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**Strategy of Using Wireless Technology Sophistication for Rural Community Development in Malaysia**

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**Abstract**

Community development currently is change dramatically with increased the needs of wireless technology sophistication as a major part of social life. In contact of Malaysia, wireless technology, has been introduced to rural, semi-rural and hidden area areas where there are some questions regarding the wireless sophistication needs and requirement. The questions are (a) what is interest of non-urban people on usage the wireless technology; and (b) what is factor that make them to used wireless technology in their social life. The objective of study is to explore the needs of rural people toward wireless sophistication with focused on wireless specifications and features. The second objective is to explore factors that considers by rural-community regarding their adoption to wireless technology. To conduct this study, un-structured interview were conducted to 40 respondents in selected rural, semi-rural and hidden area of Malaysia-Thailand border as well as Sintok, Changlun, Bukit Kayu Hitam, and Bukit Tanga in Kedah. Furthermore, this study will present the clear description of the need of wireless technology that needed by rural society. The finding of study will lead to establish guideline on how to utilize wireless technology for developing the society of rural area in Malaysia, as effectively.

**Keywords:** Strategy, wireless sophistication; community development; rural area; Malaysia

**Introduction**

Recently, rural community development today is change dramatically with increased the needs of wireless technology as a part of social life. Every person today has experienced at least one of the wireless based telecommunication sophistication such as cell phone, Internet, online game, wireless devices, and so on as cited by Chou and Hsiao (2000); Bourdeau, *et al.*, (2002); Greenfield and Davis (2002); Kroeber (2005); Kroenka (2006); O'Brian (2010), and Laudon and Laudon (2012). Telecommunications networks especially wireless network are extremely important to the global society knowledge development today; and without it most users would not be able to survive in the information age era (Legris, *et al.*, 2003; Laudon & Laudon, 2012). On the other hand, the users should

be selected on the appropriate telecommunication applications to the society, which should result in an agile, powerful, efficient, effective, and creative as mention by Maignan and Lukas (1997) and Laudon and Laudon (2012). In fact, the most basic ways that will bring this technology to individual and society is by linking a personal computer to any related devices to wireless telecommunication as mention by Ting and Grant (2005); Senn (2008), and Turban, McLean and Wetherbe (2009). In the future, voice mails can easily sent and received by cell phone as the wireless based telecommunication and networking are becoming more sophisticated and advance, with variety features.

In perspective of community development, many enterprises nowadays, are adopting policies on wireless based telecommuting and networking which enable their employees to

work away from the office as coined by Rogers and Allbritton (1995). This is called 'Teleworking' which allow their staff to work in any places outside the office, by using personal computers and wireless networks as mention by Rayport (2002), Hassini (2006), and O'Brian (2010), which this can make them to work based on mobility place. One of the telecommunication applications that can be used is videoconferencing. This application can reduce time and increase the effectiveness of the action taken as a result to faster response to society need, in-depth investigation on society problems, using and access to various resources, real time meeting to people, and less duplication of effort by geographically dispersed sites. Beside these interesting work, why is the factor driven the society on accepted this kind of technology?

From a vast literature review survey, wireless technology is an important platform for community to socializing their daily life and to get connection to the Internet and other kind of wireless-based resources. In the case of Malaysia, wireless technology, has been introduced early to urban or metropolitan areas where the society are highly demand on it. However, in some place, such as rural, semi-rural and hidden area, there are some questions regarding wireless technology. The questions are (a) what is attention of non-urban people on usage the wireless technology; and (b) what is factor that make them interested to used wireless technology in their social life. The objective of study is to explore the needs of non-rural people toward wireless technology with focused on wireless specifications and features. The second objective is to explore factors that considers by rural-community regarding their adoption to wireless technology.

### **Selected Literature Review**

Theoretically, community development is a process to improve quality of life for a better living standard. Development of a community is closely related with dynamic process which occurs within that community. Development is an important concept in Developing Countries because it brings

change and progress (Hashim, 2005). From the society point of view, scholars Turban, *et al.*, (2009); O'Brian (2010), and Laudon and Laudon (2012) believed wireless technology can provide new value to the society to keep on tracks and stay more easily in high touch with online networking, new opportunities of business, developed new model of business and many more. In addition, wireless networks also make additions, moves, and changes much easier as compared to the wired based technology.

Practically, there are six important dimensions that interact each other in community development. The six dimensions are social development, economic development, political development, cultural development, environmental development and personal/spiritual development (Tesoriero, 2010). Economic growth is a major catalyst in nation and community development (Misra, 1982). This is because economic activities enable the growth of other important activities such as such as educations, transportations and ethics (Ali, 1976). Development also includes changes in structure of society, attitudes and institutions besides the restructuring and re-orientates the social and economic system, increase incomes and production, changes in social institutions and administrations structures, and beliefs (Todaro 1977). In term of community development, wireless technology has been the source and inspiration of new idea, channels, products, services, and communication channels because wireless based technology will create more chances to people to be more creative and innovative to customers. Aladwani (2003) coined that technology as such wireless technology also helps the firms to increase their communication and access to society with variety of information, including the information resources of the Internet. Furthermore, wireless communication helps businesses to stay more effectively with their external and internal partners as mention by O'Brian (2010) and helps in establishing new channel for at least two ways communication (Turban *et al.*, 2009). In addition, sophistication for wireless transmission include pagers, e-mail handhelds, personal

digital assistants, cellular telephones, smart phones, and personal computers will become more sophisticated in future as derived by current demand of society customers (Laudon & Laudon, 2012) as includes people from rural areas.

Community development need a fully effort from all parties especially the affected communities. Elements of the cooperation and collaboration are an important aspect for it to succeed in bringing a better quality of life (Mohammad, 2003), as simily function of wireless telecommunication sophistication as mention by Laudon and Laudon (2012). In addition, community development provides a clear framework to enable the affected communities working together and help each other, sharing a vision and responsibility. Community development also makes the community become independent and have high self-esteem. This attitude enables the community to determine the direction of their lives and identify problems that arise. In term of wireless technology, the Institute of Electrical and Electronics Engineers (IEEE) has established a hierarchy of complementary standards for wireless based networks and these include Bluetooth, Wi-Fi, WiMax, and so on where can support some part of community development as discussed by Tiwana (2001); Schumacher and Morahan-Martin (2001); Weiss (2002); and Venkatesh, *et al.* (2003).

In Malaysia, community development has been implemented continuously in tandem with economic development. An active development of the county economy has been implemented since 1970 when *Dasar Ekonomi Baru* (NEP) introduced. There are two main goal of NEP which is poverty eradication and economic restructuring to eliminate the identification of ethnicity with economic function. The main catalyst sectors of development also has been focused were formulated in Malaysia Development Plan introduced by the government with the goal of implementing the Malaysian New Economic Policy (NEP). Various programs were implemented to improve the quality of rural areas community including human capital and institution development, poverty

eradication, providing basic infrastructure and social utilities, entrepreneurship and industrial program, education and health facilities, communications network as well as land and regional development (Malaysia 2006).

Beside the NEP, Government's efforts to improve the quality of life of rural communities through the development of ICT been stated in Ninth Malaysia Plan. Its shows that Malaysia always focus on minimize the digital divide within urban and rural areas. In addition, the mainstreaming information and communi- cations technology where cited that the country will need to increasinglyharness ICT to improve productivity and competitiveness as well as progressto high value added and knowledge-intensive economic activities. The Govern- mentwill build upon and enhance ICT capacity for ubiquitous access, develop core competencies, narrow the digital divide and expand usage of electronic transactionsas part of the overall effort to empower the populace to partake in the growingnetworked economy. Simultaneously, this will allow for the greater expansionof ICT-related industries and services (Ninth Malaysia Plan, 2006). This is close similar to the fundamental of wireless-based technology that was potential to support activities and societal development of rural community, as mentioned by Laudon and Laudon (2012), O'Brian (2010) and Turban, *et al.*, (2009).

Recently, the changes of community development include various aspects of life to enable a holistic improvement of life. Wireless technology innovation will become more significant to all of society as the industries are now giving more expectation on using wireless based technology. In fact, the focus of ICT development as in Ninth Malaysia Plan (2006) in include:

- i.enhancing Malaysia's position as a global ICT and multimedia hub;
- ii.expanding the communications network to ensure more equitable accessto information and services;
- iii.intensifying efforts at bridging the digital divide;

- iv. developing the existing cybercities as well as promoting new cybercentres and MSC multimedia applications;
- v. fostering new sources of growth in the ICT sector including bioinformatics, a convergence of biotechnology and ICT;
- vi. developing skilled ICT workforce;
- vii. accelerating e-learning acculturation; and
- viii. enhancing information security.

In addition, the importance of ICT as a catalyst of community development is also stressed in Tenth Malaysia Plan. Government has set a target of raising household broadband penetration to 75 percent by the end of 2015 through two main initiatives including High-Speed Broadband (HSBB) and Broadband to General Population (BBGP), which leverage both wired and wireless technologies. The internet access is seen as a key economic enabler that potentially changes the way of community life. This is because an increasing in household internet access can increase the socio-economic growth.

### **Methodology**

To conduct this study, un-structured interview was adopted to get better understanding of respondent's opinions on the issues. The area of study is selected village in selected rural, semi-rural and hidden area of Malaysia-Thailand border as well as Sintok, Changlun, Bukit Kayu Hitam, and Bukit Tingga in Kedah. Totally, there are 40 respondents who were taken as respondents of the study. The interview session is conducted about 20-30 minutes with focused on:

- (a) What is attention of non-urban people on usage of wireless technology with focused on benefits of it.
- (b) What is interest that makes them to use wireless technology in their social-life?
- (c) The needs of non-rural people toward wireless technology with focused on wireless specifications and features of technology.
- (d) The factors that are considered by rural-community regarding their adoption to wireless technology.

### **Results and Discussions**

#### **Benefits of wireless technology**

Majority of respondents as 38 of 40 respondents are perceived that some of the benefits gained from using wireless technology as well as cell phone, Wi-Fi, blue tooth, and so on are:

- Deduction of communication, network and management related costs.
- It is a simple way to add new services, features and innovation for users.
- Provides a single ICT infrastructure for transmitting voice, data, graphic, and video applications.
- Voice, e-mail, text, audio, video, and many kind of information can be combined into a single directory and it's better than using separate files or databases.
- Real time services as well as Internet calls using video and web sites portal that enables users to reach a live experience.
- Offers more flexibility to society as phones can be easily added, replaced, or moved to different location without rewiring or reconfiguring the network.
- Reducing service, travel, installing, and any related fees normally charged by telecommunications companies.
- Virtual calls can be set up by using special features as provided by VoIP thereby eliminating the need and expense for operator assistance.

#### **Wireless technology in social-life**

In the real world, there are some benefits that could be gained by the society when they utilize the usage of wireless devices. From respondent point of view, as 37 of 40 respondents perceived that possible benefits could be included:

- Mobile commerce agents could do product demonstrations, checking items, manage inventory, collect debts, and place orders online while being at the customer's location.
- Mobile devices consume less time among the staffs and at the same time

they are able to reduce the time needed to locate other employees, especially when they are off-site.

- A mobile device offers many options to customers and with the help of smart reminder tools; it is able to keep employees abreast of any important news when they are away on travel such as conferences, meetings, and presentations.
- Using mobile devices will help the society to increase available productive time, as constant connectivity allow activities to be performed anytime anywhere.

### **Wireless specifications and features of technology**

Most of respondent as 39 of 40 respondents has identified some current trend on wireless specifications and features that will provide some benefits to them. The current specifications and features related to wireless technology that are include:

- Rapid innovation and new ideas which has resulted in a proliferation of new hardware devices and new alternatives for societal communications purposes.
- Highly growth in high-speed broadband technology connections especially to homes and daily activities purposes.
- Faster growth in wireless based application such as smart phones, wireless computer, wireless networks, mobile Internet devices, and many more.
- Expanding scope of communication-intensive services and products, such as Internet telephone, telephone television, telephone photography, smart online database, and so on.
- Differences between telecommunication devices such as telephone, cable television, Internet, and satellite telecommunications providers have blurred and each type of network supplier seeks to provide audio, video, voice, and data connectivity in one or single network.

- Growing dominance will occur in any kind of Internet technologies such as voice, video, and data communications.

### **Factors considers to adoption wireless technology**

In general, any kind of new technology will face the new challenges and treats where this is the most common factor that considers by the respondents. According to 38 of 40 respondents, some of challenges of using wireless technology are included:

- Having everyone online in a meeting can be toxic to society.
- Enormous pressure within related bodies to provide Wi-Fi in all areas of rural, semi-rural and hidden area. Determine what areas have no compelling need for wireless such as deskbound employees in finance or customer service.
- Cost exceeds the benefit to be gained by providing wireless as such Wi-Fi in a community development plant that would require numerous additional access points than usual.
- Security of information available via the Wi-Fi system or any other of wireless technology. Delay implementation until security assurances are met.

### **Suggestions**

In the future, the insatiable demand for wireless technology and gadgets, video online, and any kind of web-enabled in everywhere will be the driving force behind developments in telecommunications and networking related technologies. At the same time, competition are getting fierce as companies are using all types of technology in order to conquer markets place, and stay ahead with the demands of their customers, suppliers, channel, distributors, society members, and even their competitors. For that, demand for wireless is expected to grow at a rapid pace and wireless based access to the Internet, intranets, and extranets is growing faster as more web-enabled information appliances proliferate. These can create benefits of wireless sophistication

to the rural society which can provide more tools to them in term of social-economic development. For Malaysia, the rural society must work hard on exploring the latest sophistications of telecommunication and networking technology because it has great impacts on our nation and future society.

Some of respondent believed that some area such as Changlun and Sintok of Kedah must have to apply Wireless LAN (WLAN). WLAN was introduced to the market as a new innovation and is used with several wireless technologies. For example, WLAN utilizes a kind of a high-frequency radio technology and a low-frequency radio technology which is called spread spectrum. WLAN technology is also referred as infrared technology because it uses beams of infrared light to establish network links between LAN components. WLAN technology is growing rapidly as a new high-speed technology and is implemented in many ways by the organizations. For your information, Wi-Fi is a new open-standard wireless radio-wave technology and could be used as main medium for WLAN. Wi-Fi technology is faster and less expensive than other common wire-based technologies.

## **Conclusion**

In future, the rural societies have to be almost ready to face the next-generation wireless networks, including Internet2. They are working on a new robust high-bandwidth version of the Internet. The Internet2 is a high-tech research initiative with aimed to produce new protocols and better transmission speeds and then provides higher quality of an infrastructure for supporting high-bandwidth Internet applications. In addition, Gunasekaran and Harmantzis (2007) noted as broadband becomes more widely diffused in developing countries, there is great potential to increase the number of people who are connected. To realize the true success of the ICT revolution on society, Chochliouros and Spiliopoulou-Chochliourou (2005) stressed that broadband connectivity is needed. Therefore, there is a great need for modern high-tech communication infrastructure since the focus of applications

is on interactivity rather than just information sharing, as mention by Gunasekaran and Harmantzis (2007).

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