Rethinking the assessment of e-government implementation in developing countries from the perspective of the design–reality gap: Applications in the Indonesian e-procurement system

Hyeri Choi [a], Min Jae Park [b,*], Jae Jeung Rho [a], Hangjung Zo [a]

[a] Department of Business and Technology Management, Korea Advanced Institute of Science and Technology (KAIST), 291 Daehak-ro (373-1 Guseong-dong), Yuseong-gu, Daejeon, Republic of Korea
[b] Department of Business Administration, Seoul School of Integrated Sciences and Technologies (aSSIST), 46 Ewhayeodae 2-gil, Seodaemun-gu, Seoul, Republic of Korea

ARTICLE INFO

ABSTRACT

E-government has received increasing attention as an innovative method for improved governance, and many countries are channeling their efforts and resources into its development. However, the outcomes of e-government development have varied across countries and particularly across developing countries. Because developing countries generally have a poorer context than developed countries, they confront many challenges in e-government implementation. This paper proposes a method for assessing e-government implementation in developing countries to help them better identify problems and determine the appropriate responses to achieve their goals. Taking the design–reality gap perspective, the strategy, technology, organization, people, and environment (STOPE) framework is adopted and combined with the analytic hierarchy process (AHP). This method bridges the gap between theory and practice. The Indonesian e-procurement system is used as a case study to demonstrate the use of the proposed framework.

© 2016 Elsevier Ltd. All rights reserved.

1. Introduction

Most countries have been progressing in online service delivery as well as in implementing e-government initiatives and information and communication technology (ICT) applications, which allows them to increase efficiency in the public sector and streamline governance systems to support sustainable development (United Nations, 2012). Developing countries are not excluded from this trend, and many are supported by donor organizations, such as the World Bank, and bilateral donor organizations that view e-government as a tool for improving governance, promoting development, and reducing poverty (Schuppan, 2009). Although developing countries and donor organizations expect e-government to enable a series of positive effects similar to those enjoyed by developed countries, the actual outcomes have fallen short: a review of previous publications found that between 60% and 85% of all e-government implementation attempts in developing countries are represented by failures (total or partial) (Mates, Lechner, Rieger, & Pěkná, 2013). The high probability of failure could be

driven by the unexpectedly diverse and differing contexts of each developing country—varying institutions, regulatory frameworks, political environments, and sociocultural backgrounds (Lau, Aboulhoson, Lin, & Atkin, 2008). Given these challenges, the leadership, planning, and management of e-government implementation may play a critical role in its development in developing countries. e-Government projects may have larger impacts in developing countries, and they may require assessment before, during, and after the project to avoid failure or partial failure (De', 2006).

A review by Mates et al. (2013) noted that many authors highlight a lack of impact from e-government projects, and evaluations of project results are also observed to be rare. In addition, most reports focus on ex-ante evaluations, while ex-post evaluations are rarely discussed. Another shortcoming of the current government research is that the literature dedicated to e-government strategies and implementations predominantly adopts the perspectives of developed countries rather than those of developing countries. Given the significant differences between developed and developing countries, the latter cannot and should not follow the strategies and implementation processes used in developed countries (Chen, Chen, Huang, & Ching, 2006).

For these reasons and based on this context, this study proposes an assessment method for e-government implementation in developing countries to enable both ex-ante and ex-post evaluations that apply to entire e-government systems and to subsystem projects, such as e-procurement. The strategy, technology, organization, people, and environment (STOPE) framework, which was specifically designed for developing countries, is used and combined with the analytic hierarchy process (AHP) to improve usability. This hybrid method is applied in a case study of e-procurement in Indonesia.

The remainder of this paper is organized as follows. Section 2 reviews the literature on e-government assessment. Section 3 develops the research framework. Section 4 uses the case study to elaborate the research method. A summary and conclusion are provided in Section 5.

2. Literature review

Because many countries begin initiatives for e-government development and these initiatives then garner interest from academia, the evaluation of e-government implementation has become a focus of e-government research. However, researchers differ in their basic approaches to these assessment studies and can largely be divided into two streams. One group has theorized about the perspectives of e-government projects. Irani, Love, Elliman, Jones, and Themistocleous (2005) raised questions about current evaluation techniques, mostly based on formal methods, and emphasized the importance of multi-stakeholder perspectives. De' (2006) emphasized taking the developmental perspective when assessing e-government projects, noting that most of the previous literature on e-government evaluation has taken a project assessment approach, although the two approaches may arrive at different conclusions. Zhang, Guo, Chen, and Chau (2009) investigated how users' perceived fit affects e-government evaluation. The authors suggested an evaluation model that focused on users, and their case study on China demonstrated that the reasons for failure could be primarily attributed to lack of fit. Alshawi and Alalwany (2009) tried to develop e-government evaluation criteria from the citizen's perspective in developing countries, arguing that this perspective is particularly critical in these countries, which typically suffer from low levels of social development.

Meanwhile, other researchers have studied more practical areas, such as the creation of assessment frameworks. Gupta and Jana (2003) adopted a cost–benefit analysis to measure the tangible and intangible benefits of e-government and noted that effective evaluations require e-government projects at a mature stage with appropriate information systems (IS) in place. Other studies have identified different determinants and built assessment frameworks. Esteves and Joseph (2008) provided assessment dimensions using technological, strategic, organizational, operational, service-related, and economic determinants. Potnis (2010), however, regarded e-governance as an innovation and used seven constructs for measurement: inputs, knowledge management, innovation strategy, organization and culture, portfolio management, project management, and commercialization. In contrast, some researchers have attempted status assessments and categorizations. Shan, Wang, Wang, Hao, and Hua (2011) presented an e-government evaluation model based on inputs, outputs, and outcomes and assessed e-government project status at the local level. Mates et al. (2013) evaluated e-government projects using metrics from several groups, including volume, cost, quality, and time metrics, for categorization.

Likewise, many studies have attempted to develop their own assessment framework or theory based on diverse perspectives and understandings. However, the great number of publications dedicated to exploring the determinants of e-government development (Domínguez, Sáncheza, & Álvareza, 2011; Ebrahim & Irani, 2005; Luk, 2009; Manoharan, 2012; Nagi & Hamdan, 2009; Rose & Grant, 2010; Tseng, Yen, Hung, & Wang, 2008; Yang & Rho, 2007; Zhao, 2013) should have generated more progress in assessment framework research because they provide a foundation for potential frameworks. In addition, more attention is required to identify an evaluation method that can test whether e-government implementation is following the right path to success. Yildiz (2007) reviewed previous e-government research and noted the lack of studies focused on the e-government process compared with the number of studies dedicated to its outcomes or outputs. Furthermore, given that few studies have restricted their context to developing countries and that most of these studies adopt an inclusive perspective, disregarding the studied countries' development status, it appears to be necessary to build an assessment framework for e-government implementation within the particular context of developing countries.