

# The Community Readiness Measurement in Implementing Smart City in Banyuasin Regency

Darius Antoni  
*E-government Research Group*  
*Faculty of Computer Science*  
*Universitas Bina Darma*  
 Palembang, Indonesia  
[darius.antoni@binadarma.ac.id](mailto:darius.antoni@binadarma.ac.id)

Atika Arpan  
*E-government Research Group*  
*Faculty of Computer Science*  
*Universitas Bina Darma*  
 Palembang, Indonesia  
[atikaarpan14@gmail.com](mailto:atikaarpan14@gmail.com)

Edi Supratman  
*E-government Research Group*  
*Faculty of Computer Science*  
*Universitas Bina Darma*  
 Palembang, Indonesia  
[edi.supratman@binadarma.ac.id](mailto:edi.supratman@binadarma.ac.id)

**Abstract-Community readiness in the implementation of smart city needs to be measured to determine the level of community readiness in implementing smart city using four variables: internet usage behavior, internet use usability, e-government, and human resources. Data in this study were collected using a questionnaire distributed to 400 respondents consisting of the Banyuasin District community and the Head of the Communication and Information Office as a stakeholder respondent. The results of this study found a high gap namely the e-government variable of 3.07 which caused a high average gap tendency with the category of not ready on the e-government variable which means that e-government in the Banyuasin District Government was not ready to face the implementation of smart city . The results of this study as input for the Banyuasin District Government to determine the level of community readiness in the implementation of smart city to further improve services for the future community and can understand the needs or desires of the community.**

**Keyword : Readiness, Smart City, e-government, Banyuasi, Regency, Gap Analysis**

## I. INTRODUCTION

The success of information systems is a level where information systems can contribute to the organization in achieving its goals. Instead of that, it is said to fail if the system is lacking or not even utilized by its users. User satisfaction is a form of a breakthrough in information systems (Nurdiansyah, Syamsuar, & Negara, 2018). Information technology has a very significant impact on human life today. The Utilization of the internet has been very popular in every field of human life as a very broad media of information (Aprianto, Cholil, & Mezalisa, 2013). At this time the government must be able to meet the demands of society namely; public services that have fulfilled the interests of the community in all regions, are reliable and trustworthy and can be interactively affordable, aiming that the government can obtain public services for the community, so the government further develops a management system by providing

benefits in the advancement of information and communication technology in the region. In implementing the progress of information technology, government communication also needs to carry out measurements in the readiness of the community in utilizing and applying technology that will be used by the government, so that the government knows how much the community's interest in using technology is.

Banyuasin Regency is one of the regencies in South Sumatra province and also a district that has been utilized as a technological system to achieve its goal of creating Banyuasin as a smart city. Smart city is a modern, innovative city arrangement that utilizes technology to facilitate access to public information and improve public services through smart applications. Smart city has 6 concepts: Smart economy or smart economy includes innovation and competitiveness, smart mobility or smart mobility means the synergy of infrastructure and transportation, smart governance or smart government involving the participation of city residents and simultaneously empowering citizens, smart people or communities that intelligent includes aspects of creativity as local wealth, smart living or smart life is a community that develops local culture and improves the quality of life of city residents, and smart environment or smart environment includes aspects of resources and sustainability. With the use of information technology, the Banyuasin District Government needs to measure the readiness of the community in implementing smart city. Advances in existing technology can facilitate human performance in this case the government to meet the needs of the community based on data and information obtained (Ramadhan, Syamsuar, & Ariandi, 2019).

Several studies have been carried out to measure readiness in technology implementation using the SIBIS GPS (General Population Survey) method from various perspectives such as Syarif Hidayatullah (2013) conducting research on ICT gaps in the Department of Agriculture and Animal Husbandry by applying the SIBIS GPS (General Population Survey) method. The results showed that there was a gap in

the ability to use ICT in the medium category while the gap in accessing ICT was in the high category. Whereas (Windasari & Surendro, 2011) conducted research with the aim of equalizing the ability of ICT users and was used to reduce competency gaps in the development of e-government systems by conducting employee training and recruiting new employees using SIBIS GPS and DIDIX instruments. The results of this study indicate that the Semarang City Government currently has obstacles in the adoption of ICT because the Government has not conducted training for employees and awareness for employees in participating in training is still low, and many organizations lack training in employees.

Although some of these studies have identified the implementation of community preparedness, only a few have discussed community preparedness based on the SIBIS GPS (General Population Survey) Method. SIBIS GPS (General Population Survey) consists of three factors, namely Internet Usage Behavior, Usability of Internet Usage, E-Government and additional supporting factors, namely Human Resources which aims to find out the factors that can influence the implementation of smart city. Based on the explanation above, the researcher is interested in conducting research under the title "Community Readiness in the Implementation of Smartcity in Banyuasin Regency"

## II. LITERATURE REVIEW

### A. Smart City

Cohen.B (2012) in (Christianto, Nuhayati, & Mujiyono, 2016) argues that smart cities are approaches to improve the efficiency of city operations, the quality of life of their citizens, the use of technology and the growth of the local economy. This is not only about information and communication technology but also about modern transportation technology.

Smart city is the development and management of cities with the management of information and communication technology (ICT) to know (sensing), understand (understand) and control (control) a variety of resources in the city more effectively and efficiently, useful to maximize services to its citizens and support sustainable development (Supangkat, 2015).

Based on some of the definitions above about smart city, researchers conclude that smart city is a concept of urban planning in realizing development by improving services to the community.

### B. The Method of Community Readiness

In measuring Banyuasin Regency Community Readiness using the SIBIS (Statistical Indicators Benchmarking the Information Society) method is a European project that analyzes and compares different digital divide indicators (SIBIS, 2003). The

overall goal of SIBIS is to develop indicators used to measure progress towards the information society. Based on these objectives, SIBIS focuses on access and basic uses such as internet readiness, digital divide, and information security. In this study, using four variables, among others, the behavior of internet use, the use of the internet, e-government and adding the human resource variable to measure the readiness of the community. After obtaining a measure from the analysis of the four variables, the results of the community readiness analysis will be carried out using gap analysis .

### *Internet Usage Behavior*

Internet usage behavior shows that the internet makes life easy, can communicate with a variety of different cultural and educational communities (Tyas, Budiyanto, & Santoso, 2016). In research (Tyas et al., 2016) shows that factors in supporting internet use behavior include work, personal activities, easy access, providing and sharing information to colleagues while in research (Ricoida & Pibriana, 2016) factors in supporting internet use behavior include interactions with the internet and online transactions, information from the Internet and sharing information on the Internet, distractions / pleasure using the Internet, communication services.

Based on the above research factors in supporting the behavior of the use of the internet to measure people's readiness in implementing smart city are work, personal activities, easy access, information sharing and communication services.

### *Use of the Internet*

The use of the internet makes it easy to use the internet and provides convenience in communicating (Rimawati, Vulandari, & Prabowo, 2016). In research (Tyas et al., 2016) the use of the internet has several factors namely finding desired information via the internet, using the internet to obtain information via the internet online and sending work data using e-mail while in research (Rimawati et al., 2016) factors in supporting the use of the internet between other communications to colleagues and looking for references.

Based on the above research factors in supporting the use of the internet to measure people's readiness in implementing smart city are finding desired information via the internet, using the internet to obtain information via the internet online, sending work data using e-mail, supporting the use of the internet, among others communication to colleagues and look for references.

### *E-Government*

E-government is an information system, to be able to work as an information system, e-government must be seen not only in terms of information technology, but must be supported by reliable human

resources and a good understanding of business processes that run in government (Windasari & Surendro, 2011). Information and communication technology, especially e-government is one of the supporters of the realization of transparent government (Antoni, Herdiansyah, & Akbar, 2017). In research (Tyas et al., 2016) the e-Government variable has four indicators, namely the search for sources of government information through e-government services, the ease of using e-government services, the ease of accessing services and the correctness of information, and the research (Payong, 2019) factors in supporting e- government namely data security, access security, ease of using services. In this study, e-government variables in measuring the readiness of the community in implementing smart city use factors of finding government information sources through e-government services ease of using e-government services, ease of accessing services and correctness of information and data security.

*Human Resources*

Humans are important factors to support in implementing the readiness of an organization or government agency. According to (Antoni, Fikari, Akbar, & Jie, 2018) Human Resources consists of 4 factors including Education, competency development, knowledge management, education and according to research (Rida Indah Fariani, 2013) human resource factors in supporting the implementation of readiness including workshops, user attitudes, self-development and competence. Based on the above research, researchers used factors including education, competency development, knowledge management, education and workshops.

Based on the above sources, this study concludes to measure the readiness of the community in Banyuasin Regency can be seen in table 1.

TABLE 1 COMMUNITY READINESS VARIABLES

Variable	Indicator	References
Internet Usage Behavior	Job	
	Personal Activities	
	Ease of Access provide and share information with colleagues	Tyas, Budianto (2016) and Ricoida dan Pibriana (2016)
Use of the Internet	Communication Services	
	Finding information via the internet every day	
	Using the internet to get the information online	Tyas, Budianto (2016) and Elistya (2016)
	Sending job data using email with colleagues	
E-government	Communicating with colleagues	
	Finding references	
	Government information search through e-government services	
	ease of e-government services	Dyah (2016) and Yohanes (2019)
Human Resources	Ease of Access	
	confidence in the truth of e-government information	
	Data Security	
	Training	
Human Resources	Building Competency	Darius (2018) and Rida (2013)
	Knowledge Management	
	Education Workshop	

There are four factors in measuring the readiness of the community which consists of internet usage behavior, the use of the internet, e-government and human resources. It can be seen in Figure 1 below

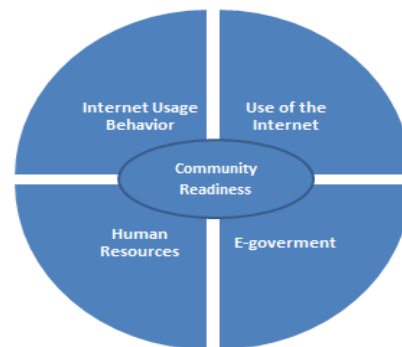


Fig 1. Community Readiness

III. RESEARCH METHODOLOGY

This research uses quantitative research. The aim is to measure people's readiness in the implementation of smart city through a questionnaire. This quantitative method is a process of finding knowledge that is data in the form of numbers as a means of finding information about what we want to know (Thoifah, 2016). This research method aims to measure the readiness of the community in implementing Smartcity so that the Banyuasin Regency government knows the level of community preparedness in facing smart city. Data collection was carried out for four months from September 2019 to December 2019 in Banyuasin Regency. The first step is to review previous research related to measuring preparedness in facing technology. In the second

stage, the questionnaire was given to the Banyuasin community. It was developed based on a literature review in developing factors in measuring people's readiness. In the beginning, instrumental tests with several people were carried out. The purpose of this is to ensure that the questionnaire has been developed properly. Then, it was presented by using the Likert scale method to test the role of factors in measuring community preparedness. Public perception of its use was also measured and expectations in implementing Smartcity were represented by the Head of the Office of Communication and Information. After that, it determines the important factors in measuring the level of community readiness.

#### A. Sample

The sample is part of the number and characteristics possessed by the population. If the population is large, and researchers may not study everything in the population, for example due to limited funds, manpower, time, then researchers can use samples drawn from that population. For this reason, samples taken from the population must be truly representative (represent) (Sugiyono, 2016).

Based on the number of samples above, the researchers used the Slovin formula to determine the number of respondents to be used.

$$n = \frac{N}{N \cdot e^2 + 1}$$

Information:

n = Sample size

N = Population Size

e2 = Significance Level (5%)

With a population of 844,175 and using e = 5%, the number of samples used is:

$$S = N / N \cdot e^2 + 1$$

$$S = 844.175 / 844.175 \times 0.052 + 1$$

$$S = 844.175 / 211.4375$$

$$S = 400 \text{ respondents}$$

Based on sample calculations using the Slovin formula, the sample that can be taken based on the total population is 400 respondents into a sample with a significance level of 5%. While the sample of the target respondent population was determined by the Head of the Office of Communication and Information who represented on behalf of the Banyuasin Regency Government.

## IV. FINDINGS AND DISCUSSIONS

### A. General Overview of Respondents

It can be seen in table 2 that the number of male respondents is higher than female respondents whereas based on age 20-25 is greater than age <20 to more than 26 years. Based on the observations, it is shown that at the age of 20-25 are more active in

using the internet and more active in interacting with services.

TABLE 2 RESPONDENT PROFILES

No	Items	Characteristics	Total of Responden	Percentage
1	Gender	Woman	197	49%
		Man	203	51%
		Total	400	100%
2.	Age	<20	53	13%
		20-25	156	39%
		26-30	117	29%
		31-40	59	15%
		>40	15	4%
		Total	400	100%
3	Education	HIGH SCHOOL	105	26.25%
		DIPLOMA	36	9.00%
		BACHELOR	219	54.75%
		MASTER	40	10.00%
		DOCTOR	0	0.00%
		TOTAL	400	100%

### B. Readiness Analysis with GAP Analysis

Gap Analysis is used to measure people's readiness to face smart city implementation in Banyuasin Regency. This method is done by multiplying determining the actual average and target scores then calculating the difference between the two which can be expressed by the formula as follows.

$$\text{Weight} = \text{Avg Score} \times \text{Score}$$

$$\text{Gap} = \text{Target} - \text{Actual}$$

In the translation of the actual readiness distribution on the variable of internet usage behavior, the use of internet usage, e-government and human resources in accordance with the data distribution of respondents' answers, can be summarized into the actual readiness in table 3 as follows.

SCORE	Internet Usage Behavior		Use of the Internet		E-Government		Human Resources	
	Avg Score	W	Avg Score	W	Avg Score	W	Avg Score	W
1	4.14	4.14	3.75	3.75	2.93	2.93	4.35	4.35
2	4.23	8.46	3.78	7.56	2.90	5.80	4.39	8.78
3	4.28	12.84	3.60	10.80	2.69	8.07	4.47	13.41
4	4.25	17.00	3.84	15.36	2.60	10.40	4.45	17.8
5	4.29	21.45	3.89	19.45	2.89	14.45	4.48	22.4
Total	21.19	63.89	18.86	56.92	14.01	41.65	22.14	66.74
Average	4.238	12.77	3.77	11.384	2.80	8.33	4.42	13.348

TABLE 3 FREQUENCY DISTRIBUTION OF ACTUAL READINESS

Based on table 3 above it can be explained that the e-government variable has the smallest mean

value of 2,80 and the highest average value is found in the human resource variable with a value of 4,428. This shows that the actual data currently occurring (obtained from respondents' answers) has weaknesses in e-government variables.

In measuring gap analysis, in addition to being determined from the actual side, targets in the achievements that must be determined by the Banyuasin Regency Government are also needed. The target was obtained from the data of stakeholder respondents in the Banyuasin District Government namely the Regent, Deputy Regent, Regional Secretary or Head of Communication and Information. The following is a list of the target frequency distributions determined by the Banyuasin Regency Government.

TABLE 4 FREQUENCY DISTRIBUTION TARGET READINESSES

Score	Internet Usage Behavior		Use of the Internet		E-Government		Human Resources	
	Avg Score	W	Avg Score	W	Avg Score	W	Avg Score	W
1	4.00	4	5.00	5	5.00	5	4.00	4
2	5.00	10	5.00	10	5.00	10	5.00	10
3	5.00	15	4.00	12	5.00	15	5.00	15
4	5.00	20	5.00	20	5.00	20	4.00	16
5	5.00	25	5.00	25	5.00	25	5.00	25
Total	24.00	74	24.00	72	25.00	75	23.00	70
Average	4.80	14.8	4.80	14.4	5.00	15	4.60	14

Table 4 shows that the Banyuasin Regency Government, in this case the determination of targets, is represented by the Head of the Communication and Information Office wanting the highest average target of 5.00 on the e-government variable and the smallest average on the human resource variable of 4,60 The Head of the Communication and Information Office reasoned that e-government variables, internet usage behavior and the use of the internet are the basis for supporting public readiness. To facilitate data processing, a scale conversion is performed from each variable that was previously in the likert scale into a readiness interval range category. This scale change is very helpful in analysis and mathematical calculations such as multiplication and division operations will be performed on the value of each variable to obtain its mean value.

Range of Interval= $\frac{\text{Highest score}-\text{lowest score}}$

The number of attribute attributes

$$= (5-0)/5 = 1$$

Based on the above interval range, it can be converted into readiness categories as follows:

TABLE 5 INTERVAL READINESS RANGE

No	Interval	Category
1	0 – 1,00	Very Ready
2	1,01 – 2,00	Ready
3	2,01 – 3,00	Less Ready
4	3,01 – 4,00	Not Ready
5	4,01 – 5,00	Very unprepared

Table 5 explains that the range 0 - 1.00 is stated in the Very Ready (KS) category, 1.01 - 2.00 is stated in the Ready (S) category, 2.01 - 3.00 is stated in the Less Ready (KS) category. , 3.01 - 4.00 are stated in the category Not Ready (TS), and 4.01 - 5.00 are stated in the category Not Very Ready (STS). After identifying the mean results of the frequency distribution of the actual and target readiness then the level of readiness can be determined based on the results of the gap comparison (gap) on each attribute described in table 6 as follows.

TABLE 6 COMPARISON OF READINESS WITH GAP ANALYSIS

Score	Internet Usage Behavior	Use of the Internet	E-Government	Human Resources
Actual	4,23	3,77	2.80	4.42
Target	4,80	4.80	5.00	4.60
Gap	0,57	1,03	2.20	0,18
Category	VR	R	LR	VR

Based on table 6 above, it can be concluded that there is a high gap, namely the e-government variable of 2.20, which causes the average gap of a high gap with the category of less prepared on the variable E-government, while the Usability of Internet Usage variable is in the Ready category with the gap, the gap is 1.03.

### C. Discussions

The analysis technique is used to measure the level of community readiness by using five variables. All variables become the main parameters which are then used to determine the average value according to the ratio. Found there are two variables are very ready, one variable is ready and one variable is not ready.

#### Gap Level of Internet Use Behavior Variables

Internet Usage Behavior is a factor that influences the success in implementing smart city. From the analysis, the findings obtained a gap value of 0.57. This shows that the community is very good at utilizing the internet in everyday life such as using the internet in support of personal activities, work and communication to colleagues. The results of this study are consistent with research (Tyas et al., 2016) that indicators of internet usage behavior such as utilizing the internet in life make life easy, being able to communicate with a variety of different cultural and educational communities.

#### Gap Level of Use of The Internet variable

Usability The use of the Internet is a factor that supports the success in implementing smart city.

From the analysis, the findings obtained a gap value of 1.03. This shows that the public is good at finding the desired information via the internet every day, using the internet to get the desired information online, sending work data using email in the presence of this, it can be concluded that the usability of internet usage is ready to support the implementation of smart city. The results of this study are consistent with research (Rimawati et al., 2016) It is the use of the internet makes it easy to use the internet and provides convenience in communication.

#### *E-Government Gap Variable Level*

From the gap analysis, it is obtained a value of 2.20, this shows that e-government services are not ready to support the implementation of smart city this is because e-government services have not been able to provide good services to the public such as in infrastructure, ease of using government services, and lack of understanding in accessing government services. The results of this study are consistent with research [11] that e-government is one of the supporters of the realization of transparent government. e-government is one of the factors in supporting the implementation of smart city associated with searching for government information through e-government services, the ease of using e-government services, my data security is guaranteed in using e-government Services.

#### *Gap Level of Human Resource Variables*

Human Resources is an important factor to support government in implementing Smartcity. Human resources are dynamic objects that are used to achieve success in implementing smart city. The gap analysis results show the value of 0.18 which means that they are very ready in supporting the smart city implementation. The results of this study are consistent with research (Almajali & Tarhini, 2016) that indicators of human resources such as training have a greater influence on the successful implementation of technology. Therefore, users must better understand what should be done in running smartcity.

## V. CONCLUSIONS

Factors in measuring readiness for smartcity implementation are categorized into four groups: internet usage behavior, internet usage usability, e-government and human resources. These four factors must become guidelines in evaluating the readiness of smartcity implementation. Based on the results of the analysis, behavioral factors using the internet and human resources in the category are very ready while the use of the internet is in the ready category. On the one hand, the government needs to improve government services such as infrastructure and assist the community in using e-government in Banyuasin

District because the results of the e-government analysis are in the category of not ready.

The government conducts regular evaluations in order to find out the deficiencies in Smartcity implementation and to know the needs or desires of the community in implementing smart city.

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