Towards the development of an e-Village: A case study of Kg. Jenjarom, Kuala Langat, Selangor

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Abstract

The Faculty of Information Technology and Quantitatives Sciences of Univeristi Teknologi Mara (UiTM), Shah Alam has embarked on the e-Village project for the Kg. Jenjarom community. This paper highlights the needs analysis for the project, the development of the framework and future work needed.

1. Introduction

The world is moving into a convergence mode because of the incredible potential of the ICT. The use of ICT holds the key to faster growth and provides the nation a competitive edge in the globalised economy. The Malaysian government has taken numerous initiatives to promote ICT literacy and competency amongst citizens to meet future demands of knowledge society. And for the rural community, it is hoped that such effort will be able to improve the community's economy and the know-how of the online delivery system.

Many approaches and models are being used in this endeavour by different ministries, agencies, universities and others - The Ministry of Energy, Water and Communication has set up Pusat Internet Desa; The Ministry of Rural and Regional Development has developed Medan Internet Desa; and Universiti Malaysia Sarawak has helped the community of Bario to build e-Bario. The Faculty of Information Technology & Quantitative Sciences, Universiti Teknologi MARA, Shah Alam realised the need for this social community service and has joint forces with the community of Kg. Jenjarom to develop a platform for an electronic village for the community. This paper documents the development process of this venture. The first part of this paper describes the national agenda for e-inclusion followed by examples of the two popular e-villages. The is followed by a discussion on motivation for this project, the profile of Kg. Jenjarom and the framework of the e-Village. Lastly, this paper discusses the challenges and future work to be continued with the project.

2. The Malaysian National Strategic Framework for Bridging the Digital Divide.

The National Strategic Framework for Bridging the Digital Divide (NSF-BDD) is a conceptual depiction of the goals and problems associated with closing the digital divide and necessary actions identified to overcome BDD problems and in attaining the goals [1].

The framework encompasses of three components – namely E-Inclusion, Coordination and Evaluation. The first component, E-Inclusion refers to employing ICT to address the problems of the digital divide and social exclusion; and promoting opportunities for the economic and social empowerment of all citizens. To achieve E-Inclusion, we have to go through a 3-phase process of providing access to ICT; promoting adoption; and using ICT for value creation and enhancement. The second component is with respect to improving Coordination among the various stakeholders. The third component is Evaluation. The framework proposes the adoption of evidence-based policy formulation through effective knowledge management. This will ensure that policies and programmes are designed and evaluated on the basis of solid field-based evidence as opposed to unfounded conviction. This approach is to facilitate the replication of best practices and successful approaches

so that the BDD programmes can be continually improved.

The focus of the e-inclusion is providing ICT access to the community – achieved through the telecentres built in selective areas nationwide. To date, there are more than 1,500 telecentres in the country under various banner such as Pusat Internet Desa and Medan Internet Desa [2]. There has not been any extensive research about the success of each telecentre in achieving its objective, but studies have indicated that concerted effort by industry partners such as universities do contribute to the success of this electronic community. Before we explain about the faculty's involvement in the project, let us understand the term 'e-Village', and learn two of the successful initiatives led by universities.

3. Electronic Village or e-Village

The term 'electronic village' is used to describe the use of electronic communications used by people to engage in dialogues or obtain information about local places, activities, people or issues. It is an electronic local 'place' where people can meet and communicate in addition to the community's physical places [3].

Information and services of the electronic village are giving a sense of physical place, which relates to the sense of physical community. Information provided is focused on local needs, such as cultural, government, education, or business activities and events. Ideally, the electronic village becomes a local virtual place where people can meet and interact about local issues and activities the same way they would interact in a local physical place.

The Blacksburg e-Village (http://www.bev.net) is possibly the most successfully implemented electronic village on earth. Since its inception in 1998, it has risen to be one of the most respectable communities, even though it was not really meant for rural community. Similarly, Malaysia boasts to have her own popular e-village, e-Bario (www.e-bario.com) which has attracted the interest of researchers and tourist worldwide.

e-Bario is a research project undertaken by the Universiti Malaysia Sarawak (UNIMAS) with the support of the International Development Research Centre of Canada and the Government of Malaysia [4]. Its objective is to demonstrate the opportunities for sustainable development in a remote and isolated rural community from the use of Information and Communication Technologies (ICTs). The project began in 1998, with the first task was to set up a telecentre in a junior secondary school. The school children were trained to use the computers in the telecentre, and this had an immediate effect in acculturating the entire community towards the use of ICTs. e-Bario has delivered a variety of important benefits to the community. The Bario community is also using the telecentre to promote its local tourism activities through their website. This has encouraged income generating activities among the community members. Other visible impacts are in the areas of health, where the telecentre has become the first rural clinic in Sarawak with Internet access; and it has also improved the agricultural economy.

The success of e-Bario has proven that the government's objective in improving the community through ICT is achievable. Realizing the need for many more "e-Barios", the Faculty of Information Technology and Quantitavive Sciences, UiTM, Shah Alam has taken similar initiative to realize this vision. We have started the project by studying the background of the village and performing a needs analysis of the villagers before subscribing to a framework for the implementation of the e-Village.

4. Profile of Kampung Jenjarom

Kampung Jenjarom is located in the Kuala Langat District of Selangor, and is about 30 km away from Shah Alam. It has been a very active village, and has been nominated for several national and state level awards. It has been named "Selangor Best Village" in 1999 and the champion of "Gerakan Desa Wawasan" in the year 2001.

The village is wholly dominated by the Malays, with a total population of over 4000 people. 33% of the population are 18 to 40 years, and nearly 23% are above 40 years old. On the other hand, 27% percent of the population are school going children with 15% from primary school and another 12% are in the secondary school.

There are 68 entrepreneurs in the village, engaging in different businesses – farming, retailing, trading and construction.

5. The Needs Analysis of the Villagers

In the process of developing a framework to be used by any community, the needs and wants of the community has to be taken into consideration. Therefore, a survey was conducted to determine the villagers' needs of information technology. Team

members also held focus group discussions with the village representatives (JKKK) to probe into issues and challenges arising from the project.

Respondents were asked to indicate their interest in using IT (choosing from thirty seven items in the questionnaire). The top ten answers are as follows:

Areas of interest	%	Rank
Search for university related info	67.0	1
Looking for career opportunities	65.6	2
Search information in Google, Wikipedia or Dictionary Online	61.5	3
Quotation of Holy Quran and Hadiths	58.8	4
View village activities	58.4	5
Link to the state and local government websites	56.1	6
Link to ministries' website	54.3	7
Link to the government agencies website – JPJ, LHDN	52.5	8
To see the prayer schedule	52.0	9
Make payment using Internet banking	51.6	10

A detailed analysis is performed on the different age groups and the results are as follows:

Interest Age	< 17	17-30	31-50	> 51
Search information in Google, Wikipedia or Dictionary Online	1	3	10	
Search the university info	2	2	2	5
View village activities	3	9	7	6
Scholarships	4			
Quotation of Holy Quran and Hadiths	5	8	4	2
To look the family photos	6			
Link to the community via SMS	7			
To look for 'gotong-royong' information	8			
Looking career opportunities in the Internet	9	1	1	
Chatting in chat rooms	10	6		
Link to the federal, state and local government website		4	3	7
Link to the government agencies website			5	3
Link to the ministries website			7	6	10
Internet banking			10	8	1
Scholarship			9	
Prayer				4
Religious dept				8
Complaint through Internet				9

Most villagers are interested in education and finding general information, as well as specific ones such as career opportunities. It is understandable that the working age group of people are interested in Internet banking and e-government related activities.

It is interesting to note that everybody wants to view the village activities using IT, a strong indication of the importance of the e-community. Similarly, the Islamic related information such as quotation of Quran and Hadiths are also very popular among the young and old. However, the younger generation displayed a more fun based interest – using IT for photos, chatting and communicating via SMS (short messaging services).

Several issues were discussed with the JKKK. This includes the village participation, need for training, and governance of the village through ICT. The team believes that the acculturation process must take place as soon as possible.

6. The staged implementation plan of e-Village.

After an indepth study of the needs analysis, the team has developed a staged implementation plan for the project. In reference to Zmud and Apple's [5] 'Model of the Implementation Process', the six stages are described in Table 1.

Table1. The e-Village Implementation Model

Stage	Description
Initiation	Active and/or passive scanning of the community needs and problems to be addressed. A match is found between an IT solution and its application in the community.
Adoption	Rational and political negotiations ensue to get stakeholders' backing for implementation of the IT application.
Adaptation	The IT application is developed, installed and maintained. Community procedures are revised and developed.
Acceptance	Community members are induced to commit to IT in their daily activities.
Routinisation	Usage of the IT application is encouraged as a normal activity.
Infusion	Increased community effectiveness is obtained by using the IT application in a more comprehensive and integrated manner.

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The project has only passed the initiation stage, and to facilitate this plan, a conceptual framework has been developed.

7. Conceptual Framework of Community Service for e-Village

Four important components have been identified to ensure the success of this e-Village - Web Portal (the IT application), ICT Centre (a place to house the computers), IT Training (training conducted for the villagers), and Homestay projects. This model is depicted in Figure 1.

The portal consists of 8 different modules to cater for education, entertainment, government services, business, family, ibadah, marriage and community. Another module, gallery and virtual walk is in the pipeline.

The ICT Centre or Telecentre should be the one-stop centre of e-Village activities. It should be the e-community centre and the training centre, besides facilitating the Internet connection to the villagers. At present, there is an access problem for the villagers. There is no telecentre in this village.

The next component of this framework is the IT Training. To date, the students from the faculty has facilitated 2 training sessions to 180 villagers using the faculty's computer facilities. These participants were selected from those who want to learn about IT regardless of the age and gender. Successive trainings will be conducted from time to time during semester holidays.

The last component is the home stay programmes, where students from the university will be 'adopted' into the family of villagers. This is to create awareness among family members of the significance of ICT to them.
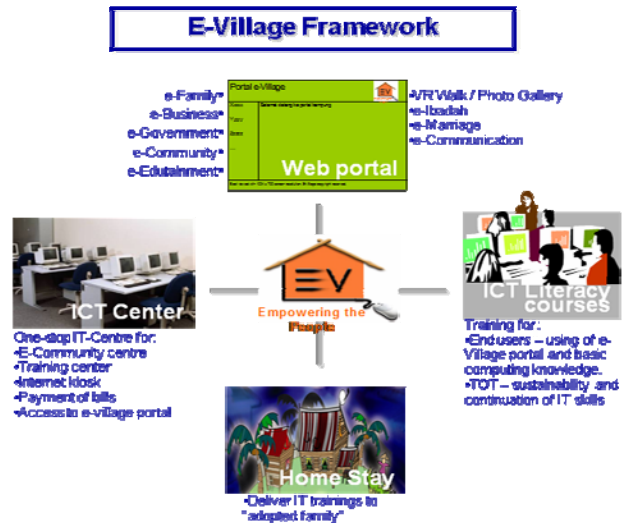

Figure 1: Conceptual Framework for e-Village

To further understand the different modules provided in the web portal, the details of each are provided below.

7. e-Village Web Portal

The e-Village web portal comprises of nine components which are online community services (refer to Figure 2 – The web portal and Figure 3 – the web portal components).

Figure 2: e-Village Web Portal

The web portal has nine components namely:
- e-Family
- e-Ibadah
- e-Community
- e-Marriage
- e-Edutainment

- e-Communication
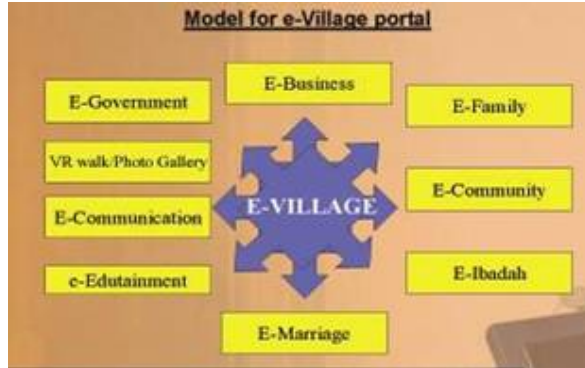- e-Government
- e-Business
- e-VR Walk/Gallery

Figure 2: e-Village Web Portal Components

A detailed description about these modules are as follows:

7.1. e-Family
E-Family offers the services for the family. These services includes family member's profile, family trees and roots, family foundation, family activities, family photos, contacts, public and private Web pages. The family can communicate with other family members via the Internet anytime and anywhere. The e-Family can improve the family bonding and bring them closer together.

7.2. e-Ibadah

E-Ibadah is especially for the Muslims. It offers services such as prayer schedule, fasting month activities, list of surau and masjid committee members, 'khairat kematian', 'korban', 'gotong-royong', quran reading classes, announcement of religious sermon and invited speaker, words of wisdom which is the quotations of Holy Quran and Hadiths. It also has links to other prominent Islamic organisations such as JAIS, JAKIM and others.

7.3. e-Community

E-Community offers information about village activities, This related services are ;ink to the internal community activities as well as outside the community.

7.4. e-Edutainment

E-Edutainment offers the services such as UPU, links to public and private universities and colleges, scholarship, career opportunities, links to foreign universities, Google and Wikipedia, e-Kids. For example e-Kids which included Barney, Sesame Street, Disney. These services give the advantages to people in the education. The people can access all information about the education in convenient way. It is also to encourage the people to further studies toward the development of k-society that contribute to the development of k-economy.

7.5. e-Communication

E-Communication offers the services such as bulletin-board system, forums, complaints and chat rooms. The community of the village can communicate with other people in the forum - to discuss and exchange opinion about related issues, and they are also able to chat with friends in the chat room. There is also provision to make complaints regarding facilities in the community and village.

7.6. e-Government

E-Government offers the services that are linked to related on-line government services. It links to the Federal, State and government web sites, for example JPA. Meanwhile, it also links to government agencies web sites such as JPJ and PDRM. Other, links to ministries web sites, for example the Minister of Education. The e-government could help people to access the information in convenient way - saving time and money and reducing bureaucracy.

7.7. e-Business

E-Business offers the services such as e-Commerce, e-Advertising, e-Koperasi, e-Banking. It also links to other business related web sites like Mybiz, Agribazaar (FAMA), Martrade (e-Marketplaces) and so on. In e-Banking the people are able to make online payment, online shopping, fund transfer etc. As an example, the villagers can make bill payment such as electricity, telephone and internet without leaving the comfort of their home. It is also can save time, money and energy.

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Businessmen are able to gain more profit by using e-Business to promote their businesses.

8. Challenges and Future Work

Realizing that there should be a more comprehensive business model and standard operating procedures (SOP), the team has now focused more effort on this and the governance of the village. Future work will include the development of virtual reality walk and e-gallery, and to cater the e-Village for different races and ethnic groups.

9. Conclusion

The Faculty of Information Technology and Quantitative Sciences have embarked on the e-Village project with the cooperation of villagers of Kg. Jenjarom, Kuala Langat. The lecturers and students have joined efforts in developing a web portal and training the villages about basic computer applications and the Internet.

The paper outlines the needs of the villagers which is the basis for the framework of the e-Village. The active participation from the villages is deemed the most important success factor of this project.

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