



ICT Role towards South Tangerang City as a Smart City

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Abstract

Consider implement of smart city policy is the right solution to answer the urban problems. A smart city policy is an important step in improving the performance of public service. One key success factor to build sustainable smart cities from a communications perspective based on the smart governance and integrated ICTs like South Tangerang City did. This article is a qualitative descriptive research that aims to describe and identify how ICT role on South Tangerang City Government towards as a smart city. The smart city relies on the dimension of smart governance, supported by various other aspects such as sustainable development policy, development of human resources potential through awareness, empowerment, development and successful smart practice, implementing information and communication technology (ICT). This paper highlights that smart city can be realized not because of how sophisticated communication technology applied, but based on the collaboration of smart governance as a complex transform of institutional development and maximized by implementing ICT.

Keywords: Information and Communications Technology (ICT), Government, Smart City

Introduction

In 2018, the number of people living in cities surpassed the number of those living in rural areas. Badan Pusat Statistik Indonesia found over there will be 70% of urban population percentage in 2010-2035 (BPS, 2014). However, the increasing the number of urban population leads to complex issues such as congestion, limited natural resources, population density, environmental degradation, work, education and health services, and others. The other problems are the city should to improve its public services

because if that does not work it will make the public distrust of the Local Government which will trigger other more complex social problems.

Consider implement of smart city policy is the right solution to answer the urban problems. A smart city policy is an important step in improving the performance of public service. One key success factor to build sustainable smart cities from a communications perspective based on the smart governance and integrated ICTs. According to the Wikipedia definition: "A city can be defined as 'smart' when investments in human and social capital and traditional (transport) and modern (ICT) communication infrastructure fuel sustainable economic development and a high quality of life, with a wise management of natural resources, through participatory action and engagement". Participation in the political life of local communities and in the decisions taken by local governance is an important aspect democracy-building. It is a mechanism for the effective external monitoring of government work, but also a means for making public policies close to actual citizen needs.

Making the city more "smart" is an effort aimed at producing more effective and efficient solutions to discuss various social problems. To appreciate the efforts of Local Government in implementing smart city policy, Institut Teknologi Bandung (ITB) and Asosiasi Pemerintah Kota Seluruh Indonesia (APEKSI) held the survey event and conferment of Rating Kota Cerdas Indonesia (RKCI) Year 2017. The awarding given by the Vice President Jusuf Kalla led to several names of the winners classified as follows: big cities (cities with populations above 1 million), cities (residents between 200 thousand and 1 million citizen) and small town (population below 200 thousand inhabitants) on December 11, 2017 at the Vice Presidential Palace (Swa Magazine, 2018).



KATEGORI UTAMA
RATING KOTA MENUJU CERDAS (SMART CITY)

KOTA BESAR	KOTA SEDANG	KOTA KECIL
Surabaya	Denpasar	Magelang
Bandung	Binjai	Sawahlunto
Semarang	Manado	Bontang
Bekasi	Yogyakarta	Tual
Tangerang Selatan	Kediri	Bukittinggi

Figure 1.1 Smart City Rating Winner Indonesia (Source: Swa.co.id)

Smart city practices implemented by the South Tangerang City Government are the winners of one of the main categories of urban awards with city classification based on the consistency of applying ICT-based governance concepts. Not only that in the same year the South Tangerang City Government also received another award that called TOP IT Implementation on Digital City 2017 given by ITech Magazine as an appreciation for the successful implementation of using information technology (IT) in Government agencies. The success result from good cooperation between the South Tangerang City

Government and the citizen who has played an active role manage the City with the citizen-centric approach so that there is a more dynamic interaction in supporting create South Tangerang City as a smart city.

Smart city policy by the South Tangerang City Government contains in the Vision and Mission which has developed in the Rencana Pembangunan Jangka Menengah Daerah (RPJMD) of 2016-2021. The vision and mission show the Government's objectives:



Figure 1.2 South Tangerang City's Vision and Mission

Source: Dinas Komunikasi dan Informatika Kota Tangerang Selatan

Based on the explanation that has been raised, the question arises as follows: How the role of ICT towards South Tangerang City as a smart city. Therefore, this study will aim to describe, analyze and interpret the conditions that currently occur or exist in South Tangerang City about implementing information and communication technology (ICT).

Literature Review

Smart City Concept

The smart city's concept became popular as one of the concepts in the arrangement of urban cities. Regulating the city in the future should consider some various aspects (Griffinger, C, Kramar, Kalasek, Pichler-Milanovic, & Meijers, 2007). Cohen Boyd (2011) emphasizing smart cities succeed due to the successful use of ICT. He also finds that smart city has 6 (six) main dimensions: smart governance, smart economy, smart citizen, smart mobility, smart environment, and smart living (Cohen, 2012). The emerge of smart city results from intensive knowledge development and creative strategies for improving the socio-economic, ecological, and competitive power of cities combined with human capital, infrastructure, communication networks and entrepreneurs capital (e.g., creative business activities) (Kourtit, Arribas-Bel, & Nijkamp, 2012). In addition, Kourtit & Nijkamp mentioned that a strong and credible Government with creative and open-minded people will increase local productivity and speed up the economic growth of a city. An important instrument in applying smart city is to maximize the utilization of information and communication technology (ICT) (Lee, Phaal, & Lee, 2013).

A smart city is a broad approach, integrated into improving the efficiency of operating a city, improving the quality of life of the population, and growing the city's economy (Cohen, 2012). There are three different of smart city's definitions: smart city as a city that uses smart technology (technology focus), smart city as a city with smart people (human resource focus) and smart city as a city with smart collaboration (focus of governance) or the combine of three perspectives (Meijer & Bolivar, 2016).

Smart City Dimensions

Dr. Cohen Boyd, a Canadian urban & climate strategist, identified 6 (six) dimensions in making a city's success in enacting smart city policies: smart governance, smart economy, smart citizen, smart mobility, smart environment and smart living (Cohen, 2012).



Figure 2.1 The Smart City Wheel by Cohen Boyd

Sumber: smart-circle.org

a. Smart Governance

Smart governance defines as smart governance is the main factor of the six critical dimensions of smart city success. The Government as a fundamental part of a country has a duty to form a paradigm or view to the community about a better life (Mursalim, 2017). Smart City refers to governance that aims to improve public services such as administrative and bureaucratic matters. Good governance is inseparable from the effectiveness of communication management in these Government organizations resulting in a clean, transparent and accountable Government. Smart governance synergizes with Nawa Cita's priority program the second point of building clean, effective, democratic and trustworthy governance, giving priority to restoring public confidence in democratic institutions by continuing to merge democracy through a party system reform, elections and institutions representative (setkab.go.id, 2016).

b. Smart People

Smart city realization occurs when the quality of life of human resources is already qualified. Shapiro argues that smart city as a metropolitan area with most of the adult

population having a college degree (Shapiro, 2006). So as, the city must also support a qualified educational facility like having state universities and experiencing substantial growth in the last few years (Winters, 2011). Based on Population Aggregate Data Year 2017 Semester 1 issued by the Department of Population and Civil Registration data got that the number of youth aged 16-30 years are 31,024 people have a bachelor degree. From the data, we get that most a population of South Tangerang City is smart people. This level of education is a key driver of urban growth (Lombardi, Giordano, Farouh, & Yousef, 2012), specifically South Tangerang City.

To make the citizens being a smart people, South Tangerang City Government make a mobile application named Tangsel Learning. Tangsel Learning is one of the work programs of South Tangerang City Government for its citizens to learn English for free.



Figure 2.2 Tangsel Belajar

The learning process on Tangsel Belajar performs online through video calls between students and teachers. Video calls can through Android and iOS platform or can be through to the Tangsel Belajar's website (<https://tangselbelajar.tangerangselatankota.go.id/>). The South Tangerang City Government has teamed up with Natieva (Startup online English course) to provide teachers from the USA. So the native speakers will teach the citizens.

c. Smart Economy

A smart economy is a policy approach that involves, letting and assisting regional economies to find new activities with strong potential (Foray, 2009) in (Talbot, 2016)). To succeed the smart economy in a Region, the Local Government is transforming to transform the information society and the digital economy to increase its productivity and provide Communications and IT services for all sectors of society.

The South Tangerang City Government try to do the financial transparency to provide an image of better financial management for the internal and external stakeholders. Because of hard work taking into consideration the substance of transparent financial management, the South Tangerang City Government in the audit report of the Badan Pengawas Keuangan (BPK) for the 2016 Government financial statements has Wajar Tanpa Pengecualian (WTP) predicate (Detik News, 2017).



d. Smart Mobility

Smart mobility defines as a movement system that enables achieve objectives of convenience and public safety in transportation (Griffinger, C, Kramar, Kalasek, Pichler-Milanovic, & Meijers, 2007). Smart mobility support by the least movement mobility), with the lowest resistance and travel time as short as possible (less travel time). Trends that occur on smart mobility include integration of transportation that prioritizes comfort, security, and sustainability with the support of applying information and communication technology (ICT). The result of the collaboration is transported orientation to reduce the number of empty seats, digital experience by the people such as ticketing, access to information, routing, map and others, real-time and relevant information such as schedule, traffic flow, and traffic accidents.

South Tangerang City Government won the plaque of Wahana Tata Nugraha (WTN) from the Ministry of Transportation (Kemenhub) Directorate General of Land Transportation Republic of Indonesia Year 2016. The third award received by the South Tangerang City Government is appreciation given by the President to the Provincial Government provided guidance to regencies/municipalities to improve urban transport performance.

e. Smart Environment

Smart environment associated with an environment that provides comfort, resource sustainability, an environment that has aesthetic beauty physical and non-physical for public and public. For its success in implementing smart environment, South Tangerang City Government won Government Award 2018 with spatial and residential management category from *Seputar Indonesia Weekly (SINDO)*, this award appreciates the success of development conducted by the Government (Tribune Jakarta, 2018).

South Tangerang City Government also won an award from Earoph an international organization affiliated to the United Nations organization engaged in the study and facilities on planning and settlement. Other awards achieved by South Tangerang City Government is for the category of Government and private cooperation provide a public space.

f. Smart Living

Smart living aims to create a smart living space that will become an important trend for future development (Young Bai & Yuan Huang, 2012). Smart living has a goal of increasing quality of life for the community (high quality of life). The success of South Tangerang City Government to apply smart living can be seen from various awards and predicates got to improve the quality of life of the community, among them are Indonesia Smart Nation Award (ISNA) 2018 Award from the Ministry of Tourism of smart society and smart ecosystem category. In addition, the South Tangerang City Government was also chosen to be the Decent City of Children and Women. The award is given because of Integrated Service Center for Women and Children (P2TP2A) exist to prevent domestic violence in South Tangerang City become its own assessment.



South Tangerang City Government also received a nominate Kota Layak Pemuda 2017 given by the Ministry of Youth and Sports (KEMENPORA). Kota Layak Pemuda is one of the priority programs of Kemenpora in improving the quality of youth standardization throughout Indonesia. Tangerang Selatan City considers meeting the standardization in the develop the youth aged 16 to 30 years as regulated in Law No. 40 of 2009 on Youth and Regulation of the Minister of Youth and Sports (Menpora) No. 11 of 2017.

Information and Communication Technology (ICT)

Smart city can happen with developing a vision and mission of integrated with use Information and Communication Technology (ICT). ICT claimed as the core of smart cities (Graham & Marvin, 2001) in integrated urban asset management. Smart cities that have a role in improving the living standards of urban society (Letaiva, 2015) occur when ICT-based services are of high quality, including privacy of the society (Yeh, 2016).

South Tangerang City has a vision of "The realization of Tangsel City Smart, Qualified and Competitive Technology and Innovation-based". Based on Tangsel's vision, all kinds of activities or work programs owned by Tangsel based on technological progress means that all kinds of Tangsel activities are based on Information Technology as the development of South Tangerang City. Tangsel City's vision is downgraded to the mission: 1) developing reliable and competitive human resources; 2) improving functional city infrastructure; 3) creating environmentally sound, environmentally sound cities; 4) developing people-based economic innovation and superior products; 5) improve good governance based on information technology.

Previous Research

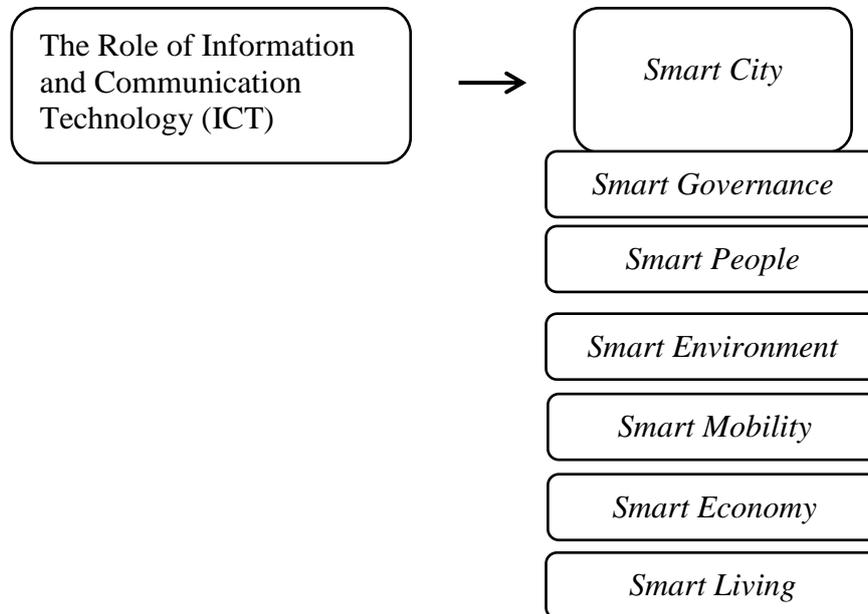
No	Research Study	Purpose of The Study	Methods Used	Key Findings	Benefits and Weakness
1	Amri. Analysis of Information And Communication Technology (ICT) Utilization In Supporting Create Makassar As "Smart City" (2016)	Revealing the realization of information and communication technology in supporting the realization of Makassar as a smart city	Quantitative descriptive	Makassar Government has been complete applying information and communication technology (ICT) as a modern technology. ICT is only a tool	Benefits: The study explored the utilization of ICT as a key factor of a smart city Weakness: This study



				that cannot create any different change if it is not supported by adequate human resources and work culture to run the tools.	only discusses from one side about how to create a smart city, and does not explore the other dimensions.
2	Dwita Widyaningsih. Surabaya City Towards Smart City	Describes how the Surabaya City process is toward Smart City and reveals why the process can take place	An exploratory case study method	The development of Surabaya City to Smart City is not sectoral, but rather a holistic approach. There are four phases in it, the internal Government revamping phase, the social capital strengthening phase, the Government's external service development phase, and the high-tech city-based development phase	Benefits: The study describes how another city process to create a smart city Weakness: This study using only four phases of developing Surabaya towards a smart city

Framework

2.1 Schematic Diagram of Conceptual Framework



Research Method

This article is a qualitative descriptive research that aims to describe, analyze and interpret the conditions that currently occur or exist in South Tangerang City Government. We aim to describe and identify how ICT role on South Tangerang City Government towards as a smart city. In other words, descriptive qualitative research aims to obtain information about the existing situation (Mardalis, 1999). That qualitative descriptive research is designed to collect information about the current concrete realities that are in progress (Convelo & Cevilla, 1993). In this research, the researcher will explain some literature about the words of 'smart city' in options of all text, themes, titles, keywords, and abstracts in each selected database in all knowledge areas to search for articles and papers that have similar topics. Literature studies got through transmit digital or electronic information, i.g e-journal, e-books, e-publications, online databases (e-articles, abstracts, images) and search engines. The article search procedure used is a systematic literature review.

Results and Discussion

The success of smart governance occurs with the increasing role of ICT function on governance of urban systems. In some previous studies, smart governance gained an emphasis on the interaction between institutional units, actors, and processes (Chen, 2013). The consistency of integrates information and communication technology (ICT) can be seen from various physical devices connected to the network (the Internet of things or IoT) to optimize the efficiency of city operations and services and connect to

internal and external stakeholders (citizens). To reaching out stakeholders in a click, the media used is divided into two forms: internal media and external media. Internal media includes Sistem Informasi Surat Masuk dan Surat Keluar (SISUMAKER), Time Table, Sistem Informasi Manajemen Perencanaan, Penganggaran Dan Pelaporan (SIMRAL), and magazines.

Furthermore, South Tangerang City Government also has an official website (<https://www.tangerangselatankota.go.id>) and a twitter account is @humaskotatangsel, a facebook account is Humas Kota Tangerang Selatan, an Instagram account is @humakotastangsel, and a youtube page is Humas Kota Tangerang Selatan. The official external media communications of South Tangerang City Government is in Figure 4.1. Those media aims at reaching out to external stakeholders such as citizens.



Figure 4.1 External media of South Tangerang City Government

Communication is enhanced and facilitated by new technologies and now the public is becoming increasingly involved and engage. ICT can play a maximum role supported by smart governance policy. Because, strategic governance exploits the potential of communication. Smart governance highlights the interaction between various stakeholders that is now more effective and efficient because of external media and internal media.

Evidence of the mutualism symbiosis between the Government and the stakeholders mediated by these external and internal media, among others; (1) governance responds to community needs and aspirations; (2) encouraging the utilization side of information disclosure; and (3) encouraging the level of public participation in the governance system.

Implementation of ICT in the success of smart governance is supported by the Draft Regulation of the President of Republic of Indonesia on Sistem Pemerintahan Berbasis Elektronik (SPBE). To realize effective and efficient governance, SPBE is present in two types, Electronic Based Administration Services and Electronic Based Public Services. Various forms of electronic services owned by South Tangerang City include; Sistem Informasi Manajemen Perijinan Online (SIMPONIE), E-PBB a tax account application, Sistem Informasi Manajemen Pelayanan Terpadu (SIMYANDU), Sistem Infromasi

Manajemen Pelayanan Online (SIMPONIE), Sistem Informasi Manajemen Pelayanan Satu Atap (SIMPTSA), Siaran Tangsel, and also SIPENSIL a new online admissions application, Puskesmas Management Information System (SIMPUS), and e-Musrenbang (a site that aims to accommodate community suggestions and aspirations).



Figure 4.2 Electronic Services by South Tangerang City Government
Source: Dinas Komunikasi dan Informatika Kota Tangerang Selatan

Applications and websites used are forms of high technology usage where innovations such as those in Ciputat sub-district that open community services over office hours. This considering most residents are office workers who find it difficult to administer in the day and at work hours. Another example is the shuttle service to the residents' house, ID card, and KK services one day is complete, and the application of citizen SIARAN Tangsel reporting classified on one of the outputs of smart governance. In the healthcare sector, Tangsel Hospital has introduced SMS Gateway that enables citizens to register and get queue numbers via SMS. In the licensing sector, there is available PTSP (One Stop Integrated Service) with 17 online applications for different permits, equipped with certificates and digital signatures.

All forms of electronic services have their respective roles that aim in facilitating services to the public. The electronic service dismisses a negative view of the bureaucracy, the notion that if it can be complicated why it should be made easier no longer relevant. The excellent service generated is bureaucracy reform on smart governance.

Smart governance mediated by using ICT has become a necessity, because if the smart governance achieved the people that are satisfied and the gap between the public and private sectors narrows, it encourages the industry to grow and thus, the economy increases.

The realization of South Tangerang City as a smart city is viewed from a citizen-centric perspective centered on citizens and other stakeholders. Confidence in the potential of using intelligent communications information technology and intelligent governance results in widespread impact.



Figure 4.3 Tangsel Smart City

Source: Dinas Komunikasi dan Informatika Kota Tangerang Selatan

From the above explanation shows that South Tangerang City can be a smart city because in practice its governance maximizes ICT in six dimensions smart city that is smart governance, smart people, smart living, smart economy, smart mobility so as to produce good public service. The paper highlights that smart cities can be realized not only because of how sophisticated communication technology is applied, but based on the collaboration of six dimensions of smart cities, especially smart governance as a complex transformation of institutional development and maximized by applying ICT.

Conclusions

This paper contributes to understanding implementing ICT within a public organization in reaching the organization's goals. Given importance communications technology to support citizens' access to Government services, educational and entertainment content, and to engage with each other, it is important for the Local Government to continue to innovate in electronic- and digital-based services and consider what steps can be through to improve its availability. The results of the discussion found that confidence in the potential generated by the utilization of information and communications technology and smart governance policy resulted in widespread impact.

Suggestion

Limitations of this study would open new spaces for further research. This research only describes the role of smart governance dimension and ICT utilization by South Tangerang City Government towards a smart city. It would be richer if the next research paid attention to some suggestions:

1. Academic suggestions include the addition of smart city conceptual studies that not only emphasize technology but also as socio-techno or interaction practices. We hope that other studies focus on the analysis of how smart city implementation in society and describe how smart city ecosystem.



2. A social suggestion is necessary socialization knowledge to Local Government that global megatrend that pushes smart city keep changing and increase, so not only maintenance but also need anticipation to face it.

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