proposes to employ socio-technical theory and the capability maturity model to address the research questions. The socio-technical theory suggests that the impact of a new technology on a work system depends on the interactions between the technology being introduced and other components such as tasks, people, and structure of the work system (Bostrom & Heinen, 1977). However, Kislring (2006) by extending the theory posits that there are external contextual elements that influence the interactions. It has long been accepted that continuous process improvement is based on many small evolutionary steps rather than larger revolutionary innovations. The Capability Maturity Model (CMM) provides a framework for organising these evolutionary steps into five maturity levels that lay successive foundations for continuous process improvement.

8. CONCLUSIONS AND FUTURE ACTIVITIES

This proposal outlines the research background, problem statement, research purpose, research objectives, research questions, significance of the research, methodology, and theoretical foundation of a PHD study. The researcher will then continue with literature review in order to determine further gaps and appropriate theories for the research, gather and analyse data, come up with the findings and conclude the research within the allocated time frame.



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