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Understanding the Role of Stakeholders in Fostering Sustainability of ICT4D Projects: Towards a Conceptual Framework

Emergent Research Forum (ERF) Paper

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Abstract

One of the significant determinant factors in relation to stakeholders engagement in development projects is the degree of their role. Sustainability of a project has a relationship with stakeholders' involvement. However, in the ICT4D domain, there is a lack of insight, literature, theoretical models, and framework to understand stakeholder perspectives. In recent information systems literature, it is argued that there is a lack of formally capturing stakeholder perspectives and lack of knowledge related to stakeholder interactions in relation to sustaining ICT4D projects. This research-in-progress paper aims to explore this issue and attempts to address this gap by proposing a theoretical framework on how sustainability-related issues of ICT4D projects can be better understood through the lens of stakeholders theory and capability approach.

Keywords

ICT4D, Sustainability, Stakeholders role, Stakeholders theory, Capability approach.

Introduction

The concern of Information and Communication Technology for Development (ICT4D) has shifted the utilization of ICTs as a platform for transformative development (Mario,2015). Ever since the attention of ICT for development emerged, stainability is considered as the nucleus of the ICT4D agenda ((UN, 2000; Ali & Bailur, 2007). ICT4D sustainability is a burning subject matter that should be studied and addressed well (Hakatta, 2018) and it was emphasized that stakeholders' role is one of the contributing factors to ensure sustainability of ICT4D (Heeks, 2015). The work of Ali (2007) also indicted that sustainability is the central concern of multi-sectorial "ICT for development" projects in developing countries. Hence dealing with sustainability agenda is considered a priority as it optimizes IT investment failure especially in developing nations like Ethiopia.

Extant literature showed that there are many agendas in focus on the sustainability of ICT4D. ICT for development literature distinguishes between five main types of sustainability: financial, social, institutional, technological, and ironically, given the origins of the term, probably the least-considered - environmental (Ali, 2007). In a recent related work, Kaur (2019) argues there is lack of formally capturing stakeholder perspectives and lack of knowledge related to stakeholder interactions in relation to ICT4D.

The government of Ethiopia obtains funding and grants for most of the ICT projects to leaverage the potentials of Information technology as an innovative intervention to improve the quality of service in different sectors. Such initiatives help the country towards assisting development. For example, most donor funded ICT projects on the health sector are focused on the objective of enhancing the use of technology and innovation and the funding amount required and forecasted to be more than 273,749 USD in 2020 (FMOH,2015). The trend indicates that there is high possibility of future funding for ICT projects on the areas of digitalizing health sector as a development intervention towards improving the quality of health care. The implementation of such projects involves various stakeholders (UNITAD, 2019; JSI,2018). Besides, recent evidence shows that Ethiopia is awarded 63 Million USD from USAID to implement various digital health projects for the coming years (USAID, 2019). This inturn implies that there is a need to give due attention on the issue of their sustainability. Hence, the overall objective of the study is to develop a theoretical framework to help better understand the role of ICT4D stakeholders in ICT4D projects.

The paper is organized as follows. The following section briefly discusses the research gap. Subsequently, we present a brief background on the research setting followed by the research design. Final section concludes by highlighting the potential academic and practical contribution of this study and the future works.

Related Works and Conceptual Framework

According to Chourabi et al. (2012), not only implementing ICT infrastructure but also the design and development as well as sustaining new ICT-based services requires significant stakeholders' involvement. Among the factors that aggravate the development of an unsustainable health information systems are the mismatch and poor alignment of the partnership interests, roles, and obligations of the stakeholders (Honest, 2007). Evidence from most recent literature shows that ICTs do not need to consider positive development because it is still not fully known on how changes are being made (Hatakka, 2018). Besides, Hatakka (2018) further pointed that there is also a shortage of understanding of the roles of different stakeholders in development efforts using ICT. Key stakeholders, such as national government, non-government organizations, and international donor agencies, all play significant roles in the process. In another recent study by Kaur (2019), there is lack of formally capturing stakeholder perspectives and lack of knowledge related to stakeholder interactions in relation to ICT4D. Accordingly, the research questions to be answered in the study are: (1) How does stakeholder interaction look like in relation to ICT4D project?; and (2) How can stakeholders' role be managed in attaining ICT4D sustainability?

Nameere (2014) evidenced that capability approach is proven in development through the use of ICT viewed as a process that involves the provision of opportunities (capabilities) from an ICT resource as well as exploiting the opportunities to realize development benefits. Involving stakeholders is often seen as a means to success of ICT4D projects. For example, Bailur (2007) argue that it could be appropriate to research ICT4D projects by taking both the perspective of stakeholder theory and using the tools of stakeholder analysis.

The methodology employed to classify stakeholders in prior related works was well established on the sustainability position of projects (Femmer et al., 2013). In Bailure's (2007) work, the original list identification approach used was not well defined. Our research will thus incorporate the approach Femmer et al. (2013) presented in his work about the role of stakeholders in the ICT4D sustainability project and of how this be done in the light of the sustainability aspect function. The model proposed by Femmer et al. (2013) is also open for any researchable dimension of ICT project sustainability. The bottom-up analysis is efficient and down-to-earth and the approach actively includes employees (Femmer et al., 2013). At the same time, it is the most time-taking approach. Iteratively analyzing the sustainability model for the identification might be especially beneficial as a closure at the end of the analysis. Accordingly, a conceptual research framework is proposed (Figure 1) for stakeholder's engagement on sustainable eHealth project.

The stakeholder's role is an essential process in ensuring the sustainability of ICT4D projects. For instance, (Creswell & Sheikh, 2012; Wentzel & Limburg, 2012; Fanta & Pretorius, 2018) highlighted that the involvement of key stakeholders in the process of eHealth implementation, starting from the planning phase to reduce resistance, increase acceptance, and meet stakeholder needs is critical to consider. Fanta

& Pretorius (2018) also developed a framework for eHealth sustainability to understand the components, description of factors, relationship, and how they interact.

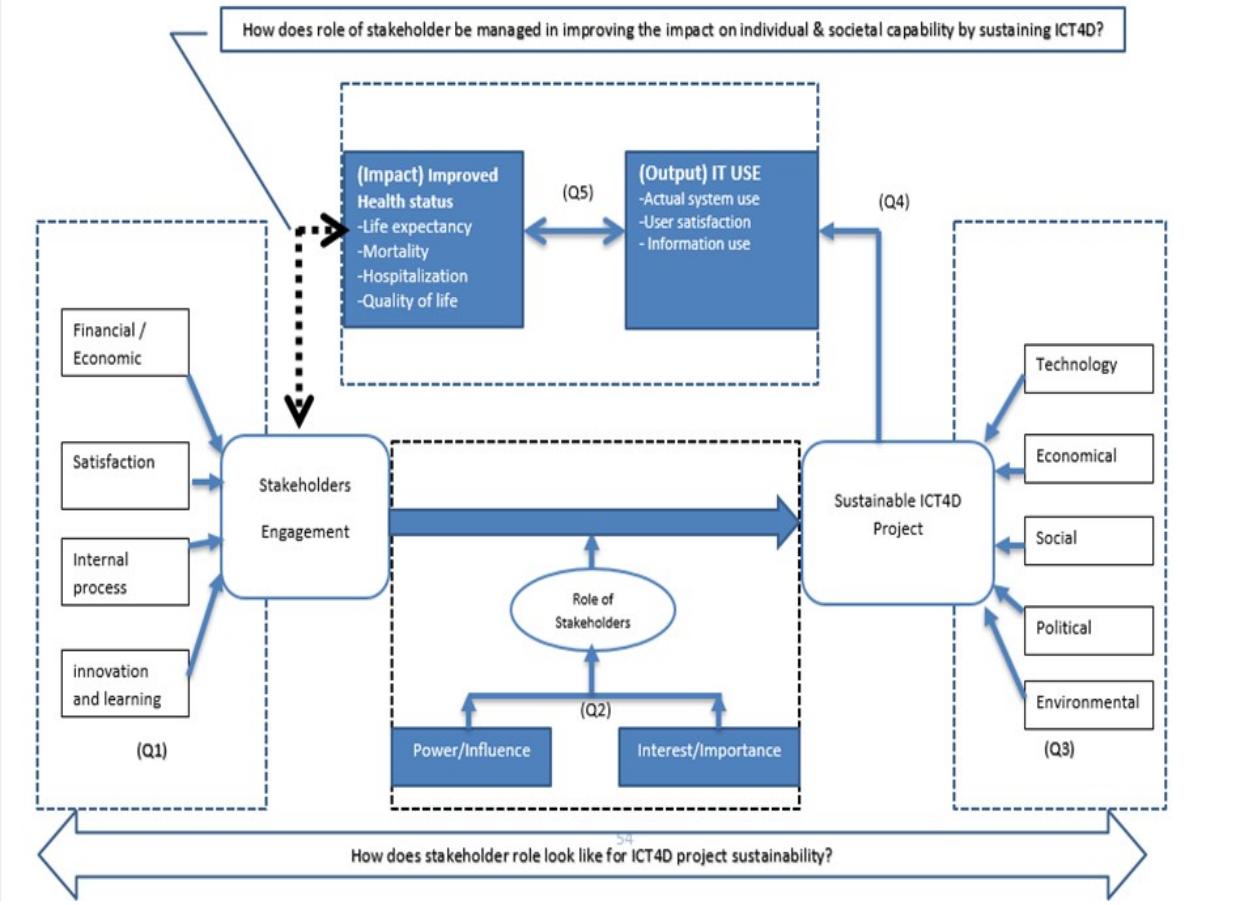

Figure 1. A proposed conceptual research framework for stakeholder's engagement on sustainable eHealth project

Case description

According to FMOH (2014), the following issues exist in healthcare and e-health: (1) the healthcare sector challenges: Shortage of medical practitioners, the prevalence of new diseases, productive health services across the whole region, and luck of new technologies and medications; and (2) challenges of the eHealth systems: infrastructure (electricity, hardware, and communication, application), human resources (IT, informatics, HIT, other professions), leadership, and governance financing. To obtain the most precise understanding of the issue, it is essential to choose the cases for inclusion carefully. Crowe et al. (2011) pointed that the decision on how to select the project case to study is an essential one that merits some reflection because of its uniqueness which is of genuine interest to the researchers.

The data must also be accessible, i.e., the persons involved are willing to spend time with the researcher, and data can be obtained relatively easily. The potential for learning is another essential consideration in selecting cases and is a different criterion than representativeness. It may be more valuable to learn much from an unusual example than a little from a typical case (Stake, 2005). Hence, this research will select eHealth projects (project cases that are completed in ALERT Hospital and Training center such as the use of Videoconferencing for Telemedicine and Blended Learning which is currently considered sustainable). For the sake of convince, as mentioned above, and due to the researcher's project engagement in the ALERT hospital project site on eHealth, the above project case is selected.

Research Design

The purpose of this research is to develop a theoretical model to better understand the role of ICT4D stakeholders in developing countries such as Ethiopia and assess the extent of its sustainability impact on ICT4D. This research will employ a sequential mixed approach to arrive at a conclusion.Creswell et al. (2003) suggests that sequential mixed-methods exploratory design implies collection of qualitative data on an identified ground case to develop an empirically testable theoretical model or framework and then using a quantitative approach to collect evince, analyze and test the hypothesis and measure the degree of relationship between components.

The case study on its part gives details to other strategies to understand complex problems and acquire meaningful insight. For instance, Johannsson (2014) contend that case study focuses on examining one phenomenon in natural setting (which in this case ICT4D sustainability) to be investigated and it offers a detailed, in-depth description and insight of that instance or cause (in our case role of stakeholder). Hence, ground case project is selected in this research which will be under investigation. Exploratory Case will be used for research conditions where there could be different results (Yin, 1994; Veal, 2005; Phondej et al. 2013). Johannsson (2014) also pointed that it is used for generating research questions or hypotheses that can be used in other studies, and it is particularly valuable when a researcher enters a new area where little is known, and the literature is scarce. (Creswell, 2007). Explanatory case study will be employed to reflect the causal relationship and to identify the cause and effect of ICT4D sustainability factors. At first theory generation, the single case study project analysis is most helpful, and the researcher may use multiple case studies projects for further exploration and comparison. Hence this research will focus on one ICT4D application (eHealth project) and uses a single case study first to understand the role and interaction of stakeholders among them and then to frame how their interaction be managed towards sustainability of ICT4D projects (Bonoma, 1985; Myers and Walls, 2002).

Purposive or convenience sampling is a non-probability method is used by several qualitative researchers to identify and select information-rich cases in situations where resources are limited (Patton, 2002). This technique usually includes the process of selection and choice of a group of people who are aware of the study domain area and the interests of the researcher (Creswell & Clark, 2011). Besides, the snowballing method will be employed. According to Leela et al. (2014), snowball sampling is a method commonly used where initially selected individuals are asked for redirecting the researcher to people related to the study area or referring of other persons to talk to 'downstream' towards producers, and 'upstream' towards consumers. Thus, snowballing helps to identify the invisible stakeholder who is challenging to be determined by the researcher but might significantly affect ICT4D sustainability.

Semi-structured interview will be employed for data collection. Besides the field note, the responses will be recorded using a voice recorder up on consent from each interviewee. The questions are developed in line with the conceptual framework proposed for this study. Document analysis will also supplement the semi-structured interview. According to Corbin & Strauss (2008), document evaluation is a structured method for assessment — both written and online (electronic and web) resources. The study will follow thematic analysis. In line with this Guest et al. (2011) points that thematic analysis combines pattern matching and explanation building. According to their work, thematic analysis involves a comparison of code frequencies, recognition of code co-occurrence, and an interactive overview of data set coding relationships. Besides, their study highlighted that thematic analysis provides an effort to leverage the reliability of findings that goes beyond word-based reviews. NVivio qualitative data analysis software be used to assist the analyze of qualitative data.

Potential contribution

The study will have both theoretical and practical contributions. In terms of theoretical contribution, it will propose a conceptual framework to investigate the sustainability of ICT4D projects in general and eHealth projects in particular by uncovering the role of stakeholders (stakeholders' engagement area) for the success and sustainability of eHealth initiatives. Practitioners can also use the conceptual framework as a quality tool to evaluate sustainability of ICT4D projects at different stage of ICT4D projects implementation lifecycle.

Way forward

This research-in-progress is at the stage of initializing the data collection. Once the data is collected, coding, analysis and interpretion will followed.

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