

An Overview of the Mobile Economy and Its Challenges: Towards the Economics Growth in Malaysia

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ABSTRACT

Due to the explosion of the mobile industries nowadays, all important domains of the human life had shifted from the desktop applications to the mobile applications, including the educational, health and economics as well. These transformations are not only changed the way of human interactions with one another, but it also influences the way of their worked. Mobile economy is one of the emergence domains from the explosion of the mobile industries where it is estimated to contribute more than three trillion dollars of the world's economy or 4.2 percent of the world's GDP. This showed that the mobile economy also contributes towards the growth of the worl's economy. Malaysia, as one of the developing countries also is not excluded with these transformations in recent years. Even though the implementation of the mobile economy is still at the infant stage, but it does bring a significant impacts towards the growth of the economics in Malaysia. This paper will provides a general overview of the implementation of the mobile economy in Malaysia as well as its challenges to implement the mobile economy.

Keywords: Mobile Economy, Economy, Economics Growth, GDP

INTRODUCTION

The emergence of the mobile devices nowadays had brings a great impact towards the development of any countries. The greatest transitions from the desktop application to the mobile application in the computing industries had monopolized many domains of human life such as educational, health, economics and social as well. Mobile application becomes an important tools that contributes, not only to the success of the organizational but also the success of the countries. The mobile devices that we have today will keep on enlarging in terms its functionality and capability.

Technology has long been a driver of the economics development throughout the world, but it is only recently that the mobile technology has a significant economic factors due to its capability. According to a major report conducted by GSMA, the mobile economy contributed an estimated \$2.4 *trillion* to the international economy in 2013, representing about 3.6% of global gross domestic product. This number includes more than 10 million jobs created, and contributed at least \$336 billion to public funding in the United States alone. Not only that, but the size of the mobile economy is growing at an aggressive pace, with estimates that it could contribute as much as 5.1% to global GDP by 2020. All countries

in the world uses the mobile phones as a medium of exchanging information and dealing with billions of transactions per day including the Malaysia itself.

The mobile technologies has helped the countries to achieve the growth of the economy. Based on the report conducted by GSMA in China for example, China is the world's second largest economy, accounting for close to a fifth of global gross domestic product (GDP). Through a combination of government policies and market forces, the economy has expanded massively since the late 1970s, with industries such as steel, automotive and telecoms developing rapidly. Today, China's broad and diverse mobile ecosystem underpins its digitisation strategy and is having a profound impact on consumers, businesses and wider society.

This significant increasing numbers not only due to the capability of the mobile phone itself, but it is also due to the increasing numbers of the people who owns them. According to the Pew Research Center, an estimated 64% of adults in the United States own a smartphone, while 90% of American adults own a cell phone of some kind. As smartphones continue to drop in price and increase in functionality, that 64% will inevitably increase. Globally, smartphone penetration has almost doubled in the past five years. In 2010, it was estimated that about 20% of the global population used smartphones, while by 2014 that number was estimated at 37%. This numbers showed that the mobile devices has becomes an important tools in our society nowadays which leads to the emergence of the mobile economy.

MOTIVATION

Due to the importance of the mobile economy, where it can be considered as one of the driver of the economic development of the country, it is crucial to conduct the research regarding this matters. As the mobile phones is not only used as a medium of communications with each others, but its capabilities are far beyond this. There are a lot of applications available nowadays to be used by the users. Since all of the mobile devices nowadays were equipped with the high computing capacity, similar with the desktop computers, many applications, either they are a safety-critical type applications or non-safety critical type applications, have been migrated from the standalone applications to the Mobile Applications where they are able to link hundreds of millions of people with these amazing technologies (Suman, R and Shahibuddin, S.,2019). The mobile economy also has affected indirectly with this phenomenon indirectly.

A proper research needs to be conducted in relations of this mobile economy since its drive the economic developments to be more competitive and sustainable in the markets. Based on the research conducted by GSMS in 2018, mobile technologies and services generated 4.6% of GDP globally, a contribution that amounted to \$3.9 trillion of economic value added. The mobile ecosystem also supported almost 32 million jobs (directly and indirectly) and made a substantial contribution to the funding of the public sector, with more than \$500 billion raised through general taxation. By 2023, mobile's contribution will reach \$4.8 trillion (4.8% of GDP) as countries around the globe increasingly benefit from the improvements in productivity and efficiency brought about by increased take-up of mobile services.

The impact of mobile phones on socioeconomic development is well documented in the literature. For example, Waverman et al. (2005) using the endogenous growth model on 92 selected poor and rich countries from 1980 to 2003, showed that poor countries with weak fixed-line infrastructure benefit more from mobile phones than rich countries with advanced telephone infrastructure. The empirical analysis revealed that an increase of 10 mobile phones per 100 people in developing countries will increase their gross domestic product

(GDP) by 0.6 percentage points. Nair, M, et. al. 2012 further stated that in many developing countries, including Malaysia, policy-makers recognize the role of mobile phones in connecting the rural population to the knowledge economy. Many of these countries have increased both the fiscal and non-fiscal incentives to increase the usage of mobile phones in rural and remote areas. These incentives include the development of state-of-art mobile phone infrastructure and opening the mobile phone market to new entrants. The latter initiative has led to increased competition in the telecommunication sector in Malaysia. This has resulted in lower cost and increased quality of telecommunication services.

LITERATURE REVIEW

Overview of the Economic Development

Economic development generally refers to the sustained , vigorous actions of policy makers of a country and societies that promote the standard of living and economic health of a specified area (Lehar, H. et. al., 2014). Economic development has been understood to involve economic growth. There are many indicators of economic development; for example, an improvement in per capita Gross Domestic Product (GDP), literacy rate, health, life expectancy, employment opportunities, education, a rise in productivity, technology and others. This shows that the technology is one of the indicators of the economics development. J.R.Behrman, 2001 mentioned that economic development is the process through which economies are transformed from ones in which most people have very limited resources and choices to ones in which they have much greater resources and choices. Debasish, The technology can be regarded as primary source in economic development and the various technological changes contribute significantly in the development of underdeveloped countries. This can be supported by Steenhuis, H. J. and de Bruijn, E. J., 2012 that technology is considered as one of the key factors that influences economic development. As such, many authors in the field of technology management mention this impact on economic development as a motivator for their technology oriented study.

Overview of the Mobile Application

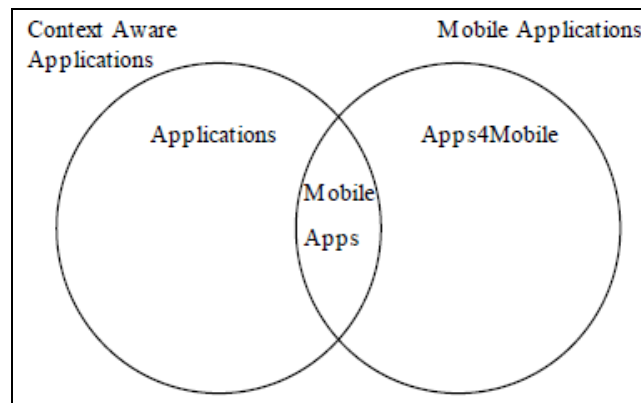
Mobile applications is the most popular applications today. A mobile application is defined as an application running on mobile devices (Muccini, H, et. al., 2012, C. Hu and I. Neamtii, 2011, A. I. Wasserman, 2010). Mobile application, referred to as a software system operating on mobile devices and are evolving rapidly, making ubiquitous information access at anytime and anywhere a true reality (Zhang & Adipat, 2009). Many mobile applications have brought Internet services to mobile devices (Kaasinen, E. et. al., 2000). Muccini, H, et. al., 2012 mentioned that in mobile computing, an application is considered to be mobile if it runs on an electronic device that may move (e.g., mp3 readers, digital camera, mobile phones). In context aware computing, an application is aware of the computing environment in which it runs, and adapts/reacts according to its computing, user, physical or time context (Muccini, H, et. al., 2012, G. Chen and D. Kotz, 2000, B. Schilit, et. al., 1994).

Muccini, H, et. al. (2012) further summarize their view on mobile applications by classifying them in two different categories that is traditional applications rewritten to run on mobile devices (e.g web navigation and searching, social networking mobile applications) hereafter referred as Apps4Mobile and mobile applications that make use of contextual information to generate context-based outputs (denoted as MobileApps) as can be seen in the figure 1 (Muccini, H, et. al. 2012). From a testing perspective, Muccini, H, et. al. (2012) defined an Apps4Mobile as an application that, driven by user inputs, runs on a mobile device with limited resources. A MobileApp is a particular App4Mobile that inputs data from

the (potentially evolving) environment surrounding the mobile device and/or from the user actions, producing context-based outputs.

The Mobile applications that run on this device may be a standalone application which depends solely on the device hardware capabilities e.g software games, calendar and address book etc or the application may run remotely at server and the device acts as a platform for viewing and interacting e.g. mobile TV, E-mail, Mobile Browser based applications etc (Selvam R et al., 2011). Selvam R et al., 2011 further stated that the mobile applications are developed in quick succession with little or no software tests and distributed without thorough testing because the mobile application's developer concentrates wholly on his software functionalities rather than the device complexities.

Figure 1. Dimension of mobile applications.



Generally, the Mobile Applications can be categorized into several categories. Harleen K. Flora et. al. (2013) summarizes the categories of mobile applications into eleven categories such as mobile applications for communication, mobile applications for education, mobile applications for games, mobile applications for healthcare/pharmacy, mobile applications for multimedia, mobile applications for productivity, mobile applications for scientific research, mobile applications for travel, mobile applications for utilities, mobile applications for weather and others, which each one of them serves the specific purpose and functions.

T. P. Liang et. al. (2004) defined the mobile applications generally have two major attributes which are mobility and reachability. These attributes, in turn, can be classified into the following six categories such as Time –Critical Services, Location-Aware and Location-Sensitive Services, Identity Enacted Services, Ubiquitous Communications and Content Delivery Services, Business Process Streamlining, and Mobile Offices. Gasimov et. al. (2010) has classified the mobile applications into five categories which are transactional, content dissemination, social networking, personal productivity and leisure. T. Zarmou et. al. (2011) has categorized mobile applications into four groups, namely Entertainment, Communication, Transactions, and Information services

Overview of the Mobile Economy

The mobile economy has replaced the traditional economy in today's world. With the advancement of the mobile technologies, the mobile economy will become a new trend in dealing with the economy matters. The Mobile Economy is any transaction that occurs on a smart phone or tablet (A. Ghose, 2017) This means that any transactions regarding the economy domains will be considered as a mobile economy. According to the IMF Staff Report, the digitalization of the economic activity can be broadly defined as the incorporation of data and the Internet into production processes and products, new forms of household and

government consumption, fixed-capital formation, cross-border flows, and finance. The rapid pace of change has led to concerns about possible under-measurement of economic activity and economic welfare associated with digital products.

Mobile phones become an extension of the individual in a way that televisions and computers never could before. By using the mobile phone in dealing with the economics transaction, there are some significances of the mobile economy. Lum, T, 2011 stated that mobile phone can have the potential to reduce the costs of communication by lowering search costs and making information more accessible to the general population of developing countries. This, in turn, will lead to more efficient market operation by reducing the amount of waste caused by spoilage, and by facilitating communication between producers, sellers, and buyers. In addition, mobile phones can increase the economic welfare of both consumers and producers. Finally, cell phone use can stimulate the economy by creating more demand for mobile-based services, which in turn increases employment.

Mobile phones also offer the potential for mobile phone-based services and products. One example is m-banking, or mobile banking. In this application, users are able to transfer money between bank accounts and pay bills via phone (Aker & Mbiti, 2010). The role of Information and Communication Technology (ICT), including the mobile technologies in speeding up economic growth has been empirically established in the context of several mature economies (Inklaar, Timmer, & van Ark, 2008).

Implementation of Mobile Economy in Malaysia

Malaysia is not excluded from the implementation of the mobile economy. This can be seen from the research conducted that Malaysia's Internet penetration risen to 85.7 per cent from just 70.0 per cent in 2015. Berita Harian, 2018 mentioned that households across Malaysia with computer and mobile phone access rose to 74.1 per cent and 98.1 per cent respectively, compared with 67.6 per cent and 97.9 per cent in 2015. Individuals using Internet aged 15 years and above in Malaysia rose by nine percentage points to 80.1 per cent in 2017, from 71.1 per cent in 2015 based on the information obtained from Statistics Department's website. The data shows information technology and communication (ICT) is experiencing rapid growth in Malaysia.

According to the Individual and Household Survey Report on ICT Usage and Access, the percentage of individuals using computers have also increased 1.1 per cent to 69.8 per cent compared to 68.7 per cent in 2015. The smartphone usage for internet access also increased to 97.7 per cent compared to 97.5 per cent in 2015. On mainstream internet activity, among the popular activities are social networking sites with 86.3 per cent and downloading images, movies, videos or music and playing or downloading video games at 81.2 per cent. In addition to that, obtaining information on goods and services recorded 80.4 per cent while downloading software or applications by 74.5 per cent and sending or receiving emails at 70.4 per cent. Other activities carried out by internet users are internet banking (37.6 per cent) and purchase or order goods or services (e-commerce) (23.2 per cent).

The report also stated that the percentage of household access to the internet increased by 15.6 per cent to 85.7 per cent compared to 70.1 per cent in 2015. In addition, the household access to computers also increased 6.5 per cent from 67.6 per cent in 2015 to 74.1 per cent in 2017. The percentage of household access for mobile phones also increased by 0.2 per cent to 98.1 per cent in 2017 compared to 97.9 per cent in 2015. Based on the outcome of the report, mobile cellular penetration in Malaysia has reached 131.8% while smartphone penetration stood at 70% in the third quarter of 2017. Malaysia's broadband had been keeping up with the demand from customers, with broadband penetration currently at 84.5%.

E-payment would be one of the key factors in ensuring the success of Malaysia's vision for the digital economy, adding that the outlook for epayments was very encouraging.

This positive growth can be attributed to pricing and market incentive framework implemented by Bank Negara, as well as the continuous awareness programme by the central bank and the banking industry to enhance confidence in the use of Internet banking. Banking fraud losses sustained by individuals in Malaysia remained very low at 0.0004% of total transaction volume and 0.0017% of total transaction value in 2016 (The Star, 14 February 2018).

Challenges of the Implementation of Mobile Economy in Malaysia

Infrastructure, resources and platforms

The challenges faced to implement the mobile economy are at the infrastructure level, resources and platforms. The mobile economy needs to be equipped with a special infrastructure, resources and also a specific platforms in order to ensure the smoothness of the economic transactions that had been made. Past decade has witnessed the transition from telecoms to converged electronic communications, broadcast and audio-visual services and a growth in the volumes of data flowing across the Internet on the continent of Malaysia. The implementation of the mobile economy require adequate speed based on the number of Internet pages browsed, the speed of basic and broadband access, the cost of Internet usage, the availability of radio-frequency spectrum for advanced mobile broadband services, the availability of cloud computing solutions for commercial businesses, for government data services and other organizational uses and the cost effectiveness of hosting data in the cloud. Thus, the government needs to provide a complete infrastructure to increase the return rates in the mobile economy.

Besides that, in order to implement the mobile economy, the human resources also needs to be equipped with a special skills and knowledge to ensure the success rate of any economic transactions that occurred by using the mobile technologies. Human resource capacities or software engineering, web design, online marketing, online gaming, the design of online educational materials and learning systems, big data analysis, and other challenging forms of innovation and creativity are in demand. Fostering innovation and open access to knowledge, through permitting open access to the intellectual property needed to build a Malaysian continental digital economy.

Policy, legislation and regulation

Policy, law and regulation are important in influencing the speed of change, the reality and rapidity of e-transformation. The Malaysian government needs to strenghten the existing policy, legislations and regulations pertaining to the mobile economy through the use of mobile technologies. For example, the enforcement of Malaysian Cyber law to ensure that the data used in any transaction that had been made is secured enough and protected from being abuse by the irresponsible people in the cyber world. Poor regulation on monopolies together with the collusive behavior of authorities make pricing in the ICT sector uncompetitive, thereby affecting the affordability of services and lowering trade volumes

Ethics and self-regulation in cyberspace

It is neither possible nor desirable to regulate everything in cyberspace. Many communities of practice and social groups may create and comply with stated or tacit ethical codes, for example on Facebook and Twitter. While Internet service providers (ISPs) may need to comply with specific legislative requirements, differing from country to country, there is often a high degree of self-regulation in the Internet industry, with ISPs formulating their

own codes of conduct at country level. The Malaysian government needs to imposed specific punishment with any unethical code of conduct when making any transactions over the internet. All the users need to follow an ethical code of conducts.

CONCLUSION

Mobile devices nowadays are not only meant for the communication purposes, but it had widely used in a serious applications including the mobile economy. Mobile economy plays an important roles in the development of the economics in all the countries in the world. The increasing numbers of people owns the mobile applications will indirectly influence the growth of the economics in their countries. This is due to the transformation of the software development trends, changing from the standalone applications to the mobile applications all over the world.

This paper discussed Mobile economy definitions as well as the overview of the Mobile economy and its implementation in Malaysia. Besides that, we also identify the challenges to implement the Mobile economy in Malaysia. Currently, the aauthor is doing investigation on the Mobile economy policies and the cyber laws in Malaysia as compared to other southeast asia countries. More extensive literature review will be conducted in order to identify the challenges faced for implementing the mobile economy in Malaysia. As future works, we will look on the most appropriate techniques to implement the Mobile economy in Malaysia to be more competitive in the international markets.

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