



Smart City: An Approach from the View of Smart Urban Governance

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Abstract: The world's population is forecasted of having 68% to be urban residents by 2050 while urbanization in the world continues to grow. Along with that phenomenon, there is a global trend towards the creation of smart cities in many countries. Looking at the overview of studies and reports on smart cities, it can be seen that the concept of "smart city" is not clearly defined. Information and communication technology have often been being recognized by the vast majority of agencies, authorities and people when thinking about smart city but the meaning of smart city goes beyond that. Smart city concept should come with the emphasizing on the role of social resources and smart urban governance in the management of urban issues. Therefore, the "smart city" label should refer to the capacity of smart people and smart officials who create smart urban governance solutions for urban problems. The autonomy in smart cities allows its members (whether individuals or the community in general) of the city to participate in governance and management of the city and become active users and that is the picture of e-democracy. E-democracy makes it easier for stakeholders to become more involved in government work and fosters effective governance by using the IT platform of smart city. This approach will be discussed more in this paper.

Keywords: Smart city, smart urban governance, urban management, e-democracy, e-governance

1. Introduction

While urbanization in the world continues to grow with the forecast that 68% of the world's population will become urban dwellers by 2050 according to the United Nations' forecast (UN DESA 2019), there is a global trend towards the creation of smart cities. The world's first smart city (Songdo) established in 2002 is a visualization of the city with all the benefits of technology, such as eco-friendly apartment, optional efficient traffic, car-free city with bus and metro bus terminal systems in a 12-minute walk radius and user-friendly computer systems. In addition, the city government encourages residents to contribute to the city's economy by taking advantage of all the services which have been offered in the city. However, the question is whether the concept of smart city or smart city model of Songdo is the ideal and a model that other cities need to follow. This paper looks at smart cities with an approach from an urban management perspective, along with the application of information technology (IT) as a technology platform for connectivity. The objective of this paper is to find out the factors that influence smart city model in developing country like Vietnam in smart urban governance point of view. Therefore, the smart city model will be discussed from the concept to the current trend in Vietnam.

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2. Smart City and Smart Urban Development Trend

The concept of smart city is recently paid attention together with other objects in a smart world such as smart home, smart phone. Regardless of the object in that smart world, the advancement in technology as well as the way of management has brought a new and enhanced "intelligence" of these objects. The essence of the smart world where the smart city is one of the objects is data sharing based on a platform of the Internet of Things (IoT), combined with technologies of mobile computing, wireless sensor networks, interconnection systems. In some countries around the world, the concept of smart cities is used for an urban area that uses Internet-connected sensors to connect things to collect data and then process these data blocks to manage objects, as well as to effectively deliver urban services.

Data is collected and processed from residents living and operating in the area, from equipment connected to the system to control and manage traffic, electricity, water and waste treatment systems, for security and crime detection, school administration, hospitals and other community services. This system collects and processes data to optimize the efficiency of urban activities and services as well as to connect with residents. The technology platform of smart cities allows urban operations and management officers to interact directly with residents, directly monitoring what is happening in the infrastructure system of municipality and control of the whole urban operations. Information technology is the foundation to increase quality, increase efficiency and improve the interactivity of urban services while reducing costs and resource consumption, increasing the relationship between the people and the government.



Fig. 1 - Contents of smart city concept based on literature review of relevant studies as well as official documents of international institutions (adapted from Winkowska et al.)

Scientists have come up with different concepts about smart cities. Gonzalez et al. (2011) define smart cities to be characterized by a system of public administrative services or agencies that provide a set of new IT-based public services and infrastructure. Services provided by smart cities must be easy to use. It should be efficient and responsive, open and environmentally sustainable. Caragliu et al. (2011) argued that a city is smart when it invests in human and social resources. Traditional urban infrastructure (mainly transportation) and modern communication infrastructure (information and communication technology) will power sustainable economic development, ensure high quality of life, coupled with prudent resource management, through participatory urban governance. Besides, Batty (2012) et al. point out that in smart city, IT is merged with traditional infrastructure, which is coordinated and integrated with new digital technologies. These technologies establish the functions of the city and provide an effective and equitable system that can interact in enhancing understanding of the city as well as in facilitating participation within the urban design, planning and governance process. Overview of studies and reports on smart cities revealed that the concept of "smart city" is still an unclear concept, non-consensus definition. Most agencies, governments and citizens see that the smart cities' heart is information and communication technology (ICT) and its importance of connecting modern urban infrastructure. It can be seen as technology company Alcatel-Lucent view (2011) of the smart city concept. This company introduces the smart city concept as a framework for a specific vision of modern urban development. In particular, Alcatel-Lucent company emphasizes the growing importance of IT as a driving force for economic competitiveness, environmental sustainability

and viability. By leveraging IT as a core element of urban development, future smart cities will drive economic growth, improve people's lives, and create opportunities for urban development and innovation; support ecological sustainability initiatives, improve administrative processes and provide access to enhanced services.

However, such a view receives reviews and comments, even criticisms that the above way of understanding the concept of smart city is too technically oriented. Construction projects of smart city, current smart city development initiatives often refer to the direction of information technology as the core covering all aspects of urban life. Comments and critics focus on the need to define what the concept 'smart city' includes. Many experts have contributed to clarify the concept of smart cities with emphasis on the role of social resources and urban governance in the framework of this concept.

Failure of technology-focused smart city models such as Songdo City in Incheon or even Masdar in Abu Dhabi has proven that using an expanded urban model without corresponding resources and governance will not be able to create a smart city and long-term development for the community. The Singapore example shows that together with information transparency, incorporating the use of an IT platform in urban management, institutional strengthening and urban policies based on the elimination of corruption have resulted this island nation a smart city. It is not only because the city government expresses its governance and technological talent, but because urban development has been continuously adapting, competing, and creating social justice.

3. Urban Management in Smart Cities

In the present practice, it can be seen that the proposal for typical smart city components as shown in Figure 2 has made the smart governance factor one of the decisive components of smart city. A changing trend is clearly seen in the scientific community that smart cities need to be derived from a human resource perspective rather than a one-sided view that believes IT can be automatically generated a smart city. Therefore, the label "smart city" should refer to the capacity of smart people and smart officials to create smart management - governance solutions for urban problems. Proactive power in smart cities allows city members (whether individuals or communities at large) to participate in city governance and management and become active users. That is the image of e-democracy. E-democracy facilitates greater stakeholder participation in government affairs and enhances effective governance using smart city IT platforms. By leveraging the capabilities of smart cities (using Internet platforms and connected mobile technologies), e-democracy has the potential to create new forms of participation, discussion, and collaboration in political process. In 2014, the European Commission argued that smart cities incorporate diverse technologies to reduce their environmental impact and give people better lives. Smart cities, however, are not simply technically changing.

Changing the organization of government - and indeed society in general - is also essential. Therefore, creating a smart city is a multidisciplinary challenge that involves urban managers, creative providers, national policymakers, research institutes, and social organizations. A fundamental feature of a smart city is the integration and cross-linking of the energy, transport, urban planning and governance sectors to meet socio-ecological goals of urban society and a participatory approach. IT-based urban governance is known as intelligent governance and is a collection of technologies, people, policies, resources, finance, social standards and interoperability. Inter-stakeholder collaboration to support city governance activities. In these factors, it is impossible to underestimate the importance of policy and institutions because it is one of the cores of smart cities. Some other factors related to smart city governance can be considered as follows (Chourabi, 2012):

- Co-operation
- Leadership
- Participation
- Communication
- Data exchange and open data platform
- Service and application integration
- Accountability
- Transparency

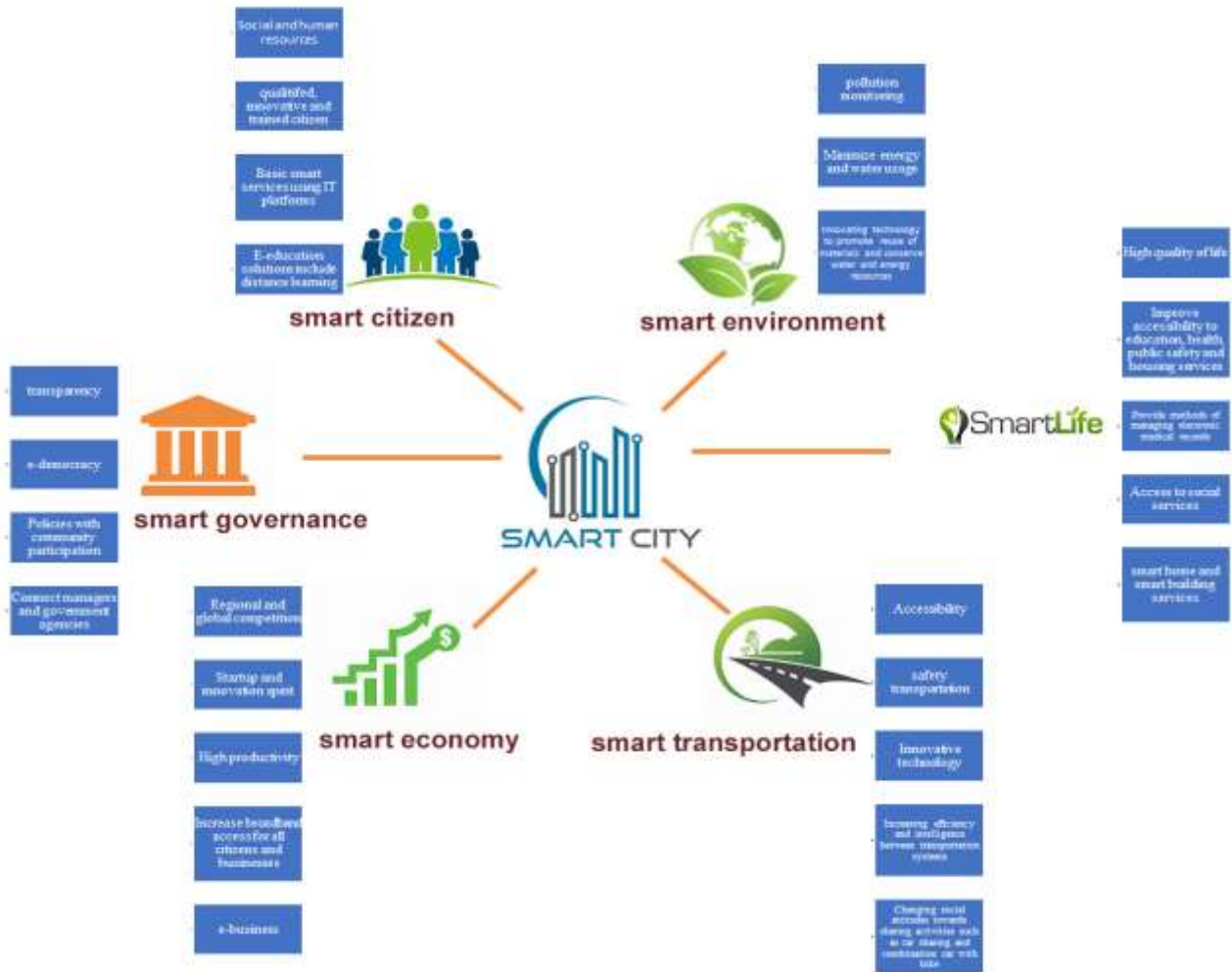


Fig. 2 - Typical aspects of smart cities (Adapted from Komeily and Srinivasan, 2017)

Batty (2012) emphasizes that smart governance is an attribute related to the governance of a city. Alkandari (2012) points out that the government must approve the development of smart cities and may prioritize some projects or regions. Meanwhile, Winters (2011) said that urban governments only have to promote higher education institutions to develop smart cities. From another perspective, according to Nam (2012), smart governance is the promotion of smart city initiatives, that is, there is no need to change the structure or processes of the government apparatus.

Gil-Garcia (2012) said that smart governance is a new form of e-government that uses sophisticated information technologies to connect and integrate information, processes, organizations and physical infrastructure to better serve residents and communities. This smart governance is at a higher level of transformation because it requires internal organizational restructuring of the government. According to Batty (2012), smart governance is a much more powerful intelligent function that coordinates the various components of smart cities. This is a structure that brings together the traditional functions of government and business. With this content, smart governance means creating a smart government.

Urban governance through IT can help bring transparency in urban governance, reduce corruption, improve citizens and expert's participation, reduce bureaucratic processes, speed up feedback time and increased people's satisfaction. In addition to the large number of services offered in an IT-based platform, the monitoring and evaluation of regulatory bodies can be significantly improved.

Batagan (2011) argues that smart governance means cooperation between governmental departments and communities, helps promote economic growth and at the most important level makes people-oriented activities and services. Tapscott and Agnew (1999) emphasize that smart governance is the widespread adoption of a more community-based governance model with better connectivity facilitated by new technologies. The active participation of the people together with the IT system is the foundation to ensure that the information is transmitted to the experts, provided that the people's contributions are transparently reviewed, considered and given feedback. Residents, local communities and professionals can provide insights into the locality and the city itself, and administrators can utilize this information as input to the management system and identify leverage points to improve environmental and social conditions as well as to develop communities. Smart governance is one of the necessary conditions to facilitate this participation of the

community as well as to maximize the benefits from information sources when using IT in smart cities. It can be seen that this is a collaborative and supportive relationship between smart governance and community participation.

Smart city can be built in different levels.

- The lowest level is city management with smart tools, which are technology solutions to solve situations in urban life intelligently. Smart tools rely on two main factors: The first one is real time data collection. This means that when information is formed, it is immediately collected and conveyed. The second is the ability to predict, forecast, and create model assumptions.
- Higher levels are called city management aimed at creating smart citizens. These solutions include various types of forums for people to participate. Smart citizens know how to use the advantages of The Fourth Industrial Revolution 4.0 to develop themselves, but they are also wise enough to be resistant to the harm this system can cause. This forum will have three main effects to create smart citizens: creating the overall vision, forming personal orientation, and building opportunities for action.
- The top level, or top tier, is city management with solutions aimed at creating smart communities. These solutions can be likened to a symphony orchestra, in which all stakeholders and community members contribute their efforts to a good harmony, not just single people who are smart citizens. In fact, only when we reach this level will we have a smart city, or a truly smart metropolitan area.

4. Smart Cities and e-government in Vietnam

Since the late 1990s, Vietnam has a number of smart city projects such as Quang Trung software park, Saigon high-tech park (HCMC), and Hoa Lac hi-tech park (Hanoi). In the 2000-2010 period, cities such as Da Nang, Hai Phong, and Ho Chi Minh City... has initiatives and proposals for smart city. But these are small and IT-based projects.

After 2010, the third wave of smart cities spread to more than 20 big and small cities in Vietnam such as Ho Chi Minh City, Hanoi, Da Nang, Quang Ninh, Binh Duong. There is a city with a top-down approach from the methodically advisory step to urban forming and priority list of projects to be implemented. There are cities with general guidelines and bottom-up approach. There is also some implementation of the hybrid model of combination bottom-up and top-down approach such as Binh Duong city. In Binh Duong city, the smart city program has been initiated since 2016 with the social-economic strategy approved by the provincial government. In particular, the program identifies development directions, assigns and commits to each specific action plan to build Binh Duong towards a smart city, becoming an area of international science. technology and economics in the fields of innovation, innovation, high-tech services and manufacturing. In October 25th 2019, Intelligent Community Forum (ICF) announced that Binh Duong had met the criteria to officially become a member of this organization, and was honored as one of the 21 areas with the most typical smart city development strategy of world in 2019. However, urban management for smart cities in a country like Vietnam also faced many difficulties.

In Vietnam, one of the recent goals set by the government is to build a "constructivist government" which focuses on building an "e-Government" as one of the Public Administration Reform (PAR) missions. It can be seen that the expectation of the Vietnam Communist Party and State in building an "e-Government" lies in building an efficient and transparent system to serve the people with the activation of information technology in all aspects of life. This requires sharing of data, user information and in part affects privacy, information security as well as affects the rights of various government bodies. However, there is no denying the benefits of "e-government" in the process of building smart cities when the traditional services of state management agencies are based on face-to-face interactions as well official documents and papers of a bureaucracy increasingly reveal inadequacies due to inefficiency.

In addition to the "One-Stop-Shop" model, a mechanism of the Public Administration Reform is currently underway step up to improve access to services public administration is to strengthen e-governance. The model of service through 'e-government' is being rapidly replicated thanks to a series of ambitious e-governance initiatives by the Vietnam Government. Two of the newly issued e-government initiatives include Resolution No. 17 / NQ-CP on a number of key tasks and solutions for the development of government in the period 2019-2020 towards 2025 and the establishment of a National Committee on E-Government is chaired by the Prime Minister under Decision No. 1201 / QD-TTg. From the people's point of view, e-governance and service quality of public administrative procedures always go hand in hand, because E-governance is seen as a means to simplify the process and eliminate bribery. In short, strengthening e-governance is expected to improve individual and organization satisfaction on public administrative procedure service. The Viet Nam Provincial Governance and Public Administration Performance Index (PAPI)¹ report from 2016 to 2019 points to a fact about the use of e-administrative services and access to information over the internet, and shows hope for

¹The Viet Nam Provincial Governance and Public Administration Performance Index (PAPI) is a joint collaboration between the Centre for Community Support Development Studies (CECODES) under the Viet Nam Union of Science and Technology Associations (VUSTA), and the United Nations Development Programme (UNDP) in Viet Nam since 2009, with the close partnership and support of the Centre for Theory Work of the Viet Nam Fatherland Front from 2009-2010, the Front Review from 2010-2012, the Commission for People's Petitions under the National Assembly Steering Committee in 2012, and the Centre for Research and Training of the Viet Nam Fatherland Front—VFF-CRT from 2013. The philosophy behind PAPI's innovative policy monitoring approach is that citizens are seen as "end-users of public administrative services" capable of assessing governance and public administration in their localities. The end result is Viet Nam's first publicly available dataset

ongoing innovations related to e-governance. Accordingly, very few people have used local government website to get information about the process and procedures of the public administrative services. The good news is that the percentage of people using government’s web portals has tended to increase slightly with the increase in the number of Internet users in Vietnam. However, PAPI 2019 survey results show that the growth rate has slowed down, while the proportion of people accessing news via the Internet and using the Internet has increased in 2019. The use of all levels government’s web portals is closely related to the ability to access the internet. Consequently, the proportion of people using the government’s web portal to carry out administrative procedures should also increase with the increase of Internet users at home.

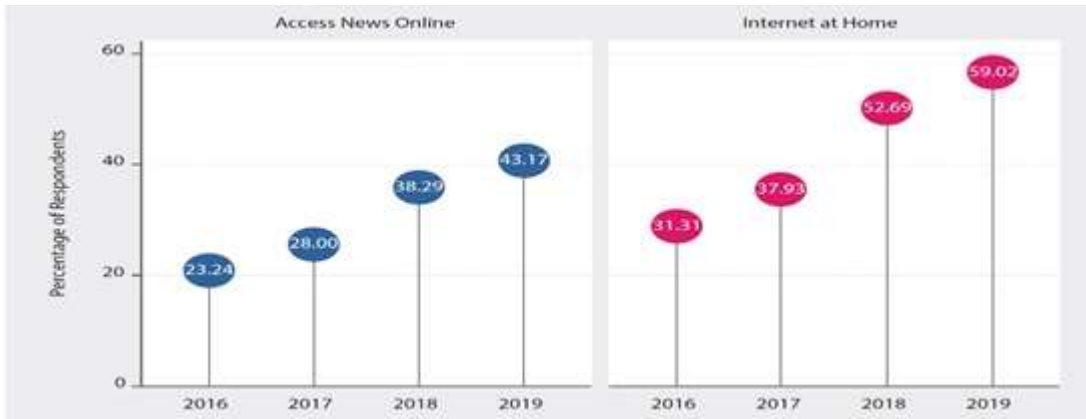


Fig. 3 - Access to the Internet and News online (Source, PAPI report 2019)

The quality of government web portals at all levels should also be improved. Table 1 represents the results of the assessment of people’s satisfaction with the access to information of the three groups the administrative procedures they have used in 2019. Accordingly, those who have searched for information about the needed procedures when obtaining authentication or government certification and when applying for a land use right certificate on the website of local government tend to be slightly more satisfied with the service than the group of information seekers at the One-Stop Shop department.



Fig. 4 - Accessibility to e-government portals for public administration procedures (Source, PAPI report 2019)

providing an objective evaluation of governance from the perspective of citizens. The PAPI results are grounded in the everyday experiences of 13,642 citizens, who were selected randomly in order to provide a representative sample of the different demographic groups across the country. Based on this citizen input, PAPI provides a set of objective indicators that help assess the performance in governance and public administration, while at the same time providing an incentive for provinces to improve their performance over the long term.

In contrast, the group of people seeking information about the construction permit application procedure on the portal had a lower level of satisfaction with services received than those who found this information at the One-Stop Shop department. This result does not imply that efforts to promote e-government have not brought much value to the people so far, as there are still people who use the portal to find information more satisfied with the results of the public administrative service they receive. However, this is also an issue that governments at all levels need to do better to ensure that people can access the portal as conveniently and quickly as businesses. Survey results over the past few years (see Figure 4) show that the speed of increasing use of e-government portal is very slow. In fact, the proportion of people who apply for a land use right certificate finding information through the local government's portal decreased in 2019.

Table 1 - Satisfaction with Public administration services (Source, PAPI report 2019)

	Access to certification Procedures		Access to construction permit procedures		Access to land-use-right certificates procedures	
	One-stop shop	Government Portal	One-stop shop	Government Portal	One-stop shop	Government Portal
Very displeased	0.47%	0.13%	0.80%	3.55%	2.54%	2.25%
Displeased	1.81%	1.42%	2.78%	1.07%	7.07%	3.82%
Normal	11.69%	8.30%	16.39%	24.33%	21.15%	17.06%
Pleased	51.73%	47.11%	48.47%	44.23%	45.77%	45.51%
Very pleased	34.31%	43.04%	31.56%	26.82%	23.48%	31.35%
Mean (5 point scale)	4.17	4.31	4.07	3.90	3.81	4.00

In the field of developing e-government, Vietnam is considered as one of 69 countries with high value of E-Government Development Index (EGDI) on the 2020 United Nations' E-Government Survey report. This report ranks 193 UN members states in terms of digital government captures the scope and quality of online services, the status of telecommunication infrastructure and existing human capacity. Besides, Vietnam also reached a high Online Service Index (OSI) and was among the 29 countries with high EGDI and OSI value. It showed that Vietnam has made improvements towards digital transformation. Although the percentage of people have internet access at home and the level of e-government are increasing, there only one Decision No 749/QĐ-TTg dated 03/6/2020 signed by the Prime Minister for the National Program of digital transformation can be considered as the legal frame-work for digitalization data management. Vietnam needs a legal corridor for this process and especially for creating smart cities in the situation that currently, there is no city in Vietnam is considered as a smart city. Despite of the fact that there are several projects of smart city implemented by businesses and developers such as Vingroup, BRG, etc., Hanoi and Hochiminh city have stepped 18 ranks down in the 2020 Global Ranking of Smart city. Hochiminh city and Hanoi is in the 83rd and 84th place respectively in the 2020 Smart city Index which is compiled by the Singapore University of Technology and Design (SUTD) and the Institute for Management Development. These smart city projects implemented by Vingroup or BRG mainly focused on the smart security management and smart home, and lacked of data sharing with other department and institutions. A smart city in Vietnam needs an information center that be able to use local authority's data, business' data and people's data as well as be able to interact among those parties. Moreover, this platform can help sharing knowledge and ideas digitally. This platform also helps to increase the transparency and accountability, and therefore encourage people to participate in the process. These are also the factors related to Chourabi's smart city governance model. In the meantime, one of the important issues in this process in Vietnam is to form a digitalization standard for transformation so that localities, businesses and people can share and use data. It will reduce the wastefulness when each business and localities develop their-own data-base and software with their-own standard as they start to deploy some basic applications for smart cities and smart services.

As showed above, in practice, the formation of e-government is initial part of the development of smart city in Vietnam. However, IT based governance does not guarantee for the successful of the development of smart city. Urban management for smart cities needs to start from sharing data and articulating every smart parts of an IT-based city. Many managers require a unified standard before sharing data, but many agencies require sharing of data before information can be unified. This dilemma is the situation of "which came first: the chicken or the egg?" It can be noticed that if we continue to wait to build a synchronous system, it will take a lot of time. Therefore, these two tasks must be carried out in parallel, both building information standards and sharing data for step-by-step management in a smart way. Urban management of smart cities can be traced back to the construction of smart home blocks, smart residences, smart transportation systems, smart lighting and energy, and smart security, smart water supply and drainage ... and then comes smart governance systems, smart economy, smart life, and smart people. The goal of a smart city is to create a city based on IT with good urban services, effectively managed, satisfying the needs of the people.

5. Conclusion

Smart cities are one of the urban development trends in the early 21st century. The world is witnessing an unprecedented rapid urbanization process and according to the 2019 United Nations report (UN DESA, 2019), more than 50% of the world's population lives in cities and this number will grow to 70%, and cities are already using advanced information and communications technology solutions to provide services to its citizens. Today, a number of countries are moving towards the development of smart cities, providing smart services to their citizens in an efficient and cost-effective way. However, what is smart city or the concept of smart city is still unclear in terms of definition. Smart city is not only a developed city based on a developed IT platform, but moreover, it needs the coordination of smart management factors, smart environment, smart transportation, smart people, smart economy based on data sharing platform, sharing information with advanced IT and communication systems. Among these factors, smart governance will contribute to create favorable conditions for people to participate in urban management.

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