

# Strengthening Health Systems in Low-Income Countries: A Stakeholder Engagement Framework

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*Abstract: Failures of e-Government projects in low-income countries are well-documented, though for many countries the adoption of information and communication technology presents the most effectual approach to overcoming some of the challenges faced in service provision. However, the long-term sustainability of e-Government projects may be hampered by an inadequate evaluation of the social and technical environment in which these solutions are placed, particularly with respect to the role of stakeholders during project design. This paper, therefore, proposes a strategic sector-specific exploration of the issues in the design and implementation processes of e-Government projects in low-income countries with a focus on the healthcare sector.*

*Keywords: e-Government, Information and Communication Technologies, Information Systems, Healthcare Systems, Citizen co-creation.*

## 1. Introduction

Information and Communication Technologies (ICTs) are widely considered as playing a crucial role in today's growing digital economy (Jorgenson, 2016; Lee et al., 2005) and therefore perceived as a significant contributor to socio-economic development in advanced economic systems (Erumban & Das, 2016; Malaquias et al., 2017). Low-income countries thus attempt to leverage on the anticipated opportunities provided by these technologies in order to become effective participants in an increasingly competitive global environment. ICTs have been used to advance progress in key areas including: improvement of healthcare delivery (Cecchini, 2018), integration into agricultural processes (Dlodlo & Kalezhi, 2015), and use of mobile banking platforms (Asongu & Odhiambo, 2019). Yet, often insurmountable challenges such as poor physical infrastructure, inadequate policies, and insufficient level of capacities (Gil-Garcia & Pardo, 2005), that are particularly endemic in the implementation and sustainability of e-Government projects (Heeks, 2002), have resulted in high rates of project failure (Lal et al., 2018).

Thus, long-term sustainability of e-Government projects in low-income countries are often derailed not only by institutional procedures, policies and capacities, but also by extraneous factors such as the availability of incomplete data, which has led to a modern data divide. Advanced

technologies such as big data analytics (Luo et al., 2016), artificial intelligence and machine learning (Mahmud et al., 2018) therefore further underscore the disparities between those entities that collect and/or own data, and those that have the capacities (and/or capabilities) to effectively analyse and interpret this data.

Additionally, the design of any e-Government project typically necessitates coordination among a broad range of stakeholders including disparate Government ministries and departments, external organisations and businesses, and other principal beneficiaries, including citizens. As such, possible misalignment in stakeholder expectations (Heeks, 2002) needs to be considered due to possible wide variations in stakeholder interests which represents a significant challenge as “the goals of national government, local government, public service providers (both profit-driven and not-for-profit), voluntary and community organisations and individual members of the public are rarely congruent” (Grimsley et al., 2007). However, e-Government initiatives tend to emphasise the technical aspects of delivery rather than the role of stakeholders and their participation in project design (Longford, 2000). Therefore, given the resource constraints faced by low-income countries, an integrated approach to e-Government project design which considers key issues such as resource-sharing and stakeholder participation, needs to be considered.

This paper therefore discusses an integrated and consistent approach to the design and development of e-Government projects in low-income countries, building on existing research in the conceptualisation of a framework for adoption (Frost & Lal, 2019). The framework highlights a multi-dimensional approach to e-Government design with a focus on the engagement of stakeholders for successful implementation and the capitalisation of available resources. This paper examines the possible application of this framework to an e-Government project. Human development projects (such as healthcare systems) however tend to be at the focal edge of e-Government initiatives in low-income countries, with more attention paid to those projects perceived as offering “clearly identifiable socioeconomic costs and benefits, for example, gains in time or money to pay government bills, or to comply with taxes and other dues, or to obtain a registration certificate” (Madon et al., 2007). Therefore this paper discusses a possible approach to application of the framework within the healthcare sector, prompted by current ongoing research within two selected regions - Africa and Bangladesh. It is anticipated that the future results of this research project will contribute to the dialogue on e-Government project design, and further the debate in the adoption of ICTs by the public sector in low-income countries.

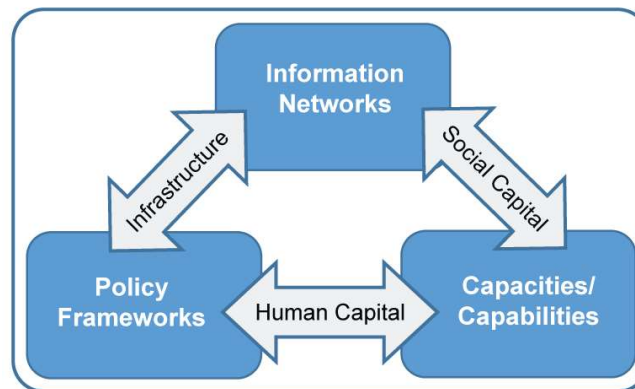
## 2. Methodology

Previous research (Frost & Lal, 2019), explored the core underlying components for success in e-Government project design and proposed a framework within which relationships among the components could be more effectively investigated. A thorough search of the literature identified key components in the design of e-Government projects, namely:

- 1) Information networks: characterise the individuals, technologies, and processes that facilitate information and knowledge exchange within the system;
- 2) Policy frameworks: encompass the policies (to include ICT and other sector-specific policies) and other regulations and standards; and

- 3) Capabilities/capacities: describe the existing capabilities within the system and the potential capacities to exploit the benefits of the implemented system.

Figure 1: Framework for e-Government Stakeholder Engagement.



This research also identified three supporting factors for e-Government project design in low income countries as:

- Social capital: refers to the levels of social cohesion that are formed within communities or that support vertical linkages with external formal institutions;
- Human capital: broadly refers to the ability of actors such as individuals, groups, organizations, institutions and countries to perform specified functions, solve problems, set and achieve objectives within the system; and
- Infrastructure: specifically, within an e-Government context, this is the underlying telecommunication networks or the ICTs that facilitate access to the system.

The developed framework (Figure 1) therefore highlights the key dependencies within the system that should be considered during e-Government project design and which are critical to long-term sustainability. Specifically, these primary relationships were identified as:

- Policy Frameworks ↔ Infrastructure ↔ Information Networks: This relationship emphasises the role of the underlying infrastructure in supporting information and knowledge exchange, and in defining the types of policies to be created to support access;
- Policy Frameworks ↔ Human Capital ↔ Capabilities/Capabilities: This describes the individuals and communities that support the development of the network through creation of the requisite policies (e.g., within Government agencies) and the individual or collective capabilities of a society or community for exploiting the opportunities offered by the system;
- Information Networks ↔ Social Capital ↔ Capabilities/Capabilities: This inter-dependency underscores the pivotal role of social capital in facilitating and enhancing information and knowledge exchange among individuals and/or organisations, making it easier for people to collaborate and develop requisite capabilities.

### 3. Application in the Healthcare Sector

Ongoing research therefore further examines the applicability of this e-Government framework to the healthcare sector to examine how technologies can more effectively support and enhance the inter-relationships among stakeholders in a health system. In many low-income countries healthcare projects have been predominantly facilitated and controlled by government agencies, therefore this research offers some generalisations for other sector-specific e-Government projects. Additionally, with the increased use of technologies in the sector to support healthcare provision (e-Health) and information exchange, and recent research pointing to the growing importance of data-driven, evidence-based healthcare (Ong et al., 2018) an exploration of these components in the sector will contribute to the growing literature on the use of technologies for strengthening health systems. Therefore focus is given to enhancements and interactions among the proposed framework components “in ways that achieve more equitable and sustained improvements across health services and health outcomes” (WHO, 2007).

Consideration was given to the differentiation of the framework within a healthcare context, and the specific issues that may contend. Borrowing from the information systems literature to understand these key issues highlights Baxter and Sommerville’s assertion that “the failure of large complex systems to meet their deadline, costs, and stakeholder expectations are not, by and large, failures of technology. Rather, these projects fail because they do not recognise the social and organisational complexity of the environment in which the systems are deployed” (Baxter and Sommerville, 2011). Therefore it can be argued that an adopted top-down approach of ‘bringing people to technology’ - that is to develop and implement the system without a full understanding of the context within which the system will operate - is more likely to lead to failure. Thus in considering the applicability of the framework to the healthcare sector, the researchers decided that a more stakeholder-centric approach is needed where the current and desired outcomes of the project are made explicit (Grimsley et al., 2007), and anticipated contributions - in the manner of available resources and capabilities - of all participating stakeholders are also clearly defined.

The evaluation of multiple stakeholder interests in the design of e-Government initiatives invariably represents a significant challenge as “the goals of national government, local government, public service providers (both profit-driven and not-for-profit), voluntary and community organisations and individual members of the public are rarely congruent” (Grimsley et al., 2007). However identified stakeholders in e-Government projects may necessarily include Government agencies, citizens, and businesses, but can also extend to those stakeholders such as voluntary and community organisations that may be misplaced on the periphery of e-Government design processes (Bowles & Gintis, 2002). Therefore, the refined framework for the healthcare sector highlights the role of stakeholders - individuals or groups that affect (or are affected by) realisation of the project goals or outcomes (Freeman, 2010) - in the design and development of the e-Government project (Flak & Rose, 2005). The refined framework is based on the supposition that the health system is implemented: (i) as an e-Government project with mandatory use by end-users; (ii) as a service provided by health workers in the public sector, but may also extend to private healthcare practitioners; and (iii) is supported by an underlying telecommunications infrastructure where service provisioning may be from private (non-Government) agencies.

Figure 2: Application of Framework in the Healthcare Sector.

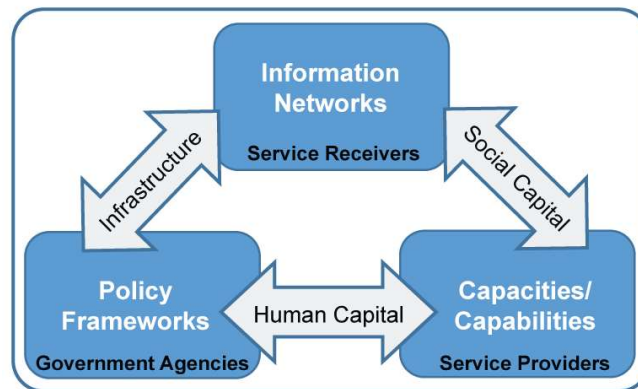


Figure 2 illustrates the proposed primary roles of each group of stakeholders within the general framework, where the following groups are proposed as the primary stakeholders in the health system (Ong et al., 2018):

- **Service receivers:** This group of stakeholders includes individual beneficiaries and communities, highlighting the use of technologies by these stakeholders to facilitate the creation or enhancement of information networks. The development and sustainability of these information networks are dependent on having access to the relevant underlying infrastructure such as a mobile network, and on the existence of sufficient levels of social capital exist to support trust in the created information networks.
- **Service providers:** Service providers include for example community healthcare workers and other healthcare professionals that possess the capacities and capabilities for health service provision to communities. Underlying this is the skills or knowledge that these providers possess (human capital) and, it can also be argued, that social capital facilitates the development of trusted relationships for information and knowledge exchange.
- **Government agencies:** Government agencies are typically the principal regulators responsible for the design of requisite policies. The types of policies may be defined by the underlying infrastructure such as the selected technologies, and these agencies having the relevant human capital to create effective policies.

Ongoing research therefore examines the application of the framework within the healthcare sector, with specific focus on the role of stakeholders and their engagement within the project. Some of the key research aims therefore include:

- To understand the dynamics of the specific relationships among stakeholders within the framework during project design and development;
- To investigate, through comparative analyses between the two regions, the socio-cultural factors in the implementation of the project;
- To understand the key factors that may impact sustainability of the project.

## 4. Conclusion and Future Directions

This paper explores the application of a framework to understand the inter-relationships among key components and stakeholders for the implementation of an e-Government project, specifically a health system in a low-income country. The framework presents a multidimensional approach to understanding these issues, that may help in identifying misalignment between stakeholder needs and requirements, and the technologies used within that system. Ongoing research will focus on the collection and analysis of data from two low-income countries on the use of technologies within a selected health system. By adopting a structured-case method approach, the longitudinal studies will facilitate more in-depth research on the application of the e-Government framework within a specific sector.

The sector-specific application of the framework is not without its limitations, as it omits extraneous factors such as the pervasiveness of political corruption, measures that are difficult to encapsulate within the current framework. However, the results of this ongoing research between the two selected regions - Africa and Asia - will serve as a broad starting point to discussion of these issues and bring focus to sector (and possibly regionally) specific issues that impact long-term sustainability of the implemented systems in low-income countries. Additionally, the results of the research will contribute to debates on approaches to stakeholder engagement in the implementation of e-Government projects in low-income countries.

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