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TYPES OF SMART CITY SERVICES: A SYSTEMATIC LITERATURE REVIEW

Johan, Evaristus Didik Madyatmadja and Muhammad Faisal Habibie

Information Systems Department
School of Information Systems
Bina Nusantara University
JL. K. H. Syahdan No. 9, Kemanggisan, Palmerah, Jakarta 11480, Indonesia
{ johanj; emadyatmadja }@binus.edu; muhammad.habibie005@binus.ac.id

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Abstract. *Smart city has been trusted to be a solution for worldwide urbanization issues. Many researchers conduct studies about what kind of services need to be delivered in smart city. Indonesia as the biggest nation of urbanization development in Asia has begun smart city development. In any case, too many smart city strategies, and lack of legal foundation of smart city in Indonesia can lead to confusion for city government. Also, there is a hole stayed among hypothesis and practice for smart city development. Therefore, we direct an orderly writing audit to discover what administrations are truly required in the improvement of smart city as indicated by the writing and Indonesia's legitimate establishment. The purpose of this study is to identify the types of smart city services that exist today. This investigation brings about smart city benefits that can be embraced by the administration in creating smart city.*
Keywords: Smart city, Services, Systematic literature review

1. **Introduction.** The idea of Smart City or smart city basically has been imagined and started to be applied in the cities of developed countries since the start of the new millennium ago. This wonder is indistinguishable from the progression of Internet technology which started to be utilized in many aspects of life at the time. The web with its Internet which was initially just utilized by governments and scholastics, has developed quickly up to this point to turn into a medium of communication and mass exchanges that influence all aspects of life [1].

Mobile phone technology innovations are increasingly developing to exchange information between citizens. As such, mechanical advancement turned into the establishment in the underlying origination of the smart city concept. Confirm by the presence of the giant IBM company as one of the originators of this idea with regards to the promotion of innovation products namely big data in the smart planet idea in 2008 [2].

Beginning from the term smart city, a few different terms were conceived, based on variations of the definition and condition of "smart", for example, smart city, information city, universal city, supportable city, and computerized city, where smart city is regularly utilized in presenting the idea of smart cities [2]. However, what is the meaning of the smart city?

There are many definitions of smart city including those that say cities will get smart if interests in HR and social capital and conventional and current correspondence framework foundation can improve practical financial development and personal satisfaction, with insightful administration of regular assets, through participatory administration [3]. There are also those who clarify that smart cities are sure geographical areas where refined advancements, for example, ICT, coordination's, and energy production, complement each

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other so as to make benefits for city occupants as far as welfare, participation, ecological quality, smart turn of events, which is overseen by a precise administration with great policies [4].

Basically, what is implied by the idea of smart cities is the utilization of advanced information and information systems technology on a large scale for urban planning and management. In this definition really cities in America toward the finish of the twentieth century have started to recognize and utilize computerized information as contribution to city management. However, over the times, the idea of the smart city has also experienced changes and varieties. Some are centered around developing information technology infrastructure in specific territories, with the goal that the term smart communities appear. In any case, there are additionally the individuals who attempt to apply it on a more extensive city scale; however, this is where problems arise, for example, extremely high speculation esteem, unsupportive HR, unstable social and political conditions, and natural disasters. With the goal the idea of smart city in a more extensive setting is then developed.

Smart city additionally refers to "a city well acting in a forward-glancing path in these six qualities, based on the 'smart' mix of blessings and exercises of self-unequivocal, independent and aware citizens" [5]. The main contribution of this research is to obtain the types of smart cities so that researchers can conduct research on a wider smart city.

2. **Background Study.** This smart city idea is dynamic and changes according to the demands of the times. In this way there is no inflexible definition, yet approaches through key perspectives are instructive to be specific: modern digital infrastructure, understanding that administration will be better on the off chance that it is fixated on the network, clever physical foundation, receptiveness to new methodologies and models, and transparency of achievements [6].

This idea additionally has a few elements as a characteristic in smart city, smart economy which includes factors, for example, development, business enterprise, self-marking, efficiency, and furthermore rivalry in the global market. At that point there are also smart people who are not just identified with the degree of training of the community itself, but additionally how social connections that happen inside it. Smart administration incorporates factors, for example, political support, administration quality and open organization. Local and international accessibility are factors of smart mobility in addition to the availability of information and communication technology, just as a naturally neighborly urban transportation system. Smart environment identifying with issues of common natural assurance and smart living (smart living patterns) identifying with parts of the personal satisfaction of urban society are also two elements that are no less significant. These elements do not need to be completely grown yet can be centered around one or incompletely rely upon the potential and character of the city [7].

3. **Research Method.** The systematic literature review is selected as a method for identifying and reviewing the importance of E-government involvement in tourism and travel that has been studied before. This study looks for the types of smart cities that have been used in the world. A review was done in systematic and rigorous standards. The aim is not only to summarize the existing research but also to include the elements of analytic criticism. The study's result is being reviewed and analyzed as the data for literature review. There are four online research databases chosen to search the article, which are Science Direct, ACM Digital Library, IEEE Xplore and Google Scholar.

In direction to increase trustworthiness of outcomes and guarantee that this review included articles from numerous scientific fields, finding procedure was repeated using Google Scholar.

4. **Results.** In the beginning of the finding use keyword on "smart city", "model" and "indicator" with the synonym possibilities as shown in Table 1.

Table 1. Keyword usage

Word	Synonym
Smart city	Smarter city Brilliant city
Indicator	Plan File
Model	Design Structure

To have the possibility of queries we use keywords as follows:

- ("Plan" OR "Indicator") AND ("File" OR "Design" OR "Model") AND ("Smart city" OR "Smarter city" OR "Brilliant city")
- ("Plan" OR "Indicator") AND ("Smart city" OR "Smarter city" OR "Brilliant city")

For all combination of keywords, it found 301 papers. Then each paper that was found was analyzed to determine whether it is relevant to the topic or not.

A. Candidate Studies

In this section, 301 studies are selected by changing the abstract with the research question and the outcome is that 177 papers are chosen.

B. Selected Studies

The chosen papers or articles should fulfil these conditions:

- The research discusses the types of services smart city that exist or on planning;
- The study corresponding to the research question;
- The papers available between the years 2003-2020.

The outcome is that 20 articles fulfil the standards for an examination which could be found in Figure 1. Then the information mining, which is the amount of studies from the chosen article is able to be found in Table 2.

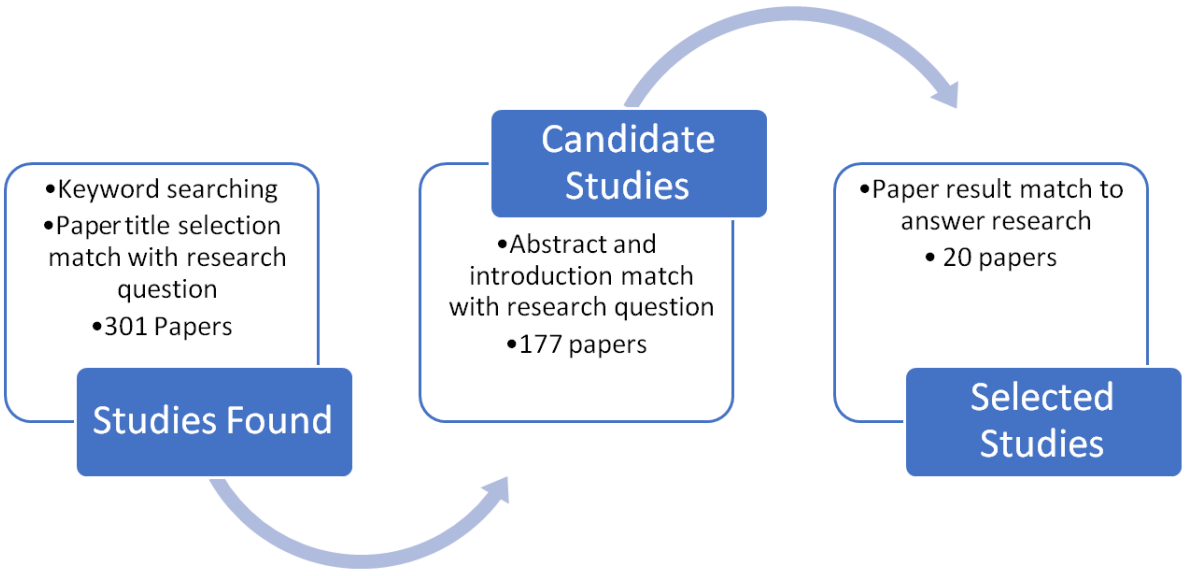

Figure 1. Searching approach for a systematic literature review

TABLE 2. The number of selected sources

Source	Studies found	Candidate studies	Selected studies
Science Direct	155	51	5
ACM DL	67	66	5
Google Scholar	38	25	7
IEEE XPlore	41	35	3
Total	301	177	20

C. Selected Studies

From the 20 selected papers, there are 62 authors who partaken, 41 organizations, and 32 universities. Each author only wrote one study, and luckily, each institution has also only one paper. The organization location is in USA, Iran, Yunani, UK, Bangladesh, Romania, China, Malaysia, Australia, New Zealand, Germany, Switzerland, Indonesia, Taiwan, Moldova, and Thailand.

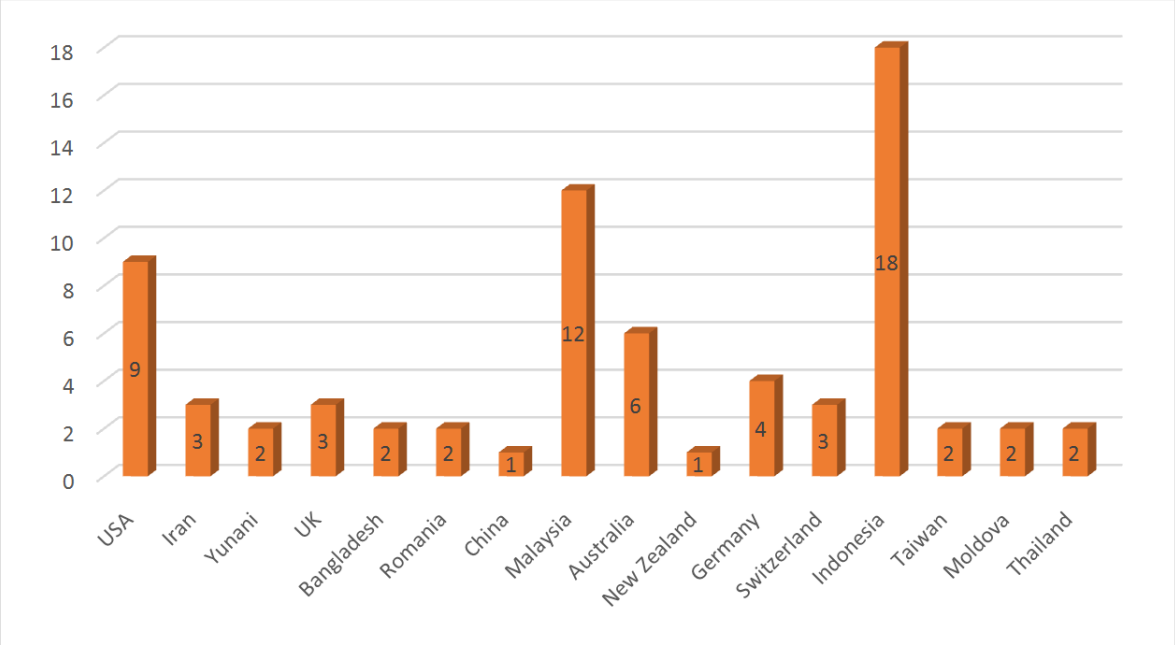

FIGURE 2. Author demography

All the writers worked in 11 divisions which are information systems, information technology, business management, business, economics, economics and finance, management, management information system, public and politics, public policy and technology and society, public administration. Then all the departments above are grouped into 4 groups department, namely economy, information system, information technology, public and politics.

Authors' academic background can be found in Figure 3. Study is chosen by publication date between 2003 and 2020 as shown in Figure 4.

D. Determination Factors of Variety Concept in Smart City

There are six concepts in smart city that are critical to the systems, namely: smart government, smart economy, smart mobility, smart people, smart living and smart environment.

All ideas of smart city should be applied in regional government since cities will have great systems and many advantages. Many systems are anything but difficult to utilize, network security is ensured, and the point is to improve the personal satisfaction of its residents [8].

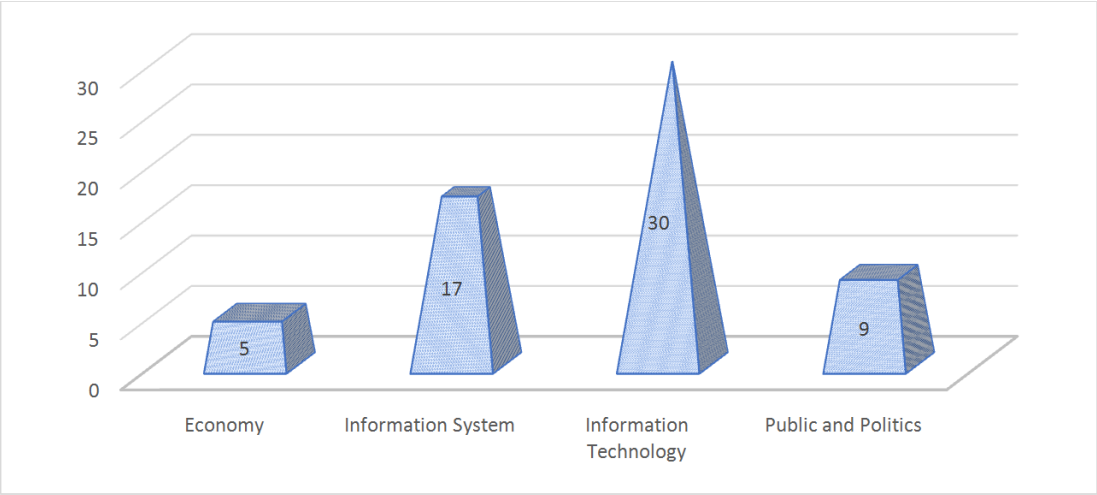

FIGURE 3. Authors' academic background

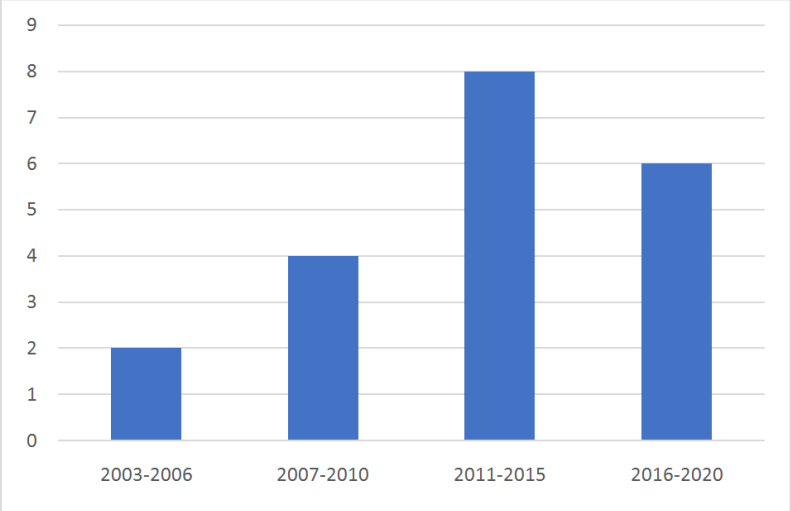

FIGURE 4. Publication year

1) Smart Government (Smart Governance).

To have the option to actualize smart governance, local governments need the assistance of Data and Correspondence Innovation (ICT) just as an assortment of the most recent innovation. The execution of ICT for different necessities of government associations (both for internal operations of organizations and public services) is what is called e-government or Electronic-Based Government System (SPBE). So in the context of smart city, e-government or SPBE is one of the 6 elements of smart city [9].

Smart government is coordinated to have the option to assemble a smart city that is directed to everybody.

This means that smart government must have the option to keep up and improve access to across the board. The long queues for government services in various sectors are no longer there [10].

The beginning of the smart city was a complaint application. Through this application the public can channel complaints about public services [11]. Community participation is needed to improve the progress of the city. Public perceptions of transparency, efficiency, and corruption have increased due to interactions between the government and the public supported by information technology through social media, websites, and other technologies [12].

Table 3. Dimensions and indicators of smart city

Dimensions	Indicators
Smart Economy	Entrepreneurship and Innovations Productivity Local and Global Interconnectedness
Smart Environment	Green Buildings Green Energy Green Urban Planning
Smart People	21 Century Education Individual Society Embrace Creativity
Smart Living	Culturally Facility Safe Healthy
Smart Governance	Enabling Supply and Demand Side Policy Transparency and Open Data
Smart Mobility	Mixed Modal Access Integrated ICT

2) Smart Economy.

Smart economy incorporates advancement and rivalry, assuming an ever-increasing number of new developments are created it will include new business openings and increment business/capital market rivalry. Both are helpful to accomplish a superior and smarter national financial improvement since advancement and seriousness are the fundamental capital for the country's advancement and expanded improvement of assets [14].

Smart economy is summed up into two things. The first is to open wide access to data, in this way expanding the open doors for residents to do powerful monetary exercises. Second, business exercises that are as of now running will decrease operational costs even more negligibly, more gainfully and develop with regards to 'reasonable' [15].

One of the smart economy programs in Jakarta is JAKmikro. Digitalization of Micro, Small and Medium Enterprises (MSMEs) is one of the ways taken by the DKI Jakarta Commonplace Government to encourage Jakarta business people. This exertion is bolstered by a program called JAKmikro. There are three primary parts of JAKmikro, specifically mikroBina, mikroPay, and mikroApps. JAKmikro helps the DKI Jakarta Commonplace Government, PD Pasar Jaya, the Indonesian Office of Business and Industry, the Jakarta Office of Trade and Industry, the Bina Mikro Mandiri Establishment, and t-money as a non-money installment instrument. This program will target conventional markets which despite everything depend intensely on money exchanges. As an initial step, the program was propelled at the Mayestik Market, Kebayoran Baru, South Jakarta with an objective of 50 merchants during delicate propelling [16].

3) Smart Mobility.

The smart mobility concept can be seen from the accessibility of various supporting offices, for instance there are various methods of transportation to address the issues of the community, at that point the payment system utilizes one card. Smart mobility is the application of technology in the fields of electronics, computers and telecommunications aimed at making transportation infrastructure and facilities more informative and communicative so that it has an impact on traffic smoothness, security, safety and comfort and is also environmentally friendly. Smart Mobility currently used is e-parking, parking information boards, ticketing, road infrastructure.

4) Smart People.

Smart people is a significant idea for a smart city, in such a case that a city with smart people exists, smart city will be manufactured well. On the off chance that there are no smart people, at that point the city will not make a smart city. From such leaders, smart systems will be brought into the world that can answer social, cultural, physical-environmental, and economic development problems in a sustainable manner [18].

5) Smart Living.

Knowledge, exactness, and reasonableness are required in a neighborhood with the idea of smart living. This means to address the expanding requirement for space, yet the accessibility of room is progressively constrained, particularly in a large city [19].

6) Smart Environment.

Smart environment is one of the most significant angles in the elements of urban life. To make a smart situation there should be an assortment of applied applications and PCs as sensor systems and remote sensor systems, PC systems, man-made brainpower, database systems, portable figuring, working systems, equal registering, face acknowledgment, picture acknowledgment, picture handling, insight transport systems, and different advancements identified with ecological and human administration itself [20].

Discoveries and conclusive outcomes for smart city pointers got after the extraction of the 20 papers that are drawn from six qualities of smart city. Information from Table 4 shows that the most noteworthy pointer is smart environment (90 keywords) and the least is smart economy (59 keywords).

Table 4. Most frequently used keywords

Keyword	**Paper source**				
	ACM DL	**Scholar**	**XPlore**	**SciDir**	**Total**
Smart Economy	12	17	11	19	59
Smart Environment	23	20	12	35	90
Smart Government	17	19	13	24	73
Smart Living	18	22	12	24	76
Smart Mobility	19	24	11	27	81
Smart People	17	20	12	23	72
Total	106	122	71	152	451

5. **Conclusion.** There are several influences found in this literature review prepared for creating the advancement pattern in the smart city. This research on types of smart city can be characterized into six kinds of sub model that are smart economy, smart environment, smart government, smart living, smart mobility and smart people. These matters are important since all the gotten fundamental factors that must have particularly on markers which are for the most part viewed as the principle factors in choosing the improvement of the city like, public transportation framework, environmental manageability, social and social majority, education framework and offices, ICT foundation, healthcare administrations, entrepreneur and development, social security and safety, economy essentialness and arranging, ICT and e-government, housing quality and transparent government and open information.

On behalf of the upcoming research, there are numerous issues that need survey research, such as change in main factor of the six attributes in smart city model. Significant question to be considered is how many types of smart city can be realistically implemented by current governments.

Outcome of this study will give advantages to the government to create smart city using various suitable development techniques. Additionally, it may perhaps build additional suitable systems to society according to the outcome of the analysis. For upcoming

research, it is advisable to appreciate the new smart city model that might be useful for underdeveloped countries, that obtains the quality of information that can be useful for most governments in general. This can be done by conducting a broader systematic literature review.

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