

Influencing Factors for Effective Community ICT Hubs

¹Suzana Basaruddin, ¹Haslinda Sutan Ahmad Nawi, ¹Nur Syufiza Ahmad Shukor,
²Kamaruzaman Jusoff, ³Nor Azah Jahari and ⁴Hamdan Saleh

¹Faculty of Industrial Information Technology, Universiti Industri Selangor,
Jalan Timur Tambahan, 45600 Bestari Jaya, Selangor Darul Ehsan, Malaysia

²Faculty of Forestry, Universiti Putra Malaysia,
43400 UPM Serdang, Selangor Darul Ehsan, Malaysia

³Faculty of Business, Universiti Industri Selangor, Shah Alam Campus,
40000 Shah Alam, Selangor Darul Ehsan, Malaysia

⁴Faculty of Social Science and Industry Study, Universiti Industri,
Selangor Jalan Timur Tambahan, 45600 Bestari Jaya, Selangor Darul Ehsan, Malaysia

Abstract: Government provides public ICT hubs to ensure that community is ICT literate. Selangor state government sponsors public ICT hubs in order to address the digital divide issues especially in the rural area. This study was designed to determine the factors that influence the success and sustainability of ICT hubs that were provided by the Selangor State Government, Malaysia. Detailed analysis of 26 ICT hubs through questionnaires, interviews and observation were conducted. The results contributed to the formulation of 27 influencing factors and were categorized to three-perspectives: technology (five factors); organizational (sixteen factors); and environment (six factors).

Key words: ICT hub % Influencing factors % Technical-organizational-environment perspectives

INTRODUCTION

Information and Communication Technology (ICT) usage has become important in today's society. The role of ICT in archiving is very important. [1]. Home users, organizations and communities are now relying on the ICT for various reasons. Saghafi *et al.* [2] in their paper hooked up ICT and e-government. Effective usage of ICT hubs especially at the rural area had helped to solve the shortage of ICT facilities in schools [3]. Visser and Twinomurizi [4] studied on how ICT hubs can dissolve unnecessary expenses to community. This refers to electronic and online transactions widely available for the society. Ulrich and Chacko [5] suggested government to drive ICT initiatives. Governments have to acknowledge the importance of ICTs [6]. Malaysian government work hard in optimizing the usage towards the transformation of Malaysian into a knowledge society [7]. The government had put much effort in enhancing the ICT literacy and usage among the societies [8]. ICT hubs are one of project initiate by Selangor state government to

simulate ICT literacy. As in other project, this ICT hubs project has their own success and sustainability factors that are important for their stakeholders. Imran and Gregor [9] analyzed the influencing issues on the ICT for public project success. From the analysis of Imran and Gregor [9], it was reported that Malaysia ICT related project success and sustainability was influenced by the environment and the management of the ICT service provider in order to set the policy and administration (Table 1).

Jacobs and Herselman [10] from Tshwane University of Technology, in South Africa, listed five best practices for successful ICT hubs which include sustainability; ownership; relationships; services; and financial. In another research done by the University of Ghana and Ghana Center of e-Governance, they concluded that it is important to provide the e-government application as a service to the public [11]. In a study by Kamalabadi *et al.* [12]; of adopting technology or application there are three factors should involved that are technological, organizational and environmental.

Table 1: Multi - level influences on ICT adoption in developing countries

Influences on ICT related activities	Countries studied	Influences and studies
Economy	World	Lack of economic environment conducive to investment is a problem (Rodriguez and Wilson, 2000).
Political Situation	World	Need a climate of civil liberties conducive to research and expansion of communication (Rodriguez and Wilson, 2000)
Political Situation	Malaysia	Political stability is important
Infrastructure	Many countries	Lack of infrastructure is a primary problem. Asian countries lag than non-Asian countries. (UN, 2004; Wong, 2002; Wresch, 2003)
ICT policy/ strategy	Malaysia	Step-by-step approach could be a model for countries with agricultural and natural resources (Raman and Yap, 1996)
	World	Policies need to be: (i) long term; (ii) aimed at building capabilities ; (iii) adaptive to changing context; and (iv) synergistic with other ongoing national programs (Checchi <i>et al.</i> 2003)
	Many	Need to facilitate local cultural content (UN, 2004)
Administration practice/reform	Asia	There is a close relationship between e-government and administrative reform (DOI, 2001)
Administration practice/reform	World	The administrative reform process must be continues (OECD, 2003)
Bureaucracy	Developing	
Country		Bureaucratic establishments pose insurmountable obstacles for introducing and sustained use of IT (Avgerou, 1990)
e-government strategy	World	Government needs to take the lead in establishing, reforming and regulating (UN, 2004).
	Malaysia	Support from top management is a success factor. (Zaitun et al, 2000)
Penetration of IT Technology tools	All	A core set of basic tools (personal computers, mobile/handheld devices, hybrid devices) must be affordable to the majority of the population (UN, 2004)
Education	All	Education related to technology is needed (Rice 2003, UN 2004)

Table 2: Reliability test result

Instrument	Overall "	Construct and its respective "	Item	" if item is deleted
For operator	0.730	0.73	1. Management of ICT hubs (28 Items)	Not Applicable
For Users	0.934	0.95	1. ICT experience and knowledge (38 items)	Not Applicable
		0.70	2. ICT hubs experience (46 items)	Not Applicable

The Dwesa Case Study presented 19 critical success factors [13] also mapped to Technical-Operation-Environment framework. Wafula and Wanjohi [14] suggested ICT implementation focus on mobilization of financial management. The purpose of the study was to determine factors that influence the success and sustainability of ICT hubs sponsored by Selangor State Government, Malaysia.

MATERIALS AND METHODS

Techniques employed in data collection were those typical in case study includes semi-structured interviews, open-ended questionnaires, observations, literature studies and personal experience. Main data for analysis were from the survey and interview.

The interview was to gather tacit information and knowledge, to support the survey. Questions were designed to choose factors that influenced effective ICT community hubs. Title of the questionnaire was Factors Influencing Effectiveness of ICT Hubs. Questionnaires were pre-tested on two ICT hubs and minor amendments were made. Reliability test showed relevancy of the questions used. Table 2 report the cronbach alpha value of the reliability test.

A sample of 26 ICT hubs were selected and analyzed. Respondents were classified into two groups and given two different sets of questionnaire. This was planned to get two views of data. The first group of respondents is the people responsible to run the ICT hubs known as the operator (26 respondents); and the other group is the users (64 respondents).

Table 3: Factors Influencing the Success of ICT Hub as According to the Technical-Organizational-Environment Perspectives

Technical (T)	Organizational (O)	Environment (E)
1.Appropriate broadband of internet access	1.Scheduled financial support	1.Systematic handover due to political change in management.
2.Up to date ICT infrastructure	2.Proper organizational structure	2.Well defined project ownership regardless of political changes in management.
3.Extra ICT services provided with minimum charge eg: scanning service, printing service	3.Standard operating procedures	3.Technology support infrastructure
4.Reliable internet access facility	4.Continuous monitoring and control	4.Comply with government rules and regulations
5.Technically Literate User	5.Strategic location at existing public facilities for each ICT services centre	5.Ethical usage by the user
	6.Full time qualified operator	6.Socializing platform for the community
	7.Suggest range of affordable membership fees	
	8.Systematic document on facilities and operations	
	9.Systematic work handover due to change in management	
	10.Conducive ICT services centre	
	11.Continuous and scheduled maintenance of ICT devices	
	12.Provide computer classes with competent facilitator	
	13.Value added services to the user	
	14.Encouraged local ownership	
	15.Facilitating local content development	
	16.Establishment of COP	

RESULTS AND DISCUSSION

Analysis of the data collected from operators' survey questions, showed 61% or 15 of the operator respondent mentioned about organizational factors and 50% or 13 of the operators, was facing problem related to technical factors. ICT hubs operators also comments on environment factors; 89% or 23 operators' respondent. Finally 27 factors that influenced the success and sustainability of ICT hub were identified from the study conducted. This research use thematic analysis where data gathered from 90 respondents were compared and contrasted to gain better understanding and reach the saturated points as depicted in Table 3.

Five influencing factors for ICT hubs were identified as technical; sixteen were categorized as organizational; and the remaining six factors were the environment factors. The result shows that the organizational element plays a major role in influencing the successful of ICT hubs. Properly managed ICT hubs with clear roles and responsibilities on the involving parties are among the most important elements one need to consider when planning such project. In addition to that, the administrative and managerial aspects of the ICT hubs, providing the appropriate technology and services and being objective on the implementation of ICT hubs, are also important factors influencing successful ICT hubs. The importance of the technical element is concluded by results showing the need of the state of the art technology and affordable services. The environment plays its role when it comes to matters concerning with political, ethical and ownership issues.

CONCLUSION

The study contributes to the discovery of 27 influencing factors of the ICT hub success, recommended for successful implementation of ICT hubs. These factors were categorized into three elements: technical, organizational and environmental and then further mapped to Technical-Operation-Environment framework. This result only identified the influencing factors. For future work, these influencing factors can be further mapped into sustainability factors as in every ICT hubs project, sustainability is key element that contributes to their successful implementation

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