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ICT INDICATORS AND PRIORITIZATION STRATEGIC DEVELOPMENT ON ICT SECTORS

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Introduction

Government of Indonesia and other stakeholders in the country deem a common belief that ICT can provide the foundation whereby a society can be built with equitable opportunity and knowledge. We also believe that it is a key determinant of the sustainable competitive advantages of the Nation. This concept is often left undeveloped for relevant ICT design and its policy instrumentalization. GOI seeks to present the composite ICT initiatives and qualitative as well as quantitative measurement to ensure that ICT utilization is addressed in productive ways. Ministry of Communication and Information Technology (MCIT) of Government of Indonesia (GOI) has annually conducted ICT Surveys. For example we captured telecommunication market share and built analysis based on ICT household indicators.

ICTs should be viewed as a strategic national resource which has implications on the sustainability of the state and nation. The consequence of this, ICT must be managed as a resource or treasury capital toward national competitiveness. As a resource, ICT is unique because it holds the potential benefits and at the same time it relates the potential risks that need to be mitigated while securing information security known comprehensively as the concept of the information resilience. In the context of global competition, ICT has determinedly become a strategic necessity and not merely a strategic choice anymore. ICT should be addressed strategically due to its enormous and long-term impact covering almost all development sectors correspondingly. So it is unquestionably imperative to set ICT as the blood vessels of this Nation, the content as the blood flow entirely of the Nation, the infrastructure and political will as the heart of the Nation. Otherwise, ICT development and competition will lead us to disadvantage position. Re-interpretation from Trisakti principles from Indonesia founding father, Soekarno, with regard to ICT development, ICT, therefore, is to be developed to create national sovereignty by inducing productive and competitive economy, a dynamic and national resilience, and the patriotic, innovative, and superior character nation by shielding our virtuous cultural roots.

GOI is working hard to combine our policy work with research and analysis, providing concrete evidence of the outcome and benefits of ICT. As technology became more pervasive in

the workplace, education, entertainment, creative industry and daily living, MCIT's research and development focused on design of information and communication technologies, so that they are more accessible and usable by policymaker in various domains. MCIT have two sort of R&Ds. The first one is policy research aimed at proactive analysis, policy impact evaluation, and modelling. Another side we are also grappling applied R&D to produce prototype, innovative product and supporting the business making analysis of the product commercialization. Through this approach, MCIT provides national leadership by developing position papers, hosting meetings, and engaging in dialogue with researchers, practitioners, and policymakers in order to identify promising areas of research, development, and dissemination for the field and to advance evidence-based policy and practice, as well as contribute to the development of ICT-related prototype product and its industrial penetration.

The number of ICT users either individually or in any sector like household, business, education, etc., cause every country needs to observe, evaluate and monitor the development of ICT infrastructure, access and use. All the data and information are needed to build a proper policy to regulate access and ICT usage and so does infrastructure development. In this case, the description of the access and use of ICT becomes indispensable by the countries. ICT measurement standards are aiming to obtain a picture of the access progress, as well as the usage of ICT infrastructure in each country is also useful to benchmark position of ICT developments in one country against another country.

ICT Household Indicators

In 2013, the Ministry of Communications and Information Technology Republic of Indonesia conducted a survey of ICT access and usage in household sector. Survey of the use of ICT access in households nationwide conducted by the MCIT. Household population used as the sampling method is based on BPS (Indonesia National Statistic Agency) census. While the sample in this survey totaled 9,680 households with a 95% confidence level and a estimation margin of error 1%. Survey of ICT access and usage in households based on 12 core ICT indicators compiled by the ITU (International Telecommunication Union International) in 2012.

The sampling methods in of ICT access and usage in household sector survey can be seen in figure 1 below.

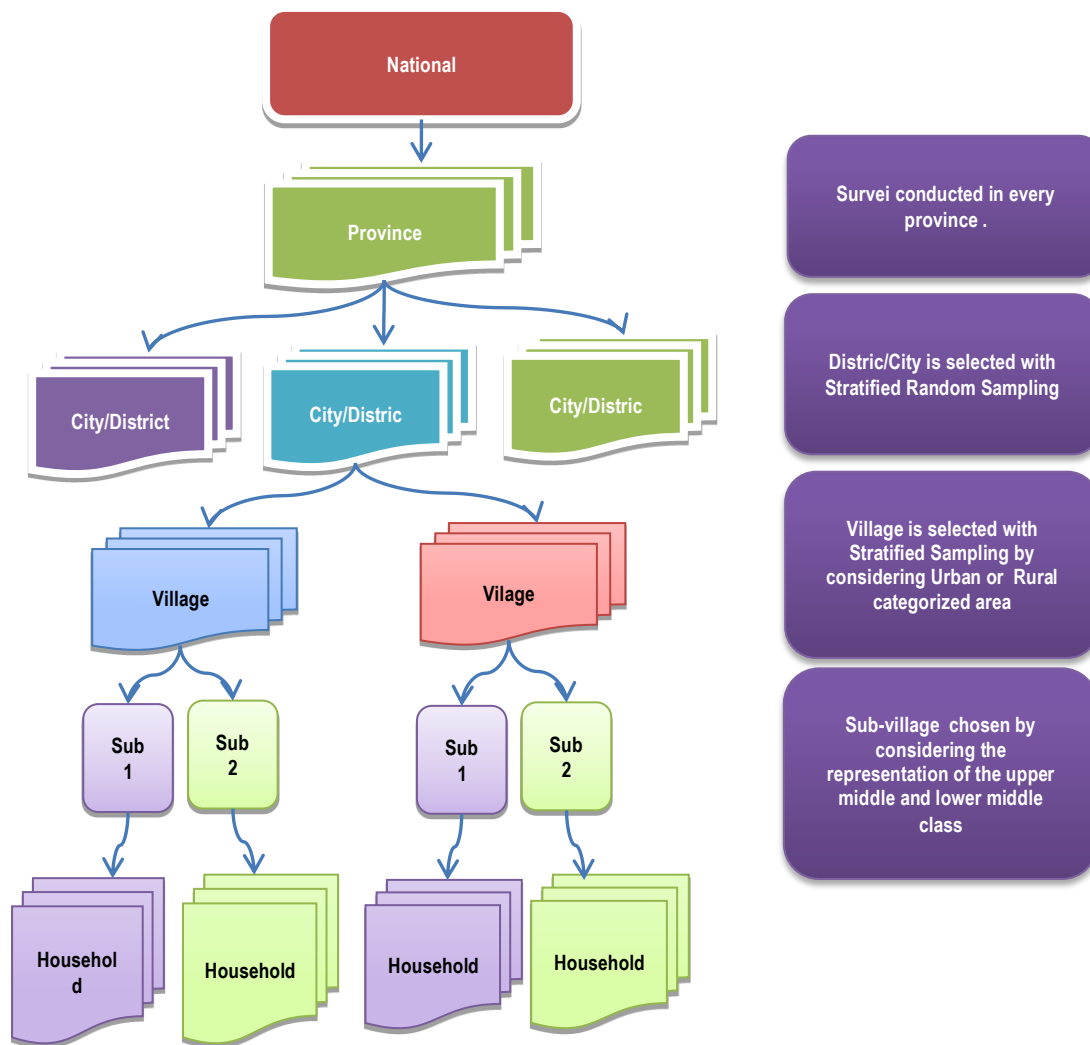


Figure 1. Sampling Methods

From the sampling frame, the distribution of the respondents in this survey is based on the region are: 32% of respondents from Sumatra, 28% of the area of Java, 18% from Sulawesi region, 9% from Bali and Nusa Tenggara region, 8% respondent from the Moluccas and Papua and 5% from Borneo.

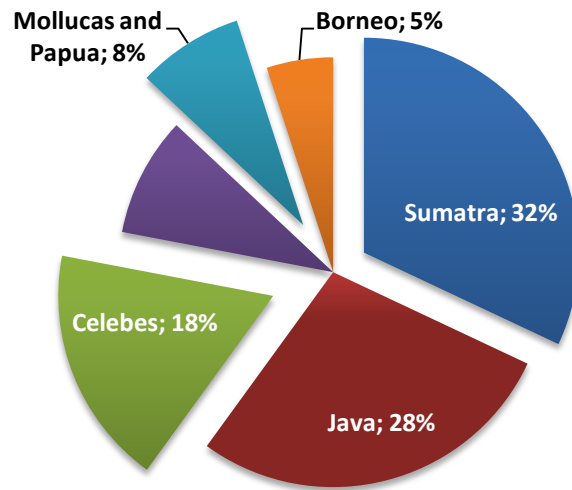


Figure 2. Sample Distribution by Region

HH1 Proportion of Households With a Radio

Radio is one of the simple and common ICT tools. Definition of radio here, is a conventional radio or radio integrated in the vehicle, an alarm clock, or mp3 player, but does not include radio on the computer and HP. In addition, owned radio must be in good condition and functioning properly. Based on survey results in Indonesia, 35% of the surveyed households have a radio, while 65% of households do not have a radio.

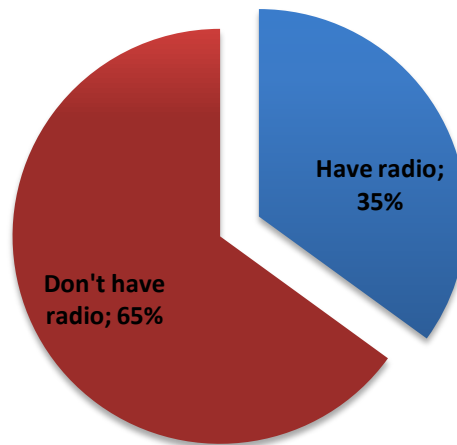


Figure 3. Proportion of households with a radio

HH2 Proportion of Households With a Television

Television is the most popular ICT devices. Currently, almost all of the home is certain to have a television. Based on the survey in Indonesia, there are 10% of households that do not have a television, and 90% of households have a television. Television sets are referred to in this survey is the conventional television and not the television that include in another device (mobile phone / mobile) or in a vehicle. In addition, household owned television must be in good condition and functioning properly.

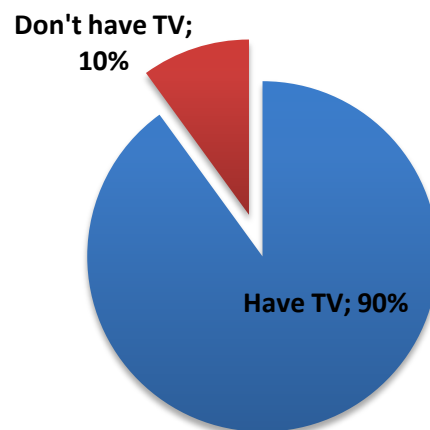


Figure 4. Proportion of households with a television

HH3 Proportion of Households With a Telephone

Fixed Telephone network in this survey is refer to a line connecting the subscriber's terminal equipment (telephone) to the public switched telephone network (PSTN) and has a dedicated port on the phone. Based on the survey, only 9.31% of households with telephone wires, while 90.69% of households do not have a fixed phone network. This data based on survey is greater than the number percentage of households with fixed telephone based on data collected by Village Indonesia National Statistic Agency PODES survey in 2012 with 8.6%.

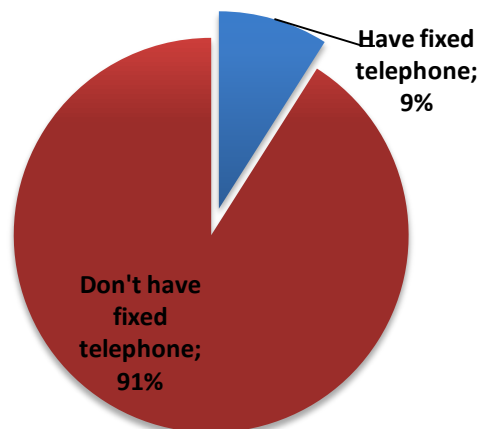


Figure 5. Proportion of households with telephone

HH4 Proportion of Households With a Computer

Nowadays a computer is a modern multi function ICT devices. First computer more useful to the calculating process and office activities, but development of computer technology also serves communication, learning media, games and others. In this survey, Computing devices are referred to in this survey is a desktop computer or laptop and not a mobile phone, PDA (Personal Digital Assistant) or TV. In addition, the computer also must be in good condition and used properly according to its function. Based on survey results, 27% of households having a computer and 73% of households do not own a computer.

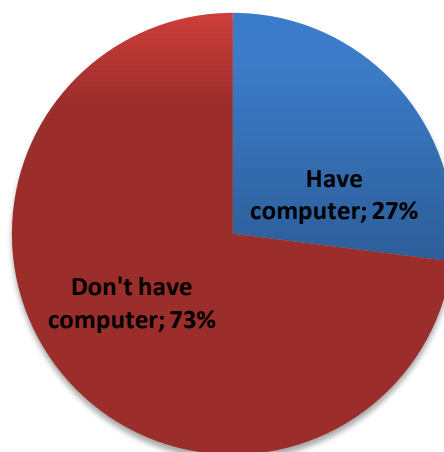


Figure 6. Proportion of households with a computer

HH5 Proportion of Individuals Who Used a Computer In the Past 3 Months

This survey also measures computers usage by individuals as a household member. The computer is defined as desktop computer or a laptop and does not include mobile phones, PDAs (Personal Digital Assistant). And also, computer must be in good condition and functioning. Computer usage in this survey refer to individual user (respondent) that use computer at least one time within the last 3 months, even though the respondent do not own computer by himself/herself. They can borrowed computer from family, friends and others. Based on survey results, 26% of respondents had used a computer for the last 3 months. While 74% of respondents do not use a computer.

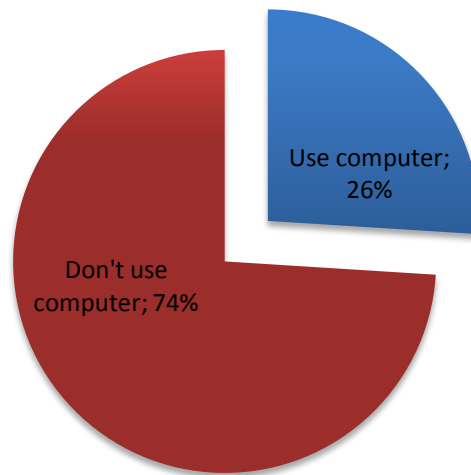


Figure 7. Proportion of individuals who used a computer in the past 3 months

HH6 Proportion of Households With Internet Access

The Internet is a worldwide public computer network, providing access to a number of communication services including the World Wide Web and run e-mail, news, entertainment, and data. Internet in this survey meant that the internet is accessible not only through a computer, but also can with cell phones, PDAs, game machines, digital television, etc.. Based on the survey results it appears that 21% of households have internet access, while 79% of households do not have internet access.

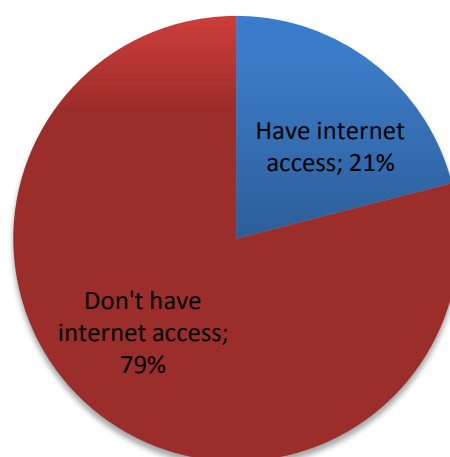


Figure 8. Proportion of households with internet access

HH7 Proportion of Individuals Who Used the Internet In The Past 3 Months

This survey also measures internet usage by individuals in Indonesia. Internet user refer to individual user (respondent) that use internet access at least once within the last 3 months, even though the respondent do not own internet network by himself/herself. They can use internet access from internet cafe, friend's home, office, school and others location. Based on survey results, 74% of respondents use internet access in the last 3 months. While 26% of respondents do not use internet.

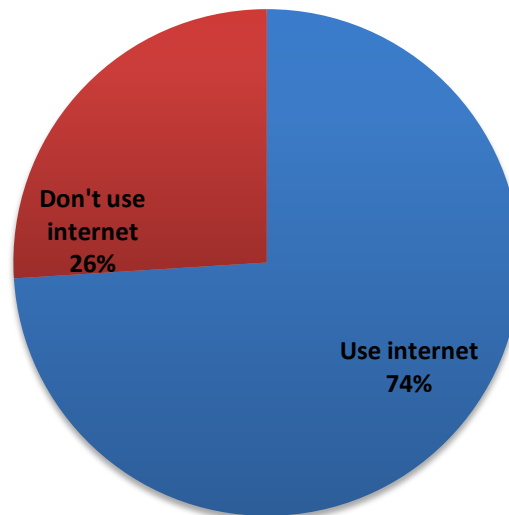


Figure 9. Proportion of individuals who used the Internet in the past 3 months

HH8 Location of Individual Use of the Internet In The Past Month

Each individual accessing the internet in different places. From the survey results, it can be seen the percentage of locations that are often used for accessing internet. Home has the highest percentage of location that respondents usually use the Internet access with 54.1%. Second highest percentage is to access internet from anywhere via HP at 47.9% i. While the internet cafe has the third highest percentage with 32.6%.

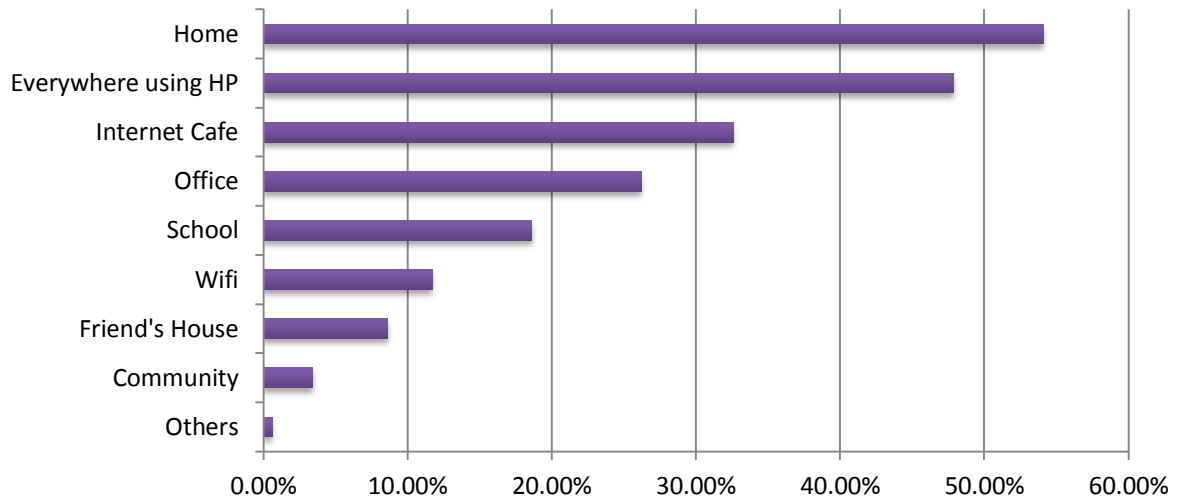


Figure 10. Location of individual use of the Internet in the past month

HH9 Internet Activities Undertaken By Individuals In The Past Month

In Indonesia, respondents have so many activities through the internet. Opening a social networking site is the most commonly performed activity for respondents while using internet access with a percentage of 67.9%. Then proceed with searching for information about goods or services by 42%, and then, learning activity is third highest activity by 40.1%.

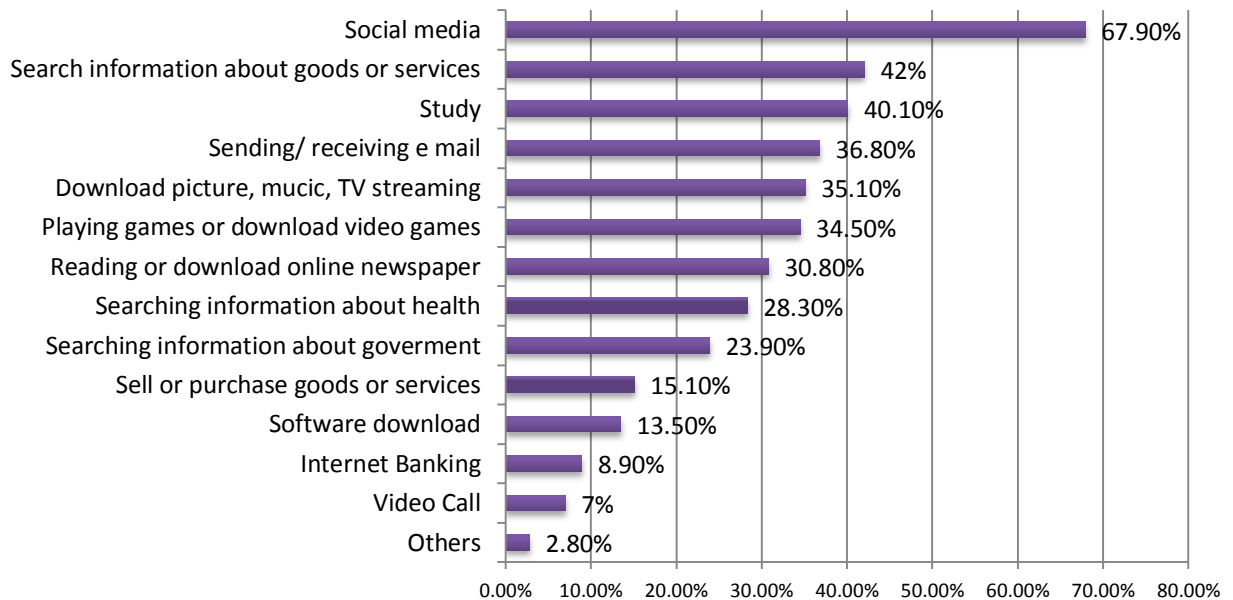


Figure 11. Internet activities undertaken by individuals in the past month

HH10 Proportion of Individuals Who Used a Mobile Cellular Telephone In The Past 3 Months

The survey ICT access and usage also measures mobile phone (Hand Phone) user as an individual. The individual must use a mobile phone / mobile at least 1 time in the last 3 months, even though the respondent do not own HP by himself/herself. they can borrowed from family, friends and others. Based on the survey results it appears that 80% of respondents admitted to using a mobile phone / mobile in the last 3 months, while 20% are not.

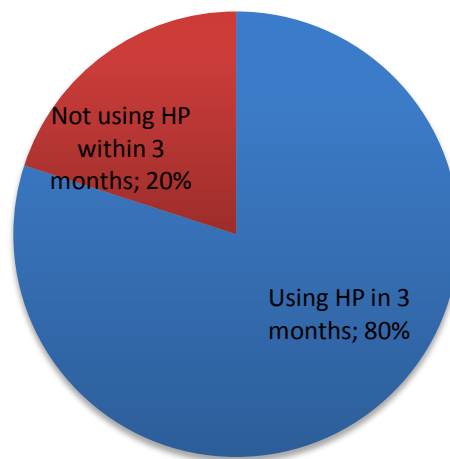


Figure 12. Proportion of individuals who used a mobile cellular telephone in the past 3 months

HH11 Proportion of Households With Access to the Internet by Type of Access

There are three types of Internet access that can be used in the Indonesia households, Narrowband (such as Telkomnet Instant), Fixed Broadband (Telkom speedy), and Mobile Broadband with internet service from operators like Indosat, Telkomsel, Smartfren, XL and another internet product with 3G networks. Based on the results of the survey can be seen that 65% of households choose Mobile broadband as a used Internet access at home, while 17% choose Fixed Narrowband and 18% of households have Fixed Broadband access.

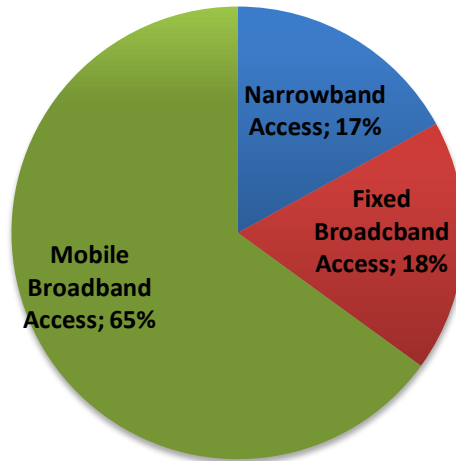


Figure 13. Proportion of households with access to the Internet by type of access

HH12 Frequency of Individual Use of the Internet In the Past 3 Months

Frequency of internet access for individuals in Indonesia based on survey data, 51% of respondents stated that they access the internet at least once a week but not every day. Then 37% of respondents access the internet every day and only 12% of respondents who access the Internet less than once a week.

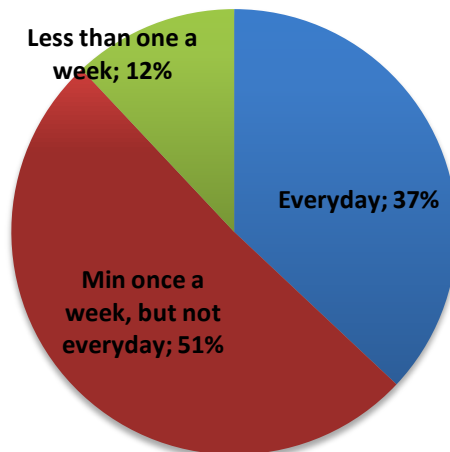


Figure 14. Frequency of individual use of the Internet in the past 3 months

Strategic Prioritization on ICT Development

GOI have working indefatigably to ensure that ICT is being transformed to best serve the interests of the national goals. In Indonesia, the rate of growth of the transport and communications sector in 2013 is still the highest among other sub-sectors, which reached 11.1%. Compared to, for example, the trade, hotels and restaurants which are only contribute 8.3% and construction of 7.3%.¹ The growth rate of the communications subsector was driven by data and internet sales factor, in addition to the increasing number of purchase of new communication tools such as mobile smartphones, tablet PCs, and other telecommunications equipment. How strategic ICT role in national level? A study of the National Development Planning Agency of GOI indicates that: 1) Every 10% increase in broadband penetration would increase economic growth by 0.8% -0.9%; and 2) Each 1% increase in broadband penetration of households, the growth of unemployment will be reduced by 8.6%; 3) The development of mobile broadband in the 700 MHz band are expected to increase productivity by 0.4% in the service industry and 0.2% in manufacturing with a total addition of the work-field creation for as many as 327,000 jobs. Supported by broadband, it is expected in 2025, Indonesia's GDP reached: US\$ 4.0 to 4.5 billion.

As issued by National Development Planning Agency of GOI, there are still some critical problems in regard of ICT development. Based on the continuous surveys, including ICT Household Indicators, it is important to prioritize our resources constraint to see what area of ICT development that need get more improvement. : 1) the unequal diffusion of information access (Yates, et al., 2010; Joseph & Nath, 2012). Due to a number of factors in Indonesia, including some of its islands which geographically remote and uneven distribution of population, affordable access and connectivity is the primary problem complicating basic effort to access information; 2) the shortage of ICT infrastructure allowing broadband access and the slowness of the establishment of the network infrastructure, the training of people to use it and to exploit commercially the information and knowledge that it makes available. Until mid-2014, only 361 districts/cities, or about 72% of the total 497 Indonesia's districts/ cities has been reached by the national broadband fiber optic network. Most of the areas are in western Indonesia; 3) the unfavorably high price for broadband connection discouraging national broadband ecosystem. Based on data from the Indonesia's Central Bureau of Statistics, the national income per capita in 2012 was around IDR 2,570,000 per month. As for the connection price of 1 Mbps is IDR 700,000, or equivalent to 27% of income per month. This figure is much higher than the amount of the average expenditure for the household's basic needs such as for education and health. The high price impedes the potential market arisen from broadband

¹ The 2014 Financial Report of Ministry of Finance of GOI

ecosystem; 4) The on-going coordination problems intra and extra-governmental bodies, not to mention the lack of an integrative policy framework from central and local government; 5) the issue of interoperability has become more important as countries deploy e-government systems. In order to provide high-quality services to citizens it is important that services can be accessed from the widest possible range of technology from all over Indonesia.

A major feature of the knowledge-based economy is the impact that ICTs have had on industrial structure, with a rapid growth of services and a relative decline of manufacturing (Houghton, 2009). GOI built an orderly systematic thinking that the ICT sector is a multistakeholder platform portfolio regulated by Government to reach national goals. As it implies numerous dimensions, we are dealing with multifaceted trends of technology, business, and industry (Tardiff, 2006; Shahid & Shoulian, 2007). The comprehension of trends has helped the identification of opportunity seizing and threat avoidance.

Conclusion and Implications

Until now, there has been little research on the practice of policy instruments of Government improving ICT enabled/enabling industry. Most literature about ICT is focused on business level and the impact of ICT expenditure to firm performance. Government intervention research implies contradictory findings. Some research proves that less government intervention is found to be beneficial for firms by allowing them to improve their performance (Wang & Cu, 2011), another research concludes that policy influence is negative and has no impact on particular area of improvement which is more easily affected by external variables (Tu, et al., 2014). For decades, a controversy has been raging about the case for Government interventions to accelerate economic growth in developing countries, as opposed to conducting international standard policies. This paper does not stand on any side of this debate. However, especially, in emerging economy such as Indonesia, there is a public pressure in favor of government interventions to promote a more healthy and mature ICT industry by protecting national goals including our SMEs growth.

From government's perspective, ICT development is the result of a specific form of dominant design which integrates national and global knowledge and trend of technology, business, and industry for the achievement of national goals. Until the beginning of the year 1990s, ICT plays a role as an enabler in which consumers have the option to utilize ICT to gain their own benefits. However, ICT has now moved to a more instrumental role as a driver of competitive advantage for both profit and nonprofit organizations. Regrettably, the phase of policy making do not just often overlap, they are also very late results in a loss of momentum.

This can lead to poorly conceived policies and government doesn't do enough programs to address the arisen problems in time. Moreover, such process are impeded by bureacratic inertia, a lack of appropriate institutional arrangements, and problems in public-civil service relationships. Government need better ways of ensuring that the policy problem has been fully considered and the instrument solution examined properly.

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