The Personal Electronic Data Security on the Implementation of Solo Smart City According to the Perspective of Privacy Protection Law

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Abstracts
This article investigates how is the security of personal electronic data in the Smart City Program in Solo City? Several major cities in Indonesia, including Solo, have organized Smart City program. The government believes that Smart City program with the use of internet technology is able to solve problems in each city, such as traffic congestion, retribution, the security of citizens, until garbage problem. In serving the society, Solo Smart City program will use and process Big Data, collected from the citizen data in the city concerned. Although Solo Smart City program with big data technology achieved its own successful in solving city problems, but on the other hand there is a consequence about how the protection of the collected personal electronic data is. The weak personal electronic data security will be potentially hit by cyber-attack, so that the personal data of citizens can be accessed and abused by irresponsible parties. This research method used normative legal research with approach of legislation and conceptual approach. The general conclusion is that the country needs to establish regulations at the level national scale law and or a Regional Regulation which specifically regulating how to prevent the abuse of personal electronic data in Solo City. Since for all this time, the weak security of personal electronic data can be disadvantageous for the society in terms of social and economy. Moreover, the sanction is still administrative and only regulated by the Ministerial Regulation.
Keywords: smart city, security, electronic data

A. Introduction

At least more than 3,885,567,819 people in the world use internet in 2017. The penetration reach 51.7% from the total population of the world which is more than 7.5 billion people. According to World Internet Usage and Population Statistics data in June 30, 2017, Asia takes place as the highest internet users which has 1,938,075,631 users, with penetration reach 46,7%, including Indonesia with 1132,700,000 internet users ("World Internet Users and Population Stats", in http://www.internetworldstats.com/stats, accessed on September 23, 2017).

World Regions	Population	Population % of World	Internet Users 30 June 2017	Penetration Rate (% Pop.)	Growth 2000-2017	Internet Users %
Africa	1.246.504.865	16,6%	388.376.491	31,2%	8.503,1%	10,0%
Asia	4,148,177,672	55.2 %	**1,938,075,631**	46.7 %	1,595.5%	49.7 %
Europe	822,710,362	10.9 %	659,634,487	80.2 %	527.6%	17.0 %
Latin America/Carribean	647,604,645	8.6 %	**404,269,163**	62.4 %	2,137.4%	10.4 %
Middle East	250,327,574	3.3 %	**146,972,123**	58.7 %	4,374.3%	3.8 %
North America	363,224,006	4.8 %	**320,059,368**	88.1 %	196.1%	8.2 %
Oceania/Australia	40,479,846	0.5 %	**28,180,356**	69.6 %	269.8%	0.7 %
World Total	**7,519,028,970**	**100.0 %**	**3,885,567,619**	**51.7 %**	**976.4%**	**100.0 %**

(Figure 1: Source: Internet World Stats, 2017)

Based on data from the Indonesian Internet Service Providers Association (APJII), the internet users in Indonesia reached 132.7 million users, consisting of 52.5% male users and 47.5% female users with the highest users 65% in Java Island, which is 86, 3 million users (APJII, 2016: 3). Plus, the active users of social media, such as: Facebook has reached 47 million users and twitter users reached 19.7 million(Tifatul Sembiring (Minister of Communication and Information), Speech at The Opening of INAICTA 2013 event in Jakarta, February 14, 2013). Seeing Indonesia has the high number of internet users, makes this country become the world's top 8, and the top four in Asia, in the use of internet. Along with the growing number of internet users, the various innovations associated with the use of the Internet is also increasingly popular for the society, such as: Smart City program (Suhono Harso Supangkat, 2014: 8). Basically, a city that use Smart City will know the problems that happen in the city, understand the condition of the problems, and manage the various available

resources to be used effectively and efficiently with the aim to maximize service to its citizens.

The Smart City program builds information integration platform that consists of: (Suhono, 2014: 8)
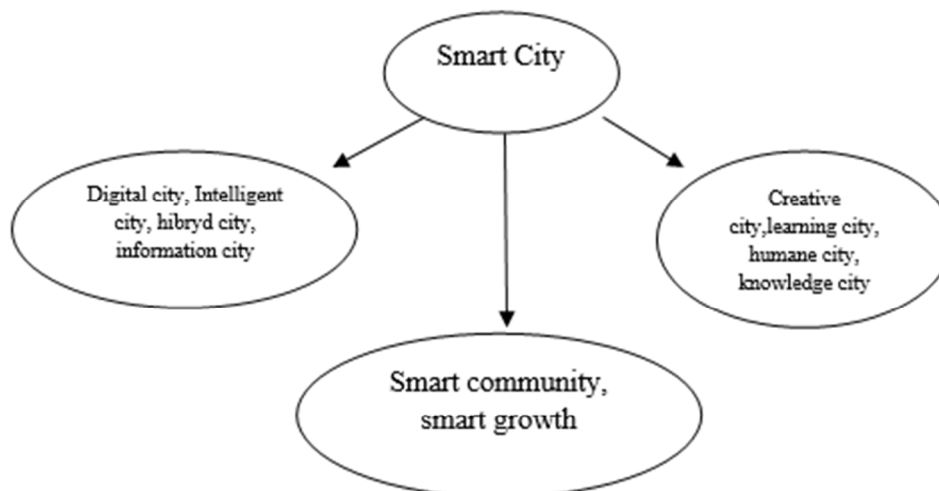
(Figure 2: Smart City Fundamentals, Source: Smart City Indonesia, 2014)

The Smart City program is also supported by several ministries. National Development Planning Agency Republic of Indonesia (BAPPENAS) and the Presidential Office of the Republic of Indonesia agreed to announce the movement of 100 Smart City programs in Indonesia. The Smart City movement starts with 25 regencies/cities selected to follow this program. In the process of assessment, Ministry of Communication and Informatics (Kominfo) involves 19 expert teams that will help to assess the readiness of each region in conducting smart city initiatives, as well as provide information to local governments to formulate roadmap and implement smart city initiatives. Hopefully, in 2019 Indonesia will have 100 local governments that implemented the Smart City program successfully (http://teknokompas.com/read/2017/05/03/12420237/langkahawalmewujudkan100smartcitydiIndonesia, accessed on September 23, 2017) . For example is the Jakarta Smart City (JSC) concept, JSC is organized to improve public services and ensure a better life for Jakarta residents. The Smart City for community services can be done with the improvement of a larger and sophisticated infrastructure that is by building big data (Dian Ekowati, 2016). Besides Jakarta Smart City, Surakarta city is also preparing for Smart City in 2018. One of the preparations is to strengthen the information technology-based public service (IT). Solo Destination application is predicted to be the backbone of Solo Program in implementing Smart City 2018 (www.surakarta.go.id, accessed on September 23, 2017). According to Yosca Herman Soedrajad (Head of Department of Transportation Communication and Informatics in Surakarta City), explained that Solo Destination application has a number of service and information features. The public service features are; e-ticketing, e-retribution, *e-kelurahan*, e-test, Solo traffic info (a CCTV traffic monitoring), and others. When we use Solo Destination application, a feature will appear in a folder called Community Services. When we click that folder, we will get four choices of services needed: IMB Licensing, e-PKB (an online service for vehicle test or vehicle roadworthiness tests (KIR)), residence services, and e-retribution which is currently available for market retribution only (Yosca Herman Soedrajad, 2016).

The role of big data technology for the development of a smart city is certainly important because there are many data from various sectors of life in a city. So it takes a technology that is able to analyze, integrate, and work in real time. The processed data can be the basis for determining the strategic steps, as an example to put the proper allocation of subsidies for the citizens. In the field of transportation, the application of this data processing technology can help the citizens to obtain information quickly and accurately about the conditions and locations of public transport that suitable for use on certain routes.

In connection with the Smart City program, security is an important issue for smart city system. When the smart city system covers the entire city, security threats must be taken seriously. The more the systems are connected, the more complex to handle. The security of personal data of a citizen is one factor that must be considered in holding smart city, especially the personal data of citizen integrated with big data in smart city. The protection of privacy right of personal data will implement the freedom of expression and self-development for the individual.

The security question of Surakarta citizen personal data that will apply the smart city program with the name of Solo Destination becomes essential because it seems that the central government and the local government have not provided maximum protection of personal data of its citizen. This can be seen from some

phenomena that have occurred in Indonesia, for example: People were shocked by internet hacking which was done by two internet-based companies. March 2017, a junior high school student, Haikal (19) managed to hack online buying sites (Tiket.com) worth 4.1 billion rupiahs. He also hacked more than 4,600 sites, including Indonesian National Police (Polri) website, several central and local government sites, several overseas sites, and online transport sites. April 2017, two major telecommunication company sites in Indonesia were hacked too by the hackers. Two years earlier, there has also been a hacking (burglary) credit card by a junior high school student in Pemalang, Central Java. The student hacked someone's credit card just to buy a hat in an online store (Kukuh Tejomurti, 2017).

This hacking phenomena are not only occur in Indonesia, some countries that are considered as developed countries like Russia has also experienced cyber-attacks in cyberspace. The Estonian government in 2008 faced an enormous onslaught of cyber-attacks. The cyber-attacks in Estonia originated from the tension of international political relation with Russia, particularly on ethnic Russians. The ethnic Russians were angry when the Estonian government moved a Soviet war memorial monument in Tallin. After the removal of the war monument, Estonia experienced cyber-attacks and resulted in all news sites being hacked, destroyed, and almost all business activities, community activities, internet-based defense and security activities were down.

Talking about the security and protection of personal data, according to Cannataci, if a person feels that his or her privacy is adequately protected, then that person will have the option to live life based on motivation and reason authentically, not the result of manipulation or distortion of others (Joe Cannataci, 2017). Personal data is generally in the form of personal information that is usually used for administrative matters, start from social media accounts, bank accounts, until credit card information. Therefore, the basic security system in smart city must protect the smart city infrastructure itself, as well as the personal data of the citizens.

According to Article 12 of the Universal Declaration of Human Rights (DUHAM) of the United Nations, it has been affirmed that:

"*No one shall be subjected to arbitrary interference with his **privacy**, family, home or correspondence, nor to attacks upon his honour and reputation. Everyone has the right to the protection of the law against such interference or attacks*".

Furthermore, in Article 28G of the 1945 Constitution of the Republic of Indonesia has   also been affirmed that:

"Everyone is entitled to personal, family, honor, dignity and property protection under his control, and is entitled to a sense of security and protection from the threat of fear to do or not to do something that is a human right."

Based on two national and international rules above, it has been affirmed that everyone is entitled to the protection of his or her personal life, including personal affairs and personal data of any disturbance.

B. Problems
Based on the research background, this article will attempt to analyze deeply on how does the security of citizens personal data in Solo Smart City program in the perspective of legal protection of privacy?

C. Methods
This research is a normative juridical which is analytical descriptive. The data collection was done through literature review and field research. The literature review stage was conducted to search secondary data using primary, secondary, and tertiary legal materials. In this stage, the writer also did literature review of several number of laws and regulations in several countries which are relevant to the research topic.

D. Results And Discussion
1. Solo Smart City and Big Data
In Indonesia, several major cities have implemented the concept of Smart City, including in Solo, Jakarta, Malang, Bandung, Makassar, and others. This concept is based on six dimensions: Smart Government, Smart People, Smart Living, Smart Mobility, Smart Economy, and Smart Environment. Their functions are to describe the problems of big cities by improving services based on technology including internet. For example, collecting data and creating an application to solve traffic congestion, and opening a communication space that increases citizen participations so they are easy to give comments and critics to the government.

Solo Destination application is one of the realization of Solo Smart City. This application has a number of service and information features. The public service features are; e-ticketing, e-retribution, *e-kelurahan*, e-test, Solo traffic info (a CCTV traffic monitoring), and others. When we use Solo Destination application, a feature will appear in a folder called Community Services. From the perspective of Solo city development, we can see that local government have prepared human resources, science, and technology to make Solo city as a smart city. The definition of smart city in Solo is more emphasis on the utilization of information technology to improve public services. Several programs that have been done by the local government in realizing Solo City as smart

city are:
1. Introduction of Solo Destination application (www.surakarta.go.id, accessed on Spetember 23, 2017);
2. Cooperation between PT BNI (Indonesia State Bank) and Solo City Government in Provision of Public Service Banking, and Payment of Land and Development Tax(www.solo.tribunnews.com/dukung-kota solo-jadi-smart-city-bni-sediakan-layanan-e-pbb, accessed on September 23, 2017);
3. Electronic payment of Batik Solo Trans (www.solopos.com/2016/smart-city-solo-elektronifikasi-bst-disabled-later-74908, accessed on September 23, 2017);
4. Opening several hotspot areas;

Solo city government needs other developments to realizing the smart city such as: traffic congestion handling, security of the citizens, until the garbage problem. The four programs above are more accurately said as Digital City instead of Smart City. Smart City is wider than digital city that is based on the six dimensions, which are (Aan Jatmika, 2017):
1. Smart Economy: the higher new innovations increase the higher the new business opportunities, and increase the competition of the business market / capital, e.g. cooperation between Tokopedia and Somato with the focus of MSME.
2. Smart Mobility (Transportation and Infrastructure), like the cooperation of Jakarta Smart City with TransJakarta and TRAFI so that the data in Jakarta Smart City is to analyze the public transportation usage pattern. It is useful for policy development and town planning or online transportation;
3. Smart Community: the management of e-card (eg Jakarta Smart Card) for citizens, so it is expected to provide convenience for the citizens;
4. Smart Environment: realization of livable city supported by natural resources management, the development of green building;
5. Smart Living: the use of CCTV in some places used for monitoring;
6. Smart Government: a technology with a Qlue complaint system that can be used effectively and efficiently by the public and public servants;

The emphasis of smart city development by using information technology in daily life is expected to make the city can serve the citizens and bring solution to the problems in the city. The role of big data technology (https://datascience.or.id/detail.artikel/30/konsep-big-data, accessed on September 23, 2017) for the development of a smart city is certainly important because there are so many data from various sectors of life in a city. Big data plays an important role in processing the data generated, for example is traffic information. By using the existing Big Data, that information can be utilized by the authorities to solve traffic congestion and create more efficient routes by reducing vehicle density on the streets (https://socialmediaweek.org/jakarta/2017/01/24/smart-city-salah-satu-penerapan-dari-big-data, accessed on September 23, 2017). Big Data can provide accurate data and structure potentially. In-depth analysis of transportation data can also be used for other things, such as the schedule pattern, the location of an empty parking area, and the density in a bus.

However on the contrary, Big Data is a trail that we leave behind in the digital world. For some people, it raises concerns about a world without privacy, about companies that know more about us, about governments that oversee people who are perceived to be a threat to their power (Eagle, N and Greene, 2014). Some people assume that if the use of Big Data in a responsible, respectful and contextual way, can guide individuals and institutions to make better decisions, spread the good knowledge, and increase the creative innovation. The data is built from information, and information requires energy to move. Where there is information, there is energy, and vice versa. The energy changes are captured by various sensors in the form of information and translated further into index able data.

One of Big Data goals is uncovering some hidden things. Human behavior in social, economy, and political activities are the attractive things for advertising company and a state intelligence service. Take two examples such as Google and Facebook, which of us who ever took the time to read the terms and conditions in using that search engine and that social media? So far, Google keeps everything in Google History about what we have been looking for since we first register ourselves to that search engine (I Made Ariana, 2017).

2. Privacy Data Protection
The concept of data protection means that a person has the right to determine whether he or she will join the community then will share or exchange personal data among the community, also has the right to determine what conditions must be met to do so. The data protection law in general also includes safety steps of protection from the security of personal data and permits its use by others as long as it is in accordance with the conditions required (www.privacyinternational.org, accessed on September 23, 2017).

The concept of privacy right became popular in 1890 when Samuel Warren and Louis Brandeis wrote an

essay entitled, *"The Right to Privacy,"* published by the Harvard Law Review. They propose acknowledging the right of individual "right to be let alone" and also argue that this right should be protected by law as part of human rights issues. Thus, the concept of privacy right has been recognized but is still difficult to define. As a part of human right, privacy is an important right and considered to be the protection of personal data (Sinta Dewi Rosadi, 2009: 23). The right to privacy through data protection is not only important but also a key element of individual freedom and self-esteem. Data protection is a powerful trigger for the realization of political, spiritual, religious and even sexual freedom. The right to self-determination, freedom of expression, and privacy are the essential rights to make us human.

A number of international instruments have set up data protection principles, and several national rules have incorporated them as part of national law. *The Council of Europe Convention for the Protection of Individuals with regard to Automatic Processing of Personal Data (No. 108), 1981; the Organization for Economic Cooperation and Development Guidelines on the Protection of Privacy and Transborder Data Flows of Personal Data (1980); and the Guidelines for the regulation of computerized personal data files (General Assembly resolution 45/95 and E/CN.4/1990/72)* are the examples of international instruments regulating data protection.

Data protection is also a fundamental human right. Several countries have recognized data protection as a constitutional right or in the form of 'habeas data' i.e. the right of a person to secure the data he/she possesses and for justification when some mistakes are found against his/her data. Portugal is one example of a country that has recognized data protection as a constitutional right, namely in Article 35 of its Constitution. In addition, Armenia, Philippines, Timor-Leste, Colombia and Argentina are countries with historical and cultural differences that have also recognized the function of data protection in facilitating democratic process and have ensured the protection of privacy data within their constitution. The ASEAN Human Rights Declaration adopted by ASEAN countries also clearly recognizes the right to privacy data (Article 21). Recently, at least more than 75 countries already have laws regulating data protection (Graham Greenleaf, 2011).

Some countries have special laws in protecting privacy and personal data for their citizens. This is particularly can be seen in European countries and the United States, where there are laws that specifically protect privacy and personal data. However, the privacy concept found in Europe and the United States have different characteristics. The United States has no single regulation to protect privacy and data that can be specifically applied. While in the European Union, since it is an integrated area, the protection of privacy and personal data is governed by supranational policies in the form of the EU Data Protection Directive (Sinta Dewi Rosadi, 2016).

Meanwhile, the basic concept of personal data protection first appeared around 1960. Subsequently in 1970, Germany was the first country to enforce rule on data protection which was then followed by Swedish national law in 1973, the United States in 1974, and France in 1978. The concept of data protection is often treated as part of privacy protection, as the rules provide protection for personal data. Basically, data protection can relate to privacy in specific way, and that means it can be applied as a broader category of privacy. Seeing data protection as part of privacy is an understanding that privacy is a form of confidentiality, or the right to disclosure or closure of information, or the right to restrict individual access, or control of information relating to a person. However, there are important differences in terms of scope, purpose, and content of privacy and data protection. Data protection explicitly protects non-core values of privacy such as conditions for fair processing, approval, legitimacy, and non-discrimination. The expression of data protection concept is closely related to the right to respect for personal and family life.

The data protection regulations are key to business and economic issues in today's information-intensive business field. The recent modern business practices often involve data manipulation such as customer data segmentation, including data mining and data plotting, creating customer profiles, consolidating global data processing, and other business processes.

The personal data protection regulations in Indonesia are regulated in the Minister of Communication and Information of the Republic of Indonesia Number 20 of 2016 on Protection of Personal Data in Electronic Systems (Permenkominfo No 20/2016). According to Article 2 paragraph (1) of Permenkominfo No. 20/2016 has explained that Personal Data Protection in electronic systems includes protection on the obtaining, collecting, processing, analyzing, storing, displaying, announcing, transmitting, disseminating and destructing personal data.

In implementing the provisions, as referred in Article 2 paragraph (1) Permenkominfo No. 20/2016, should be based on the good principles of Personal Data protection, which includes:

a. Respect the personal data as privacy;

b. Personal data is confidential in accordance with the agreement and / or in accordance with the provisions of the laws and regulations;

c. Based on the agreement;

d. Relevance with the purpose of obtaining, collecting, processing, analyzing, storing, displaying, announcing, transmitting, and disseminating;

e. The eligibility of the electronic system used;

f. The good intention to promptly notify in writing to the owner of personal data for any failure to protect personal data;

g. The availability of internal rules of personal data protection management;

h. The responsibility for personal data in user control;

i. The ease of access and correction of personal data by personal data owners; and

j. The wholeness, accuracy, validity and personal data updates;

The electronic system providers are required to keep personal data within the time limit specified in Article 15 paragraph (2) that is at least 5 (five) years, if there is no provision of laws and regulations specifically regulating it. According to Article 26 of Permenkominfo Number 20/2016 also has explained that the Owner of Personal Data shall have the rights: a) Upon the confidentiality of his / her personal data; b) propose a complaint to resolve a personal data dispute over the failure of its personal data privacy protection by the Electronic Systems Provider to the Minister; gain access or opportunity to modify or update his/her personal data without interrupting the personal data management system, unless otherwise provided by the provisions of the regulations; d) gain access or opportunity to obtain historical personal data that has been submitted to the providers of electronic systems as long as they are still in accordance with the regulations; and e) request the destruction of certain personal data that belonging to him/her in electronic systems maintained by the electronic systems providers, unless otherwise provided by the provisions of the regulations. Regarding to sanctions, Permenkominfo No 20/2016 has regulated that any person obtaining, collecting, processing, analyzing, storing, displaying, announcing, transmitting, and / or disseminating personal data without rights or not in accordance with the provisions in ministerial regulations is subject to administrative sanctions in accordance with the provisions of regulations in the form of: a) Verbal warning; b) Written warning; c) Temporary suspension of activities; and / or; d) Announcements on sites;

Based on the regulation Permenkominfo No. 20/2016 on Protection of Personal Data on Electronic Systems, the use of personal data on Solo Smart City should be managed carefully on the mechanism of big data, because every data used in each citizen, there is privacy that should be protected from irresponsible usage. Personal data is an asset with high economic value and therefore the protection of personal data is an essential element of one's freedom and self-esteem. The protection of personal data becomes a powerful trigger for the realization of political, spiritual, religious and even sexual freedom.

E. Conclusions

1. The protection of personal data becomes a powerful trigger for the realization of political, spiritual, religious and even sexual freedom. Therefore, in the implementation of Solo Smart City, the providers must respect the security and privacy right of personal data of citizens who are integrated in the big data smart city. The Big Data in the smart city program is a trail that we leave behind in the digital world. For some people, it raises concerns about a world without privacy, about companies that know more about us, about governments that oversee people who are perceived to be a threat to their power. Therefore the implementation of smart city should not violate the right to privacy and freedom of expression of mankind;

2. Personal Data Protection on electronic systems is not sufficiently regulated by ministerial rule regulations due to its administrative sanctions. Seeing the enormous losses and risks if there are data leakage and the irresponsible use of personal data, the protection of personal data should be regulated at the level national-scale-law because it may provide criminal sanctions that are expected to give deterrent effect for the perpetrators that abuse personal data.

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