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THE READINESS OF PALANGKA RAYA CITY GOVERNMENT TOWARDS THE SMART CITY

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ABSTRACT
As a city develops, several issues begin to emerge due to the changes in population growth, thus provides new challenges in realizing a smart city. In implementing the smart city initiative, Palangka Raya, the capital city of Central Kalimantan Province, has met various challenges due to its geographical and demographic conditions. Therefore, this study was conducted to determine the readiness of the Palangka Raya Government toward the Smart City, as well as to identify the efforts made by the Government to overcome those obstacles. This study used descriptive research methods with a qualitative approach. As for the research scope, the concept of the Garuda Smart City Model was applied in this study to measure the maturity level of Palangka Raya in implementing smart city initiatives. Data collection in this study was conducted by interview, observation, and documentation. Based on the results of research and data processing, it can be concluded that the readiness of Palangka Raya City Government towards the Smart City is said to be ready but not yet running optimally. There are some obstacles in the implementation of this program, including uneven internet network distribution throughout the city, the insufficiency of electrical power for the command center, and limited funds of the local budget. Moreover, The government's effort to overcome the problems is to determine the scale of prioritization, which will solve the majority number of disparities problems in Palangka Raya due to the various typologies of the city which consists of urbanized, rural, and forest areas. Furthermore, the government's efforts to develop Palangka Raya as a smart city have been formed in regulation listed in Regional Regulation No. 02 of 2019 related to the smart city program which has a clear strategy and steps to realize the smart city program in Palangka Raya.

Key words; *Smart City, GSCM, readiness*

INTRODUCTION

The increase in urbanization trend generates problems for the cities. As a city develops, several issues begin to emerge due to the changes in population growth, such as environmental, social, and economic issues. As the number of people growing, city problems become more complex and require an integrated approach that is innovative and effective to overcome those growing obstacles.

In the process of resolving city problems and maintaining its performance, various concepts have been developed to create a proper formulation of city management. Along with its development, the term Smart City has emerged as an approach implemented in city management throughout the world. In terms of its implementation in Indonesia, Supangkat *et. al.* (2018) defines a smart city as a city that has good capability to manage all resources effectively and efficiently to solve all city problem using an innovative, integrated, and sustainable solution by delivering good city services to improve quality of life.

The smart city concept has been initiated in several cities in Indonesia. According to the 2019 Smart Cities Rating (*Rating Kota Cerdas Indonesia)* that was held by Bandung Institute of Technology (*Institut Teknologi Bandung*), the results of the smart city assessment for the last six years show that there are no cities in Indonesia that are classified as a smart city. In general, the best achievement of cities in Indonesia regarding this concept is entering the system integration stage towards a fully integrated smart solution. Besides, Semarang, Surabaya, Batam, Bandung, and Tangerang have earned the title of a big city classified as smart. Meanwhile, the same category for the medium city group is achieved by Yogyakarta, Samarinda, Jambi, Banjarbaru, and Pontianak, as for the small group category is earned by Magelang, Padangpanjang, Bontang, Pariaman, and Pare-pare (Tempo. co, 2019.

The studies regarding the readiness of cities in Indonesia towards the smart city have been conducted in several cities and regencies, namely Pekalongan (Christianto et al., 2016), Manado

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(Bitjoli et al., 2017), Banjarmasin (Ulya & Tarigan, 2017), and Pamekasan (Hoiriyah & Efenie, 2019). The studies show that those respective cities have initiated the Smart City concept although still possess several aspects to improve, mainly in the ICT aspect that includes its implementation, human resources, and management.

Palangka Raya is the capital city of Central Kalimantan Province with a population of 354,182 inhabitants with an area of 2,678,51 km^2. In implementing the smart city initiative, Palangka Raya has met various challenges. According to the results of the assessment conducted by the Central Kalimantan Ombudsman Team (*Tim Pencegahan Ombudsman Kalimantan Tengah),* Palangka Raya was placed in the lowest predicate regarding the public services delivery since many components did not meet the minimum public service standards (Ombudsman RI, 2018). Moreover, according to the Institution of Research and Community Services University of Palangka Raya. around 70% of local government agencies in Palangka Raya do not have specific staff in the fields of technology (Borneo News, 2019). It is also highly predicted that Palangka Raya also has its challenges in implementing the smart city concept due to the diverse typologies of the city that varies from the face of urban city, villages, and forests. Therefore, the government of Palangka Raya has declared its vision and mission to implement the smart city program to fully create a smart environment, smart society, and smart economy within the city management.

This study is focused on the measurement of Smart City concept implementation in Palangka Raya using Garuda Smart City Model (GSCM) (Supangkat et al., 2015). GSCM is an initial concept for measuring the maturity level of smart city development. Through this measurement, it was expected that Palangka Raya's readiness towards Smart City could be determined, as well as the efforts made by the Government to overcome those obstacles that have been identified.

METHOD

This study used descriptive research methods with a qualitative approach. As for the research scope, the concept of GSCM (Supangkat, 2015) was applied in this study to measure the readiness of Palangka Raya towards Smart City.

In measuring the maturity level of a smart city using GSCM, there are three main clusters and three enabler factors that are required for further analysis. The three main clusters include a smart economy, smart social, and smart environment. Meanwhile, the three enabler factors comprise information and communication technology (ICT), smart city management, and human. This study used the three enabler factors as indicators in measuring the readiness of Palangka Raya towards the smart city, as described in the table below.

Table 1. Research Scope

Concept	Enabler	Indicator
The readiness of Smart City Through Smart Governance in Palangka Raya (Supangkat, in GSCM 2015)	a. ICT	1. Services 2. ICT Infrastructures 3. ICT Management
	b. Management	1. Government Direction 2. Strategies 3. Organization 4. Process Management 5. Performance Measurement
	c. Human	1. The standard level of human education as a user system 2. The standard ability of user in operating computer (ICT) 3. Sustainability training to keep the ability of user or operator in the management of services

Data collection in this study was conducted by various techniques, such as interview, observation, and documentation. The documentation was obtained from indirect sources, about the object being studied as a reference for processing and describing the past events, whether in the form of documents, internet exploration, and various

relevant literature, including books on Palangka Raya City Profile as well as relevant study results with the development of the smart city. To obtain thorough data and information, the researcher conducted a purposive technique by determining the respondents that are considered to be competent and knowledgeable regarding the effectiveness of the smart city program in Palangka Raya, such as The Mayor, Head of The Communication and Information Technology Service of Palangka Raya, Head of e-Government Governance Section, Head of Government Section in Regional Secretariat, and Palangka Raya society.

RESULTS AND DISCUSSION

A. Trend Towards Smart Cities in Palangka Raya

Palangka Raya is the capital and largest city of the Indonesian province of Central Kalimantan. The city is situated between the Kahayan and the Sabangau rivers on the island of Borneo. The closest airport serving the city is Tjilik Riwut. The city was established in 1957 (Emergency Law 10/1957 on the establishment of the Autonomous Region Central Kalimantan Level I) on the wilderness that opened through the Pahandut village alongside Kahayan river banks. Palangka Raya is the largest city by land area in Indonesia. Most of the area is still forested, including protected forests, nature conservation areas, and Tangkiling Forest. The city was the favorite candidate to become the new Indonesian capital until the 2019 announcement that the new capital will be in North Penajam Paser Regency and Kutai Kartanegara Regency, both in East Kalimantan.

Palangka Raya consists of a combination of two words which are from the Dayak Ngaju Language and Sanskrit. *Palangka* (Ngaju) means a sacred site and *raya* (Sanskrit) means vast, thus Palangka Raya means *a vast sacred site*. Prior to decentralization in 2001, Palangka Raya had two administrative districts, namely Pahandut and Bukit Batu. Now, Palangka Raya consists of five administrative districts: Pahandut, Jekan Raya, Bukit Batu, Sebangau, and Rakumpit.

Figure 1. Location of Palangka Raya

The development of the city in the present and future has changed in line with advances in science and technology. Among those changes is that city development must become a smart city. The concept of a smart city is not just a city with the sophistication of information technology, but rather to the increased welfare of the people. So, the concept of smart cities is to accelerate public services and increase productivity so that cities can be a source of smart economic growth. Smart cities are strived to become cities that are sustainable in terms of an intelligent economy, smart human resources, smart government, smart mobility, and smart housing. The concept of a smart economy that has been directed by the government in the 2015-2019 National Medium Term Development Plan (*RPJMN*) is city branding (covering superior products, human resources, social and cultural character), e-business (developing the role of industrial information system services in increasing the added value of the city's economy, increasing HR innovation capabilities and entrepreneurship and electronification (manual transactions leading to online transactions). In implementing the trend towards the smart city in Palangka Raya, the government cooperates with both the existing local government agencies and regional leaders namely the Mayor of Palangka Raya per the Regional Regulation of Palangka Raya City Number 02 of 2019.

The said regional regulation concerning the Regional Medium-Term Development Plan of The Year 2018-2023 serves a role as a guideline to provide direction for regional financial policies,

regional development strategies, general policies, and regional unit organizational unit programs, cross-regional work units, and regional programs to ensure long-term sustainable development and consistency between planning, budgeting, implementation and supervision of every fiscal year for the next five years.

B. Development of Regional Gaps in Palangka Raya

Palangka Raya has urban and rural-urban characteristics. From the aspect of disparity between regions, it can be seen that the condition of infrastructure and supporting facilities between regions very different from regions that are at the center of activities with urban characteristics and rural areas. The implication of this condition can be seen from the level of community welfare, which varies from one region to another. For areas that have limited access to the city center, the poverty rate between cities is also limited.

The overview of urban villages following their growth development is depicted in the table below.

Table 2. Growth Development in Palangka Raya

Sub-District	Fast Growing/ Strategic Emerging	Developing	Left Behind/ Poor
Pahandut	Pahandut Langkai Panarung		Tumbang Rungan Pahandut Seberang Tanjung Pinang
Jekan Raya	Menteng Bukit Tunggal Palangka		Petuk Katimpun
Sabangau		Sabaru Kalampangan Kereng Bangkirai	Bereng Bengkel Kameloh Baru Danau Tund
Bukit Batu		Banturung Tangkiling Sei Gohong	Marang Kanarakan Tumbang Tahai Habaring
			Hurung
Rakumpit			Panjehang Mungku Baru Petuk Barunai Petuk Bukit Pager Gaung Baru Bukit Sua

Source: Processed from data in the Regional Secretariat

C. The ability of Innovation of Smart City in The Government of Palangka Raya

Cities in the present and current days the future will always be oriented to the ability to innovate. Innovation is needed as a form of the region's ability to manage and develop the potential to realize the welfare of its people. The data shows that Palangka Raya has made various regional innovation breakthroughs. However, of the 99 public service innovations in 2017, the city of Palangka Raya is not yet included in it.

Therefore, through regional innovation, the Republic of Indonesia Government Regulation No. 38 of 2017 concerning Regional Innovation, which aims to improve the performance of the implementation of Regional Government and is directed to accelerate the realization of public welfare through improving public services, empowerment, and community participation, and increasing regional competitiveness.

Regional innovation in the form of:

a. Regional governance innovation;
b. Public service innovation;
c. and/or other regional innovations per Government Affairs which are the regional authority.

In the field, researchers found that for smart city innovation with one of its supporters, the Command Center was created and was inaugurated on December 17, 2019. Since it was only recently inaugurated, there were several obstacles in the command center, including the shortage of CCTV camera facilities which were considered inadequate so the city government still has to request CCTV camera donations from the provincial government.

Among other things, the Government of Palangka Raya will have a lot of homework,

including how to integrate all existing information technology systems in all local government agencies of the city, how to increase effectiveness and efficiency in terms of public services, and make good regulations so that the concept of Smart City innovation can be reached.

D. The readiness of The Government of Palangka Raya Towards Smart City According to GSCM

The level of readiness is a systematic measurement that supports the assessment of the maturity or readiness of a city. The definition of "readiness" indicates the possibility of a difference among "ready", "not ready yet", and "not ready" for a city. Achieving the objectives of the smart city program requires preparation from the city government of Palangka Raya. The smart governance factor is an important support for realizing the readiness of the government towards a smart city, but still faces obstacles. According to Supangkat in GSCM theory, it is used as an initial concept or method developed to measure the maturity level of smart city readiness, which has 3 indicators, namely information and Communication Technology (ICT), Smart City Management, and Human. This theory is used by researchers in discussing the main subject in this study which is correlated with existing data and facts.

1. ICT

ICT is used as a result of all the things in the process, the use of it as a tool, manipulation, and the use of everything. Whereas the fact that communication is all the same as for devices that are using it as other tools. So, ICT is all the activities that carry out the management, transfer of information between them. One of the requirements for a city to be a smart city is the implementation of good ICT functions, therefore the readiness of Palangka Raya requires ICT as a supporting factor. To find out the success of the ICT factor, there are indicators namely services, ICT Infrastructure, and ICT management.

In terms of the implementation of ICT services, several online applications have been implemented to support public service delivery. Nevertheless, the utilization of online-based applications is considered to be less optimal due to the uneven distribution of internet network throughout Palangka Raya. Public services in Palangka Raya City have not been fully designed online through applications that are useful for the community. Applications that have been designed are basic services needed by the community. Even though online applications are available, public access is still relatively low. There are still many people who do not know about online-based services. Some people also consider them less interested and even don't feel the need to access the application directly. They use gadget only for the benefit of communication via social media, there are still few who try to access applications that have been prepared by the City Government. Therefore, the City Government of Palangka Raya must conduct intensive socialization so that community participation to support the smart city program is higher.

As for the infrastructure, it is also considered to be less optimal due to limited electrical power in the command center that causes the command center can not be operated at the same time as Mayor's office. The command center also does not own an adequate amount of CCTV to support the monitoring system throughout the city.

Figure 2. Command Center in the Mayor Office

The infrastructure to support smart cities in Palangka Raya City is still limited. Installation of free wifi has not been fully fulfilled in public places. Maintenance of facilities and infrastructure that have been prepared also has not been scheduled periodically. Access to online applications is also often hampered due to low bandwidth. Infrastructure preparation needs to be accompanied by a supporting budget policy for the procurement and maintenance of this infrastructure.

Nevertheless, the implementation of ICT in Palangka Raya has been supported by reliable

policies and eligible operators that are responsible for ICT management in Palangka Raya. The implementation of ICT to create a smart city in Palangka Raya City requires policy as a force of law. The policy on smart city development is regulated in Regional Regulation No. 2 of 2019. Furthermore, this policy is downgraded to a more technical regulation or decision of the Head of the City of Palangka Raya Communication and Information Office. The technical matters that are regulated include hardware, software, and operator availability. In general, the City Government of Palangka Raya has prepared these three things, but there are still weaknesses found in their implementation, especially related to the availability of operators. There is still need to develop operator capacity so that the realization of a smart city in Palangka Raya City can be realized more quickly.

2. Management

Management is a principle relating to the functions of planning, organizing, directing, and controlling, and applying these principles in utilizing physical, financial, human and information resources to achieve organizational goals. In a smart city program, of course, good management is needed to manage each element in the program so that effective and efficient programs are realized, to find out the success of the management factor, there are indicators namely Government Direction, Strategies, Organization, Process Management, and Performance Measurement.

Delivering government directives through electronic media is considered to be less optimal than the distribution of written regulations since there are citizens who do not own supporting devices to access those directives. It implies that technological advances still pose an obstacle for Palangka Raya's citizens. Palangka Raya City Government through the Information and Communication Office must focus more on directing resources to realize a smart city as quickly as possible.

In terms of strategic efforts in implementing a smart city, the government has made improvements in some aspects, namely repairing main facilities such as roads, irrigation channels, and providing free wi-fi. Although in practice there are still many problems, especially related to the maintenance of free wifi which has not been running periodically. The strategy that has been designed by the City Government of Palangka Raya through the Information and Communication Service must be properly monitored in its implementation and evaluated for its effectiveness.

The organizational structure of the Palangka Raya City Information and Communication Service is fully available with the duties and functions of each work unit. The organizational structure shows the line of command, line of responsibility, line of coordination, and line of reporting that must be carried out by each work unit. The implementation of duties and functions in the organizational structure is always evaluated for its effectiveness in periodic meetings held by the Information and Communication Office of Palangka Raya City.

The government of Palangka Raya City also has mobilized the related local government agencies in the framework of integrating programs for a smart city with additional help from community elements to support the program. The work program designed by the Palangka Raya City Information and Communication Office already refers to the vision and mission of the smart city of Palangka Raya. The work program is also listed in the Work Plan and the Strategic Plan of the Palangka Raya City Information and Communication Service which can be evaluated on its performance at any time.

To evaluate the work process, The government of Palangka Raya has implemented performance measurement management to generate maximal results along with adequate human resources. The performance of the Palangka Raya City Information and Communication Service is always reported to the Mayor of Palangka Raya and is documented in the Government Agencies Performance Accountability Report (LAKIP). The report on the progress of smart city implementation can also be seen in full in the LAKIP of the Palangka Raya City Information and Communication Office.

3. Human

Human resources are one of the factors that important in the success of the smart city program, both from the government apparatus and the community because humans are productive individuals who work as movers of a program, as well as organizations, both inside and outside the institution.

Palangka Raya's Human Development Index reached 80,34%. This percentage represents that Palangka Raya's citizen is ready to implement a smart society in supporting the smart city initiative. In terms of the authorized human resources, all operators in Communication and Information Technology Service are deemed ready to carry out their duties as operators of electronic-based government service. The operators are also qualified with licenses and certifications in carrying out their duties. To sharpen and improve the capabilities of operators, a sustainable training program is highly required. Communication and Information Technology Service has been involved in routine training programs since 2019 and will continue to maintain and increase the ability of the apparatus.

The following table shows the results of the interview based on the GSCM enabler factors.

Table 3. Findings from The Measurement of Smart City Initiatives in Palangka Raya Based On GSCM

No	Enabler	Indicator	Findings
1	Internet and Communication Technology (ICT)	Services	Online application-based services have been implemented, yet have not been maximized because they are constrained by the distribution of communication signals throughout the city
		ICT Infrastructures	A command center has been built but is constrained by a shortage of CCTV and the availability of electrical power. The command center cannot be operated at the same time as the mayor's office.
		ICT Management	Operators of Communication and Information Technology Service have implemented ICT well. There is also an ICT planning document. All staff is equipped with adequate information.
2	Management	Government Direction	Government directives have been almost completely conveyed to the population. However, it is hampered by the condition of people who do not yet have cellphones or laptops to access these directives through online-based media

		Strategies	As strategic efforts in creating a smart city, the government is making improvements in some aspects, namely repairing main facilities such as roads, irrigation channels, and providing free wifi
		Organization	Collaboration among the government, local government agencies, and organizations is required to integrate regional apparatus program plans so that the smart city program can run as planned
		Process Management	As stated in Regional Regulation of Palangka Raya City Number 02 of 2019 concerning the Regional Medium-Term Development Plan of The Year 2018-2023

		Performance measurement management	Performance measurement of the apparatus has been implemented
3	Human	Standard Level of Human Education as a user system	Palangka Raya's Human Development Index reached 80.34%. . This index represents that Palangka Raya's citizens are ready to serve roles as users in implementing smart society to support the smart city program
		The standard ability of user in operating computer (ICT)	The apparatus already acquired licenses and certifications in carrying out their duties as operators of the smart city program

		Sustainability Training to keep the ability of user or operator inside the management of services	Sustainability training for the apparatus has been carried out since 2019 and will continue to maintain and increase the ability of the apparatus.

CONCLUSION

From the measurement of Palangka Raya's readiness to implement the smart city concept using the enabler factors, it is known that the ICT, management, and human factors are sufficiently ready to implement the SC initiative. According to the measurement using GSCM, Palangka Raya is considered ready to develop a smart city, but not all enablers can be run optimally because the city government is currently running a scale of priorities related to the limited local budget, meaning that the steps taken must have a major impact on the community and urban development. Nevertheless, Palangka Raya possesses strength factors to accelerate the development of a smart city, namely the high score of the Human Development Index in Palangka Raya that reached 80,34% and the establishment of Command Center located in the Mayor's office to increase the capacity of services from government to government, and government to citizens. Meanwhile, there are also obstacles in realizing the smart city program, such as uneven network distribution, limited electrical power for the command center, and limited funds of the local budget. From the analysis, the researcher found that the local government of Palangka Raya has applied the scale of prioritization, which will solve the majority number of disparities problem in Palangka Raya because of the various typology of Palangka Raya which consists of city, villages, and forest. Furthermore, the government's efforts to develop Palangka Raya to be a smart city have been formed in regulation listed in Regional Regulation No. 02 of 2019 related to the smart city program which has a clear strategy and steps to realize the smart city program in Palangka Raya.

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