

Research article

Information Technology Preparedness in Indonesia's Future Capital Area

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Abstract.

The Indonesian capital, DKI Jakarta, will be replaced by Penajam Paser Utara in East Kalimantan, according to the Central Government. Penajam Paser Utara is divided into four districts and thirty villages. The majority of these villages use information technology (information technology), such as websites, to report on village fund applications. However, none of the villages have used information technology to promote the development of the villages' natural resources potential. Faced with the prospect of becoming Indonesia's capital, a concerted effort must be made to engage with information technology in order to support the country's economic development. According to the findings of this study, information technology has only been used to create village fund reports. However, most village functions such as providing certificates for births, marriages, deaths and homes are still reported manually. Penajam Paser Utara public officials have not yet maximized the use of the information technology system to serve the community. Furthermore, no natural resources have been promoted in the village office so that the villagers can earn more money than they did before the introduction of information technology.

Keywords: information technology, village development, economic gain and localities

1. Introduction

Around 70 % Indonesian live in the villages, so building the nation must be started from the smallest level. The Internet has been used to boost the development of villages, in order to increase the budget and village's income (1). As a result, information, communication and technology (ICT) has also contributed to the dynamic Development of tourism awareness and eventually to accelerate the tourism village development (2). As one success story in Banyuwangi was once initiated to have a finance report online, making the villages a smart model for rural areas and it has some dimensions which are governance, technology, village service and tourism. (3). From villages to cities also have been written by H Samih that smart cities contain the need for smart living, smart mobility, smart government, smart environment, smart people and smart economy. in other research by Nam and Pardo that smart cities only empowered by

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technology, people and institutions (4). An extension of these approaches is proposed to account for the increasingly important role of the sector in innovation and diffusion of technology. In addition, it is argued that the global diffusion of key value-added core components and the imperatives of dynamic, information-related economies of scale tend to erode comparative advantages from low labor costs in developing countries (5). These studies have shown the important meaning of information and technology that embrace unrecognized and underdeveloped villages.

On August 26, 2019, the President of the Republic of Indonesia, Joko Widodo, officially announced that the capital city of Indonesia would be moved to East Kalimantan, precisely in Penajam Paser Utara (PPU). The relocation of the capital city to East Kalimantan with various considerations including minimal risk of natural disasters, such as floods, tsunamis, forest fires, volcanoes and landslides; strategic location in the middle of Indonesia; locations close to developed urban areas such as Balikpapan and Samarinda; relatively complete infrastructure; and available land controlled by the government covering an area of 180 thousand hectares (6).

Herdiana, in her research states that there are at least 6 (six) conditions that must be prepared in moving the capital, which are interrelated with each other. Those conditions are 1) Visionary leadership and commitment consistency; 2) Comprehensive legal rules; 3) A participatory and accommodating planning process, 4) Professional human resources; 5) Cultural characteristics and openness of local communities; and 6) Government organizational culture and social values (7). In addition to these 6 requirements, in the era of the industrial revolution 4.0, of course, the selection of regions that have readiness both in terms of machine and human resources in the use of digital technology is very necessary, to maximize village potential which will have an impact on improving community welfare.

The development of the industrial revolution 4.0 which is marked by the internet of things, machine learning, big data, and cloud computing must be responded to quickly and accurately by all groups, both the private world, the community, and the public sector. Organizations or agencies that can go hand in hand with the spirit of industry 4.0 can benefit from the application of the industrial revolution in all sectors of life. On the other hand, organizations that are unable to accommodate the industrial revolution 4.0 will be left behind and find it difficult to communicate and compete with other organizations (8).

The development of the industrial revolution is no exception and must also be responded to by the public sector. The application of government based on e-government is inevitable, because e-government is also a means to achieve good

governance. In Eka Pertiwi and Muhammad Muslihudin's research (2018) conducted in Bumirejo Village, it was found that e-government helps in increasing Village Potential using mobile web (Pratiwi and Muslihudin, 2018). PPU, as a candidate for the capital of the State of Indonesia, must be more advanced than other cities in the application of digital technology. There are many potential villages in PPU that can be utilized to improve community welfare through the use of digital technology.

PPU has a lot of potential such as agriculture and plantations with a large area of land as well as facilities and infrastructure such as roads and adequate transportation facilities. PPU also has fishery and marine potential with a marine area of 272.24 km² and is crossed by the Makassar Strait, a breeding route for fish with high economic value. In addition, PPU also has mining potential such as metal and energy minerals (gold, oil, gas, and coal) as well as various types of stones such as limestone, mountain rock, limestone, and quartz sand (9).

Based on a preliminary study conducted by distributing questionnaires to village officials and the community in PPU, totaling 79 respondents, it was found that 40.5% of respondents thought that digital-based village services were still not good. and 17.8% of respondents stated that the Village apparatus had not maximized the use of digital technology to maximize Village Potential. This shows the need for more readiness from PPU as a candidate for capital in the development of digital technology.

2. Method

This research is mixed methods research. Mixed method is relevant to be employed in this research because quantitative data regarding the Penajam Paser Utara public officers' opinions of technology implementation must be confirmed with explanations from the public servant and the community.

Quantitative methods are chosen to get a picture of public perceptions related to the importance of applying digital technology in managing government. Respondents in the quantitative method amounted to 79 people consisting of village officials and the community, sampling was carried out by purposive sampling method that met the criteria in the study. Qualitative methods are used to explore the readiness of PPU districts as candidates for the capital of the Republic of Indonesia in the application of digital technology to support village potential and improve community welfare.

Respondents are taken from all samples of 30 villages in PPU with three different categories for depth in interview, developed (reaching 7 billion local budget with highest

information technology performance), middle level (with 6–3billion local budget, average information technology uses) and lower (less than 3 billion with lowest information technology use). Table 1 shows the characteristics of the respondents were 73.4% high school.

TABLE 1: Characteristic of Respondents PPU in 2021.

Data	F	%
Age		
<25 years(Z Gen)	10	12,8%
25-40 years (Y Gen/Millennials)	44	56,4%
> 40 Tahun (X Gen)	24	30,8%
Occupation		
Village Committee	49	62,0%
Society	30	38,0%
Education		
Bachelor	15	19,0%
Diploma/Non Degree	6	7,6%
≤ High School	58	73,4%

Resource: Primary Data

Furtherly, most of respondents are gen Y or millennials who are expected to be more aware of digital information and its impact on the district. It is 30,8 percent up to 40 in which wisdom and action can be run parallel with the millenials. The variety of respondents characteristics is equivalent with the answers that are based on the readiness of village management in Information technology used to prepare the district to become capital of Indonesia.

3. Result

Since its announcement is to become the nation’s capital, readiness related to digital implementation needs to be improved. The community is one of the parts affected by the planned relocation of the capital. The people of PPU Regency must be ready to accept the changes that will occur in their place of residence. In addition, the potential of the region must also be sufficient to become the capital of the country.

3.1. Description of Research Area

North Penajam Paser Regency is an area in the southern part of East Kalimantan, Indonesia. In the north, it is bordered by Loa Kulu Subdistrict and Loa Janan Subdistrict,

KAB. PENAJAM PASER UTARA

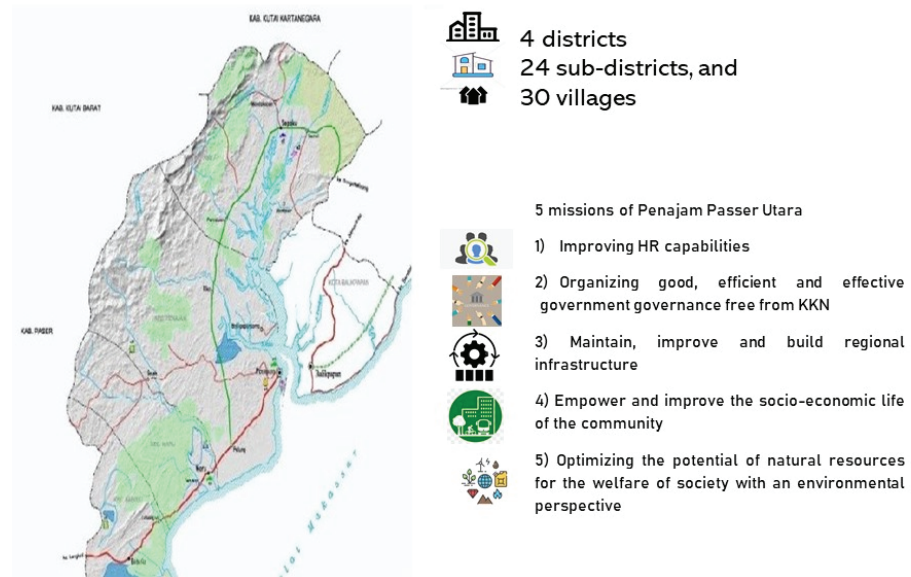


Figure 1: Borders of Penajam Paser Utara, Its Administrations and Missions.

Kutai Kartanegara Regency, in the east by Samboja Subdistrict, Kutai Kartanegara Regency, Balikpapan City and the Makassar Strait, in the south by Longkali Subdistrict, Paser Regency and Makassar Strait, and in the west by Bongkan Subdistrict. West Kutai Regency and Longkali District, Paser Regency. North Penajam Paser Regency consists of 4 sub-districts, 24 sub-districts, and 30 villages as the front line of excellent community service.

PPU Regency has a vision to realize the people of North Penajam Paser Regency who are prosperous, qualified, independent in a peaceful, just and religious life. In achieving this vision, PPU Regency has 5 missions called the PPU Development Panca as follows.

1. Improving HR capabilities by mastering Science and Technology (IPTEK) and Faith and Taqwa (IMTAQ);
2. Organizing good, efficient and effective government governance free from corruption, collusion, and nepotism;
3. Maintain, improve and build regional infrastructure;
4. Empower and improve the socio-economic life of the community; and
5. Optimizing the potential of natural resources for the welfare of society with an environmental perspective.

One of these missions is to increase the capacity of human resources by mastering Science and Technology (IPTEK) and Faith and Taqwa (IMTAQ), as well as the mission to optimize the potential of natural resources for the welfare of society with an environmental perspective. These two missions become sustainable with each other where the implementation of e-government can increase the potential of the village which will have an impact on improving people's welfare.

3.2. Potency of Development in Penajam Paser Utara District

PPU Regency is one of the rice granaries in East Kalimantan. The main food crop production produced by PPU Regency is in the form of rice, secondary crops (maize), soybeans, peanuts, green beans, cassava and (sweet potato) and major vegetable and fruit crops (horticulture). Plantation commodities in PPU Regency are oil palm, rubber and coconut. In addition, commodities that are also widely developed are coffee, cocoa, and pepper. PPU also has Fisheries and marine. With a sea area of 272.24 Km², PPU Regency has the potential for abundant fishery products, especially in the Makassar Strait area, which is a breeding ground for fish that has high economic value. In addition to aquaculture, currently PPU Regency also continues to cultivate seaweed. With a fairly long coastline, namely a coastline of more than 27.25 km and sea currents/the Makassar strait are not so strong, PPU's coastline is suitable for seaweed cultivation. In farming, PPU has very good potential for the development of animal husbandry with such a large vacant land and abundant animal feed, making it suitable for grazing and the location of cages for livestock.

Borneo is well known for mining exploration, it has quite diverse quarry mining resources, ranging from industrial materials, metal mineral minerals and energy as well as non-oil and gas materials, but these mining resources have not been explored and utilized optimally. Further in Industry and Commerce, it has a large industrial and trade potential. Currently the development of industry, especially micro, small and medium enterprises is quite good. PPU is a producer of handicrafts, such as ceramics, marble, wooden boats, furniture, rattan and PPU specialties, such as amplang milkfish, ginger ting-ting and others. Lastly on Tourism both natural and artificial tourism, as well as traditional cultural arts that can be developed, such as: Tanjung Jumlai Beach Tourism Object, Gusung Island Tourism Object Off Tanjung Jumlai Beach, Kwangan Island Tourism Object, Deer Captive Tourism Object, Tourism Object Sipakario Beach Tourism, Coral Reef Tourism Object, Corong Beach Tourism Object, Twin Caves Tourism Object, Karst Cave Tourism Object, Waru Reservoir Tourism Object, and others.

3.2.1. Discussion

As one of the regencies that will be planned to become the nation's capital, readiness related to digital implementation needs to be improved. The community is one of the parts affected by the planned relocation of the capital. The people of PPU Regency must be ready to accept the changes that will occur in their place of residence. Therefore, the researchers distributed questionnaires to determine public perceptions regarding the urgency of implementing information technology in PPU Regency as well as an illustration of the extent to which information technology was applied in PPU Regency.

Based on the primary data and interviews on public perceptions on the Urgency of implementing information technology in public services as a form of e-government in North Penajam Paser Regency, table 2 indicates that they have not yet maximized the implementation of the information technology system to serve the community. Among 10 villages boards that were interviewed stated that they agree to have information technology in serving the community however their capacity resources are not enough. Members of the village's board are 70 percent only with high school qualifications, their skill of innovation limited, they certainly need more training and supervision.

In addition, the use of information technology to support the village's board apparently more than 70 % disagree, in which basically they still do manual services. It is supposedly not only a finance report regularly to the central government on the use of village budget but also any other services, for example applying marriage, birth and death certificate, business license, any available local training for new enterprises. Unfortunately, the capacity and the willingness to apply information technology system is not hand in hand. When they commit to applying information technology (40%) and its application to qualify and shorten time consuming services, they do not have sufficient support. Business as usual. They come at 8 am and finish at 4, daily as usual habit. Changing to have PPU as capital of Republic of Indonesia in all aspects of services seems in slow mode.

There are a lot of best practises among villages in Indonesia that tremendously improve the people's quality of life by gaining economic growth from tourism. Those villages apply information technology to endorse the marketing. However, tourism sites in PPU stay natural, untouchable to be widely promoted and bring more income to the community. More than 60 % respondent confirmed that information technology has not been applied to endorse tourism along with those who stated that information technology has not been able to increase people welfare. Smart villages that have increased other villages in Java for tourism for example because they have applied

TABLE 2: Frequency Distribution of Respondents' Perceptions related to Information Technology in PPU District on 2021.

Data	F	%
Information Technology has improved services to the community		
strongly disagree	36	45,6%
partly disagree	40	50,6%
Agree	3	3,8%
strongly agree	0	0%
don't know	0	0%
Information Technology has supported Village's Board Task Completion		
strongly disagree	27	34,2%
partly disagree	45	57,6%
Agree	7	3,8%
strongly agree	0	0%
don't know	0	0%
Village' board has committed to promoting digital-based services		
strongly disagree	11	13,9%
partly disagree	25	31,6%
Agree	39	49,3%
strongly agree	1	1,3%
don't know	3	3,8%
Digital-based services are already going well		
strongly disagree	16	20,2%
partly disagree	57	72,1%
Agree	3	3,8%
strongly agree	0	0%
don't know	3	3,8%
Utilization of Information Technology has maximized regional potential		
strongly disagree	14	17,7%
partly disagree	51	64,6%
Agree	13	16,5%
strongly agree	0	0%
don't know	1	1,3%
Utilization of Information Technology has affected the utilization of regional potential		
strongly disagree	17	21,5%
partly disagree	56	70,9%
Agree	6	7,6%
strongly agree	0	0%
don't know	0	0%
The potential of the area managed by Information Technology has improved the welfare of the community		
strongly disagree	20	25,3%
partly disagree	47	59,5%
Agree	11	13,9%
strongly agree	0	0%
don't know	1	1,3%

Resource: Primary Data, PPU April 2021

information technology and any social media to promote their sites. Food corner, travel agents, hotels and home living, souvenirs, all grown when tourism increased. Village's board has not been able to support people increasing their UMKM, small enterprises by any information technology application. Community by themselves to do some business online individually which gradually can not turn much change into society.

PPU potencies are supposedly enough to support PPU as a new capital of Indonesia. However, in terms of information technology capacity, among the respondents argue that it is applied for village fund reports and other administration requirements to the district. Supporting a system to have villages improve their trade or its tourism is still questioned. Helena, the head of Dayak Tribe (interviewed in PPU, April 13, 2021) clearly conveyed her concerns that the local people would be heard in the plan of making PPU as capital. It is not only on matters of delayed information technology use but having local's voices is much more important. Among 30 villages in PPU, they do have disparities in potency, capacity and public services. Local tribes according to Local Government Regulation Number 2 in 2017 are Paser Tribe. She admitted that information technology only applied for a finance report only as accountability for the Village Fund used. Unfortunately, it has not been widely applied to promote local economic power. The highest village fund is 7 billion in which 10% of APBD (local government budget) must be divided into 30 villages.

Villages' board understands that the condition of PPU as the future capital of Indonesia needs a massive improvement not only in infrastructures but also human capital. The information technology's application needs to be applied to the village's board. Once they are acknowledged the benefit of information technology to serve the public easier, then the village fund can be used to support them. Nonetheless, information technology must be able to support the society's economic gain by promoting local products. Increase the local products by technology given by internet surfing on many simple technologies that suit the local's product. They do need more training to change their local perspective into a capital city. information technology is there but the cultures and the supervision to the villages' board are still strongly needed.

4. Conclusion

Information technology as a precondition to be used in the future capital city of Indonesia is still widely lower than expected. In general, Villages' board capacity along with the society have not applied maximally information technology both to serve the public as well as to support community development. Preparing PPU to be capital needs more

years for improvement otherwise most business will be slow run. Being a capital means all the state programs nationally and internationally must be provided. Nationally is to take care of 34 provinces, 540 districts with around 270 million population. Internationally, it is to support 99 countries that have cooperation with Indonesia

5. Recommendation and Future Research

Penajam Paser Utara information technology application is a must and needs to be strongly developed which is started in the villages. The need for the future research is to study the support and strategy from the central government in transforming Penajam Paser Utara Regency, in terms of Information Communication and Technology preparation. It is very important to analyze this plan, to assess, evaluate and suggest better policy while the development is in progress.

References

- [1] Setiaji P, PLM, & UAB. Web-Based Village Information System in Dalegan Village–Panceng District-Gresik Regency. *Kontribusi: Research Dissemination for Community Development*, 2(2). 2019;; p. 39-41.
- [2] Choirunnisa U, & RR. ICT Usages in Yogyakarta's Tourist Villages Development. *Journal of Indonesian Tourism and Development Studies*. 2020; 8(2): p. 112-118.
- [3] Aziiza AA, & STD. (2020). The smart village model for rural area (case study: Banyuwangi Regency). In *IOP Conference Series: Materials Science and Engineering*: IOP Publishing. p. 012011 IOP Publishing.
- [4] Samih H. Smart cities and internet of things. *Journal of Information Technology Case and Application Research*. 2019; 21(1): p. 3-12.
- [5] Baark E. The accumulation of technology: Capital goods production in developing countries revisited. *World Development*. 1991; 19(7): p. 903-914.
- [6] Asmara GC. [Online]; 2019 [cited 2021 May 27. Available from: <https://www.cnbcindonesia.com/news/201908261342344-94661/ini-5-alasan-jokowi-pilih-kaltim-jadi-ibu-kota-baru-ri> 26 August 2019.
- [7] Herdiana D. Menemukanali Syarat Keberhasilan Pemindahan Ibu Kota Negara [Identifying Conditions for Successful Relocation of the Nation's Capital]. *Jurnal Politica Dinamika Masalah Politik Dalam Negeri dan Hubungan Internasional*. 2020; 11(1): p. 1-18.

- [8] Prasetyo H,&SW. Industri 4.0: Telaah Klasifikasi aspek dan arah perkembangan riset. *Jurnal Teknik Industri*. 2018; 13(1): p. 17-26.
- [9] Statistik BP. Penajam Paser Utara Regency in Figures. Penajam Paser UTara: Pemerintah Kabupaten Penajam Paser Utara; 2020.