Analysis Of Readiness For Implementation Of The Smart City Masterplan In Wonogiri Regency

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Abstract.
The development of the world's digital governance era has reached the development of smart city 4.0. Not many cities can make that happen. In Indonesia, the movement towards smart cities is still starting to be echoed. So it is necessary to prepare and have the will of the region to implement a smart city because of the difficulty in preparing to implement a smart city. Wonogiri Regency is one of the districts selected for smart city implementation because the achievement of the Electronic-Based Government System (SPBE) indicator has increased. The purpose of this study was to analyze the readiness of implementing a smart city master plan in the Wonogiri Regency. This research is a qualitative type with data collection techniques through in-depth interviews with 8 purposively selected informants. The researcher found that the readiness of the five components (nature, structure, infrastructure, superstructure, and culture) was 51% in good condition, 32% in moderate condition, and 17% in poor condition. This means that it is necessary to increase the structural and superstructure components where conditions are still bad. Recommendations in increasing readiness for smart city implementation include making regional smart city policies; improving the quality of the relevant apparatus to improve the quality of ICT capabilities; increasing the amount of budget in the smart city program; and preparing supporting institutions.

***Keywords*:** *Smart city, readiness, and implementation.*

I. INTRODUCTION

The trend of world competition has shifted from just building national or country competitiveness to city or regional competitiveness. At the same time, people in an area are increasingly expecting a livable, innovative, and sustainable living environment [1]. The demand for a city or environment that is comfortable, safe, healthy, easy, and prosperous is an indicator of a city or region is competitive.Meanwhile, the trend of the digital revolution has drastically changed the way of life and even the future of human civilization. Gerd Leonhard described that the digitization movement has brought changes that are not only exponential but also combinatorial. Delivering humans to an era where the changes that occur in human civilization for the next 20 years will beat the changes that have occurred since three hundred years ago. Complexity demands in cities/regencies such as the problem of population growth, climate change, congestion, poverty, crime, natural disasters, and so on must be able to find a solution in the concept of a Smart City (District/Smart City).The era of digital governance has entered the public sector since 2000 [2] which can be identified by research in the field of digital governance. The development of digital governance research is in line with the rapid development of smart city implementation in various cities around the world [3]. Even today, the development of smart cities has used Artificial Intelligence in making public policy decisions [4].There are two approaches to the concept of smart cities that are often mentioned in the literature, namely smart cities that focus on ICT development and smart cities that focus more on local community participation in building sustainable cities [5] [6].

However, the smart city literature focuses on how technology solves society's problems more than any other focus [7].Caragliu et al. [8] identified the main characteristics of a smart city. Its main characteristic is the use of network infrastructure to improve the economy and politics; emphasizing business-based city development; a strong focus on the goal of achieving social inclusion; an emphasis on the important role of high-tech and creative industries in long-term urban growth; deep attention to the role of social and relational capital in urban development; and sustainability. From these main characteristics, a

smart city is divided into 6 dimensions: smart economy (competitiveness), smart mobility (transport and ICT), smart environment (natural resources), smart people (social and human capital), smart living (quality of life), and smart governance (participation of societies in cities) [8]. This is in line with Purnomo, the characteristics of a Smart City are divided into six criteria, namely smart economy, smart environment, smart government, smart living, smart mobility, and smart people [9].In Indonesia, smart city studies are more on ICT development. The Ministry of Communication and Informatics is promoting the 100 cities/regencies smart city program with a focus on exploring ICT programs that can help solve community problems both in public services and local government management. The Wonogiri Regency Government, for example, created an innovative index finger program to solve population administration problems quickly, precisely, easily, and conveniently through an application.

A smart city is a city concept that utilizes information technology to integrate all infrastructure and services from the government to citizens [10]. The application of the smart city concept in urban planning is to realize sustainable development by improving community services by integrating several existing elements in urban areas such as government [11], economy, quality of life [12], environment [13], human resources [14], and transportation [15].Smart city develops rapidly in line with technology and innovation. The smart city revolution started with Smart City 1.0, 2.0, 3.0, and 4.0 [16]. Smart City 1.0 is characterized by technology providers who promote technology as the right solution in city management and emphasize that technology can affect the quality of life of citizens. Smart City 2.0 has implemented technologies that continue to develop and are starting to be used to detect and prevent crime and for the administration of emergency services that are integrated into smart services. Smart City 3.0 places more emphasis on involving community participation in building a smart city [17]. Smart city 4.0 emerged as an action from the Industrial Revolution 4.0 by bringing initiatives to develop the skills of young innovators and entrepreneurs in the technology industry. Smart City 4.0 aims to develop skills for the industrial revolution 4.0 and accelerate technology development for young innovators, start-ups, and technology companies to create the best solutions to make cities smarter, safer, and more sustainable.This aims to contribute to the 2030 UN Agenda, particularly the Sustainable Development Goals.In Indonesia, the implementation of smart cities is consistently and gradually being encouraged in various cities.

The direction of its implementation is also getting clearer with the commitment and encouragement from the government as the organizer of the state.To strengthen economic resilience and quality growth, the government deems it necessary to develop ten (10) priority tourism destinations to open opportunities for the development of Bali-class destinations. To realize the strengthening of leading destinations, these tourism destination areas must be supported by conditions that are comfortable (liveable) districts/cities. Therefore, the Ministry of Communication and Informatics is working with various ministries and institutions to provide support in the form of preparing a Smart City master plan for 47 regencies/cities where the 10 tourism destinations are located.The "Movement Towards Smart City" in national priority tourist areas is a continuation of the "Movement Towards 100 Smart Cities" as the government's positive response to various development problems in the regions where a regional development approach is needed that is no longer ordinary but must be carried out quickly, effectively and efficiently by promoting a collaborative, synergistic and integrative approach through the Smart City concept [18].The "Movement Towards 100 Smart Cities" launched by the Ministry of Communication and Informatics aims to encourage Cities and Regencies in Indonesia to accelerate development using the Smart City or Smart Area concept. Starting from preparing the Smart City master plan, planning and implementing the Smart City "Quick Win" program, and implementing a road map for Smart City development in 5 to 10 years [19].In 2017, the "Movement Towards 100 Smart Cities" selected 25 cities and regencies based on an assessment conducted by a team of experts from various circles appointed by the Ministry of Communication and Information.

The Ministry of Communication and Informatics will facilitate the 25 regions by providing assistant experts to assist the regions in preparing the Smart City master plan and planning and implementing the Smart City "Quick Win" program. The Ministry of Communication and Information expects that the Smart City master plan will become a regional guide in implementing Smart City-based development in the next 5 to 10 years which will be reviewed after the first 5 (five) years of implementation.The Ministry of

Communication and Informatics will continue the assistance program in 2018 for 75 cities and regencies through the same process as was carried out in 2017. The "Movement Towards 100 Smart Cities" program is expected to be an example for cities and regencies outside the 100 cities and regencies that have been selected by Kominfo through their respective regional initiatives. Thus building a Smart City will not only stop in the 100 cities and regencies but will also cover all cities and regencies in Indonesia which will eventually make the Indonesian nation a Smart Nation.The big dream of the "Movement Towards Smart City" is to encourage the creation of smart cities and regencies in Indonesia. This is done by assisting cities and regencies in making a Smart City development master plan. In this master plan, the short, medium, and long-term plans of each Regency/City are listed in achieving its dream of becoming a Smart City. Smart City is one of the district/city development concepts based on information technology principles that are made for the common good effectively and efficiently.The Smart City development process is a business that requires time and is not instantaneous, so it requires commitment and careful and thorough planning. Smart City development also needs to involve all parties at the regional and central levels, both from the citizens, the government, and the private sectorHowever, the movement to implement smart cities in the regions is not without obstacles. Regional readiness in implementing smart cities still stumbles on various weaknesses, including Wonogiri Regency.

Wonogiri was the chosen area for smart city implementation because the SPBE indicators had increased. However, if explored more deeply, Wonogiri Regency still lacks several aspects of smart city implementation in terms of structure, superstructure, infrastructure, environment, and culture.This study aims to analyze the readiness of the Wonogiri Regency in implementing a smart city. With an analysis of regional readiness, Wonogiri Regency can mitigate possible risks that will be faced if weaknesses are found. So that the implementation of this smart city can run smoothly by the objectives of the Indonesian smart city movement.

II. METHODS

This research uses a qualitative approach because this study aims to analyze the readiness of Wonogiri Regency in implementing a smart city in five areas of the smart city so that it can be known the level of readiness of Wonogiri Regency in implementing smart city. The selection of research locations is adjusted to the objectives and research problems [20]. The author determines the exact research location, namely Wonogiri Regency. The locus of this research is the government of Woogiri Regency which will implement a smart city. The informant determination technique in this study was purposive. This technique takes into account the accuracy and adequacy of the information obtained from informants. Informants appointed by researchers are considered to know and understand correctly what is being studied.

The informants in this study included informants appointed from the Ministry of Communication and Informatics, the Office of Public Works, the Office of Environment, the Transportation Agency, the Ministry of Maritime Affairs and Fisheries Office, the Department of Industry and Trade, the Health Office and the Education and Culture Office. So that the total informants in this study amounted to 8 informants.This study uses primary and secondary data. Data collection techniques in this study used in-depth interviews with relevant respondents in this activity. The data obtained from the results of data collection through interviews, observation, and documentation studies at the research location were then presented and analyzed. Data is presented first in the form of words, narrative, qualitative, as well as tables and graphs. The process of presenting the data is done by reading the data. The data that has been read is then analyzed. The data analysis process begins by examining all available data from various sources using qualitative data analysis techniques.

III. RESULT AND DISCUSSION

Analysis of Readiness for Smart City Implementation in Wonogiri Regency

1) Readiness from Nature/Environment

Readiness of natural and environmental components in an area or area, such as natural resources, minerals, mines, and biodiversity to support the implementation of a smart city.Geographical conditions,

Wonogiri Regency has a total population of 1,096,138 people in 2020. The population density in Wonogiri Regency in 2020 reaches 572 people/km2. The population density of the 25 sub-districts is quite diverse, with the highest population density in Jatisrono sub-district with a density of 1,263 people/km2 and the lowest in the Paranggupito sub-district with 274 people/km2.Administratively, Wonogiri Regency is divided into 25 sub-districts consisting of 251 villages and 43 sub-districts, as well as 2,306 hamlets/neighborhoods. Wonogiri Regency occupies an area of 190,432 Ha. Pracimantoro sub-district is the largest sub-district (7.8% of the total) while the Puhpelem sub-district is the smallest sub-district (1.73% of the total).Topographically, the topographical conditions of Wonogiri Regency are mostly hilly, with 20% of the area being limestone hills, especially those in the southern region of Wonogiri Regency. Most of the topography is uneven with an average slope of 300, so there are differences between one area and another which makes the condition of different natural resources.

Land use conditions are generally used for agricultural land with an area of approximately 82,888 hectares. Wonogiri Regency has an area of 190,432 hectares. During 2017-2020 there was a change in the composition of land use in Wonogiri. Even so, in general, related to the use of paddy fields and not paddy fields there has been no change.Based on the 2020-2040 Wonogiri Regency Spatial Planning, the Wonogiri Regency area has the potential that can be developed to improve the regional economy, while maintaining the sustainability of its natural resources. The regional potential is identified from the potential that can be developed as a cultivation area such as fisheries, agriculture, tourism, industry, mining, and others. For example, mining and energy areas include mineral and geothermal mining. Mineral mining covers all districts while geothermal is in the form of the Mount Lawu Geothermal Working Area. The tourism area includes religious, cultural, nature, village, agro, memorial, ecotourism, sports, and adventure tourism.The natural condition of Wonogiri Regency is ready to support smart city implementation. This support is in the form of low disaster-prone areas, large area development potential accompanied by local government policy support, and conditions of land use that are still very wide. However, there are several geographical and topographical obstacles, where the location of the vast Wonogiri Regency with 25 sub-districts makes it difficult for this Regency to reach the availability of internet access. On the other hand, the dominant topography is hills which are also an obstacle as well as a challenge in implementing smart city programs such as the magic index finger program.

2) Structure Readiness

The readiness of the structure or core components of a region, namely human resources, regional financial capacity, and local government resources.

a) Readiness of Wonogiri Regency HR

Analysis of the quality of regional human resources is carried out to measure the level of capacity of the community in the region in accepting the smart city concept. Some of the information that needs to be known in this analysis is the literacy level of the community towards smart cities which will need active and positive participation from the people in the regions. Therefore, in this analysis, it is hoped that the Regional Government can measure the condition of the people in the region in facing the era of smart cities in the future. The results of the analysis of the quality of human resources in Wonogiri Regency are as follows.

Table 4.1. Readiness of Community Human Resources in Wonogiri Regency

No.	Component	Value/Condition	Interpretation			OPD
			good	medium	bad	
1	Number of talent/hobby/creative interest communities in the region	Yes (1 government institution; 5 private institutions; 4 BLK; 17 talent asking communities)	✓			
2	Adanya komunitas pengembang/developer perangkat lunak TIK di daerah	MGMP Community, KKG, Education and Learning Content Development Team, Korwil Creative Team, Sub Rayon Creative Team, Digital School Piloting		✓		Diskominfo

No.	Component	Value/Condition	Interpretation			OPD
			good	medium	bad	
3	There are digital startups in the area	2 startup : Go Sukses dan Regar Sport	✓			Diskominfo
4	There are universities in the area	5 colleges	✓			Disdikbud
5	Number of recipients of higher education scholarships from the local government	600 students who have received scholarships @ 12 million per year for 4 years	✓			Disdikbud
6	The number of acts of violation of public order in one year	217	✓			Satpol PP
7	Total crime rate in one year	147		✓		Polres
8	Number of acts of destruction of public facilities in one year	0	✓			Satpol PP
9	The number of brawl activities between groups of residents in one year	0	✓			Kesbangpol

Source: Primary Data, processed

Based on the table above, Wonogiri Regency has good quality human resources supported by data on the availability of talent interest communities and; the existence of digital startups; there are 5 tertiary institutions as further education facilities; and the availability of college scholarships. The good condition of human resources in Wonogiri Regency is supported by the condition of the number of violations of public order; the crime rate; the number of acts of vandalism and public facilities; and the number of fights between groups of citizens is minimal. This shows that the condition of Wonogiri Regency is conducive to improving the quality of human resources.

b) Regional financial readiness

An analysis of the financial capacity of Wonogiri Regency is needed to find out how much resources can be allocated by the local government for the successful implementation of a smart city. Through this analysis, it is hoped that local governments can estimate the allocation of resources, especially in terms of financing and finance that can be allocated for the smart city program.

Table 4.2. Wonogiri Regency's financial capacity

No.	Component	Value/Condition	Interpretation			OPD
			good	medium	bad	
1	Percentage of Regional Original Revenue Value to Total Regional Income	12,06%			✓	BPKD
2	Nilai Sisa Lebih Pembiayaan Anggaran (SILPA) year ago	235.330.763.490/ 2,4 Billion = 9.8%			✓	BPKD (because of covid)
3	Percentage of Personnel Expenditures to Total Regional Expenditures	52,07%	✓			BPKD
4	Percentage of Infrastructure Spending to Total Regional Spending	11,58%	✓			BPKD
5	Total Budget for Smart City Expenditures that can be allocated in the 2021 APBD	Rp 1.256.600.035.474 (50%)	✓			BPKD/Diskominfo
6	Total Budget for Smart City Expenditures that can be allocated in the 2020 APBD	1.273.899.502.276 (51,46%)	✓			BPKD/Diskominfo

No.	Component	Value/Condition	Interpretation			OPD
			good	medium	bad	
7	Number of development programs to support smart cities in the regions	133 Program		✓		Bappeda
8	Incoming investment value that supports regional development	2020 = 205.360.500 2021 semester 1 = **198.827.50** (Micro, Small, Medium, Large Business Scale)		✓		DPMPTSP
9	Number of alternative development funding sources that can be used to support smart cities (CSR	2021 = 133 (Bank Jateng) 8.455.000.000		✓		Bappeda (not recorded yet, only aware)

Source: Primary Data, processed

Based on the financial capacity analysis table for Wonogiri Regency, Wonogiri Regency's finances depend on transfer funds. This is because the amount of Local Own Revenue is only 12.06% of the total income. The following details the realization of Wonogiri Regency revenue.

Table 4.3. Realization of Wonogiri Regency Government Revenue for 2019-2020

Income Type	2019	2020
Pendapatan Asli Daerah	287.221.631,01	252.340.641,68
Dana Perimbangan	1.594.457.129,91	1.614.368.450,00
Lain-lain Pendapatan yang sah	560.999.211,90	485.018.745,00
Total	*2.442.677.972,83*	*2.351.727.836,68*

Source: Wonogiri Regency in Figures 2021

On the other hand, Last Year's Budget Financing Surplus Value (SILPA) was also large, reaching IDR 235 million or 9.8%. SILPA in 2020 reached a large number due to the impact of the Covid-19 pandemic which affected regional budgets so that many programs were affected by budget refocusing policies.When viewed from the use of funds, Wonogiri Regency is considered good, namely personnel spending reaching 52.07% of the total budget and infrastructure spending reaching 11.58% of the total budget.

Table 4.4. Realization of Wonogiri Regency Government Expenditures for 2019-2020

Spending Type	2019	2020
Indirect spending	1.415.128.193,20	1.624.855.808,12
Direct spending	1.040.847.126,37	850.054.453.75
Total	2.455.975.319,57	2.4774.910.261,87

Source: Wonogiri Regency in Figures 2021

Starting in 2021, Wonogiri Regency has made a special budget for the Smart City program which has never been budgeted for in previous years. The urgency of implementing a smart city has also been felt by Wonogiri Regency by incorporating smart cities into the 2021-2026 Wonogiri Regency RPJMD, specifically supporting Mission 2 to realize bureaucratic reform.

c) Readiness of the Regional Government apparatus of Wonogiri Regency

The readiness of government resources is carried out to measure the level of readiness of local governments to implement the smart city program in which integration and interoperability are required in local government business processes. Besides that, as an element that drives smart cities, the readiness of local governments in implementing smart cities is a key factor for the success of smart cities.

The results of the analysis of the quality of government human resources in Wonogiri Regency are as follows.

Table 4.5. Quality of Human Resources for Wonogiri Regency Government

No.	component	Value/Condition	Interpretation			OPD
			good	medium	bad	
1	Percentage of employees with Masters degree and above	9,47%		✓		BKD
2	Number of employees with educational background in Computer Science/Informatics Engineering	1,28%			✓	BKD
3	Number of ICT volunteers in the regions	16 anggota		✓		Diskominfo
4	Percentage of the number of computer units (PC & Laptop) to the number of employees	100% / PC = 5696 Laptop = 5661 (11.357) Jml Pc & Laptop/ Jumlah Pegawai (11.357/9.485) Melebihi Jumlah pegawai karena di sekolah2 mempunyai Lab Komputer	✓			Diskominfo/BPKD
5	Percentage of employees aged 50 years and over to total employees	48,60%		✓		BKD
6	Percentage of employees aged 40 -50 years to total employees	25,78%		✓		BKD
7	Percentage of employees aged 25 -40 years to total employees	24,22%		✓		BKD
8	Number of information systems used in local government	134 Information Systems / 53 OPD website 81 Independent Applications and Applications from the Center	✓			Diskominfo
9	The percentage of availability of broadband access networks to the number of government offices	100% / 68 Network 25 Districts 15 Health Centers 28 OPD of 68 OPD+District+Puskesmas	✓			Diskominfo
10	Percentage of LAN/WAN network availability in government offices	**100% /** Sudah terinstalasi jaringan LAN/WAN di seluruh kantor pemerintahan	✓			Diskominfo
11	Number of wireless internet locations (hotspots) in government office areas	100% 75 Locations / 53 OPD+ District 15 Health Centers 6 Diskominfo 818 School	✓			Diskominfo

No.	component	Value/Condition	Interpretation			OPD
			good	medium	bad	
		(SD 701, SMP 117)				
12	Availability of data centers (both self-managed and managed services) for government purposes	Availability of Tier 1 data center and use of Ministry of Communication and Information National data center	✓			Diskominfo
13	Availability of disaster mitigation plans and SOPs against government data	There isn't any yet			✓	Diskominfo
14	Availability of an interoperable regional development planning information system	Yes (SIPD)		✓		Bappeda
15	Availability of an interoperable regional financial management information system	Yes(SIPKD)		✓		BPKD
16	Availability of an interoperable local government virtual office information system	There isn't any yet			✓	Diskominfo
17	Availability of interoperable regional development monitoring and evaluation information systems	Yes (Simonev)		✓		Bappeda
18	Availability of an interoperable regional personnel management information system	SIMPEG cannot be accessed by all civil servants, but can be accessed by each OPD admin, so it is not fully interoperable.		✓		BKD
19	Availability of an interoperable local legislation management information system	Yes, JDIH is already connected with National JDIH	✓			Setda Bag Hukum
20	Availability of an interoperable public service information system	Yes, all OPDs that have a public service capacity already use Information Systems/Applications but are not yet interoperable. Interoperable PPB was investigated	✓			Diskominfo/Disdukcapil

Source: Primary Data, processed

Based on the government resource analysis table, even though in terms of the composition of the age of almost half of the HR are aged 50 years and over, 90% of government HR have worked using laptops/computers. This condition is supported by internet network facilities, both wifi networks, and LAN/WAN networks, and the information system used by the Wonogiri government has been digitized and

interoperable. But on the other hand, there is still no SOP for disaster mitigation and there is no interoperable regional government virtual office information system available.

3) Culture Readiness

Culture is a component of the prevailing values and forms the behavior, everyday life and habits of the people. The cultural conditions of an area are used to look at aspects of cultural values, customs, or the norms and habits of the surrounding community which can directly or indirectly influence the success of smart city development there. Assessment of aspects of this cultural condition is used to formulate cultural values, customs, or what norms and habits can be used as the key to changing society towards a smart city society. Assessment on aspects of this cultural condition is also used to formulate the social engineering process needed in the implementation of smart cities.

Several Cultures of Wonogiri Regency have become tourism assets. The cultural tourism in Wonogiri Regency is as follows.

a) Cultural tourism or grebrek suro, including:
1) Larung Ageng Semmbuh Beach in Paranggupito District
2) Earth Alms in Heaven, Tirtomoyo District
b) Sendang Asri Recreation Park, Wonogiri Multipurpose Reservoir;
c) The Wonogiri Multipurpose Festival at the Sendang Asri Recreation Park, the Wonogiri Multipurpose Reservoir;
d) Scratches of Karamba Multipurpose Reservoir Wonogiri;
e) Susuk Wangan in Girimanik, Setren Village, Slogohimo District;
f) Sendang Drajad in Girimanik, Setren Village, Slogohimo District;
g) Mount Pegat in Nguntoronadi District;
h) Selomoyo Forest, Giriwoyo District;
i) Matahati Cemetery in Selogiri District;
j) Belik Condong in Ngadirojo District;
k) Watu Payung Kencono Wungu in Manyaran District;
l) Padepokan Gunung Panggung in Eromoko District;
m) Selo Belah Padepokan in Karangtengah District;
n) Padepokan Mbah Langgar in Wuryantoro District;
o) Pak Bei Tani Padepokan Puppet Museum in Wuryantoro District; and
p) Tatah Sungging Wayang Kulit Kepuhsari Tourism Village in Manyaran District.

Based on the 2020-2040 Wonogiri Regency Spatial Planning, tourist attractions include 1 religious tour, 17 cultural tours, 35 nature tours, 5 village tours, 4 agro tours, 4 memorial tours, 10 ecotourism, 2 sports tours, and 2 adventure tours with status including as a world geopark that is listed as a member of UNESCO Global Geopark (UGG), namely the Gunung Sewu Area which stretches from Pacitan, Wonogiri and Gunung Kidul Regencies. The problem faced is tourism potential that has not been optimized due to the lack of data to support planning

Wonogiri Regency readiness level in implementing Smart City

The readiness level of Wonogiri Regency in realizing the smart city master plan can be seen in the table below.

Table 4.6. The level of readiness of the Wonogiri Regency in implementing Smart City

Readiness	Sub-readiness	Total Condition Interpretation		
		good	medium	bad
Nature	Geographical	-	-	1
	Topographical	-	-	1
	Land use	1	-	-
	Regional development potential	1	-	-
Structure	Community HR	7	2	-
	Apparatus H	8	9	3
	Regional financial capacity	4	3	2
Infrastructure	Physical Infrastructure	3	6	-

	Digital Infrastructure	5	2	-
	Social Infrastructure	3	2	-
Suprastructure	Regional Policy	2	-	5
	Regional Institutions	3	-	1
	Regional Community Organizations	3	2	1
Culture	Budaya	1	-	-
Total		41	26	14
		51%	***32%***	***17%***

Source: Primary Data, processed

The level of readiness for smart city implementation in Wonogiri Regency can be categorized as ready. Overall, Wonogiri Regency is ready in terms of nature, structure, infrastructure, superstructure and culture as much as 51% (fifty one percent) of the components are ready to support the implementation of smart city. Preferably 32% of the components are still in moderate condition and 17% of the components are still in bad condition. This means that the condition of Wonogiri Regency is improving at 17% of the components including strategies in the geographical and topographical fields; apparatus HR strategy and regional financial capacity; regional policy strategies, institutions and local community organizations

IV. CONCLUSION

The component condition of the local government of Wonogiri Regency is ready to support the implementation of smart city. This is proven to be only 17% of the components that must be improved in facilitating the smart city program, including a strategy in the geographical and topographical fields; apparatus HR strategy and regional financial capacity; regional policy strategies, institutions and local community organizations. 51% of the components are ready to support smart city implementation.

V. ACKNOWLEDGMENTS

The authors are grateful to the LPPM UPN "Veteran" Jawa Timur. We also thank Yulinda Uang from Universitas Halmahera for the invaluable advices.

REFERENCES

[1] Kusumastuti, R. D., Nurmala, N., Rouli, J., & Herdiansyah, H. (2022). Analyzing the factors that influence the seeking and sharing of information on the smart city digital platform: Empirical evidence from Indonesia. *Technology in Society*, *68*, 101876. https://doi.org/10.1016/j.techsoc.2022.101876

[2] Alcaide-Muñoz, L., Rodríguez-Bolívar, M. P., Cobo, M. J., & Herrera-Viedma, E. (2017). Analysing the scientific evolution of e-Government using a science mapping approach. *Gov. Inf. Q*, *34*, 545–555.

[3] Wawer, M., Grzesiuk, K., & Jegorow, D. (2022). Smart Mobility in a Smart City in the Context of Generation Z Sustainability, Use of ICT, and Participation. *Energies*, *15*(13), 4651. https://doi.org/10.3390/en15134651

[4] Bokhari, S. A. A., & Myeong, S. (2022). Use of Artificial Intelligence in Smart Cities for Smart Decision-Making: A Social Innovation Perspective. *Sustainability*, *14*(2), 620. https://doi.org/10.3390/su14020620

[5] Cortés-Cediel, M. E., Cantador, I., & Bolívar, M. P. R. (2021). Analyzing citizen participation and engagement in European smart cities. *Soc. Sci. Comput. Rev.*, *39*, 592–626.

[6] Simonofski, A., Asensio, E. S., & Wautelet, Y. (2019). Citizen participation in the design of smart cities: Methods and management framework. *Smart Cities Issues Chall. Mapp. Polit. Soc. Econ. Risks Threat.*, *1*, 49–62.

[7] Thomas, V., Wang, D., Mullagh, L., & Dunn, N. (2016). Where's Wally? In search of citizen perspectives on the smart city. *Sustainability*, *8*, 207.

[8] Caragliu, A., Del Bo, C., & Nijkamp, P. (2011). Smart cities in Europe. ***J. Urban Techno,*** *18*, 65–82.

[9] Purnomo, M. H. P. F. (2016). Smart City Indicators: A Systematic Literature Review. ***Journal of Telecommunication, Electronic and Computer Engineering (JTEC),*** *8*(3), 161–164.

[10] Bellini, P., Nesi, P., & Pantaleo, G. (2022). IoT-Enabled Smart Cities: A Review of Concepts, Frameworks and Key Technologies. *Applied Sciences*, *12*(3), 1607. https://doi.org/10.3390/app12031607

[11] Allam, Z., Sharifi, A., Bibri, S. E., & Chabaud, D. (2022). Emerging Trends and Knowledge Structures of Smart Urban Governance. *Sustainability*, *14*(9), 5275. https://doi.org/10.3390/su14095275.

[12] Quoc Toan, N., & Thi Nhu, D. (2020). Smart urban governance in smart city. *IOP Conference Series: Materials Science and Engineering*, *869*(2), 022021. https://doi.org/10.1088/1757-899X/869/2/022021

[13] Borruso, G., & Balletto, G. (2022). The Image of the Smart City: New Challenges. *Urban Science*, *6*(1), 5. https://doi.org/10.3390/urbansci6010005

[14] Ammara, U., Rasheed, K., Mansoor, A., Al-Fuqaha, A., & Qadir, J. (2022). Smart Cities from the Perspective of Systems. *Systems*, *10*(3), 77. https://doi.org/10.3390/systems10030077

[15] Pribyl, O., Svitek, M., & Rothkrantz, L. (2022). Intelligent Mobility in Smart Cities. *Applied Sciences*, *12*(7), 3440. https://doi.org/10.3390/app12073440

[16] Szarek-Iwaniuk, P., & Senetra, A. (2020). Access to ICT in Poland and the co-creation of urban space in the process of modern social participation in a smart city—A case study. *Sustainability*, *12*, 2136.

[17] Fernandes, G., Domingues, J., Tereso, A., & Pinto, E. (2021). A Stakeholders' Perspective on Risk Management for Collaborative University-Industry R&D Programs. *Procedia Computer Science*, *181*, 110–118. https://doi.org/10.1016/j.procs.2021.01.110

[18] Rizkinazwara. (2020). Mengenal Lebih Dekat Konsep Smart City dalam Pembangunan Kota. retrieved from https://aptika.kominfo.go.id/2020/10/mengenal-lebih-dekat-konsep-smart-city-dalam-pembangunan-kota/. acsess september 24, 2022

[19] Kencono, D. S. (2021). Is Smart Governance Internal Collaboration Works on the Implementation of the Smart City Yogyakarta? *IOP Conference Series: Earth and Environmental Science*, *717*(1), 012028. https://doi.org/10.1088/1755-1315/717/1/012028

[20] Creswell, J. W. (2010). *Research Design: Pendekatan Kualitatif, Kuantitatif, dan Mixed*. Pustaka Pelajar.