

Financial Sustainability of Mobile Technology Deployment for Rural Community Through e3Value Methodology

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Abstract

ICT4D is the study of the solution to bridge the digital gaps between the rural and urban area. Among the important projects is to set up a network or Internet facilities to the community. It has been indicated that ICT project is suffering from a sustainability issue. To what extent, the mobile network projects can sustain? We are dealing with a community that demands better network coverage. On one hand, the communication provider requesting for details study prior deployment. How to evaluate network projects? To date, there is neither a methodology or systematic way to evaluate the ICT4D projects. As e3value can measure the financial aspect of a business project, can e3value is used as a method to evaluate the financial sustainability of rural connectivity projects? This project investigates the adoption of e3value to simulate rural connectivity projects. In this paper, the e3value is used to evaluate rural connectivity projects by taking the mobile network infrastructure project as a case study. Hence, a new mechanism is introduced for accessing ICT4D projects. It can serve as a tool and method to justify the ICT4D projects.

Keywords: *Business modelling and simulation, sustainability, financial sustainability*

1. INTRODUCTION

Information and Communication Technologies for Development (ICT4D) is the study of utilizing Information and Communication Technologies (ICTs) in the field of socio-economic development and International development to assist communities in achieving their goal. ICT acts as a useful tool to increase the effectiveness of ICT4D projects (van Reijswoud, 2017). ICT4D involves the study and development of ICT technology to the community with an extraordinary challenge which consider social, economic, cultural, political and infrastructural factors (Turpin & Alexander, 2014).

From the review, ICT4D projects are widely deployed to improve people's livelihood, reduce poverty and empower people, especially in a rural area. For example, a mobile application is developed to assist children in learning Math in rural community in Sarawak (Bon, Gordijn, Akkermans, & Boer, 2018); a personal file server is introduced as an offline education hub to the children (Jali, Birang, Shiang, Fauzi, & Jali, 2017); eCommerce is developed to promote community products and services (Shiang, Halin, Lu, & CheeWhye, 2016); mobile health solution is developed to create health awareness and record health information for rural community (WaiShiang, Jali, Khairuddin, & Sharbini, 2017), just named a few.

Although various applications have been deployed, our working community is still suffering from lacking mobile network coverage. We are dealing with a community that demands better network coverage. On one hand, the communication provider requesting for details study prior deployment. Can the government deploy the mobile network infrastructure? What are the challenges in deploying a network infrastructure? Can we present and simulate the deployment of the network infrastructure? What does the simulation look like?

This paper presents a simulation of mobile network infrastructure development for a rural community in Sarawak. With this simulation, a quantitative analysis is presented, and this is important to identify the feasibility of any projects for the rural community. In this paper, a technique to simulate an ICT4D through e3value modelling and simulation is presented. From the simulation, the financial sustainability of the ICT4D is revealed in which it is useful for policymaker or funder.