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E-GOVERNMENT APPLICATION AND SMART CITY DEPLOYMENT

Case of People's Committee of District 10 in Ho Chi Minh City

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ABSTRACT

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For more than a decade, with the massive development of technology and the trend of e-government, national governments have been able to interact with their citizens through innovative initiatives such as the Internet and web. It is considered a revolution in enhancing and strengthen the relationship between the government and its citizens. Also, the e-government application has been proved to be part of the smart city deployment. Therefore, this paper aims to investigate the transformation of the governments through the implementation of e-government and smart city, as well as the interrelationship between these reforming projects. The author takes the case of the People's Committee of District 10, Ho Chi Minh City, as the practical context. This research employs the qualitative approach to examine the current opportunities and challenges of e-government application and smart-city deployment. Although e-government and smart city have been gaining massive attention for a long time in Ho Chi Minh City as the instrument for public sector renovation, the adoption and implementation of these phenomena in the whole area is still ambiguous and uncomprehensive. Moreover, very few research in Vietnam have been conducted about the e-government and smart-city utilizations, and even none has been done about the combined linkage of these approaches in this country. Therefore, there is a need to assess the effectiveness of the current implementation as well as the execution of the District's authority regarding this area of examination.

Keywords: E-government, smart governance, smart city, District 10, Ho Chi Minh City

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Chapter 1 Introduction

1.1. Description of research topic

According to Mpinganjira and Mbango (2013), while private sector organizations took a leading role in operating their business in accordance with the use of the internet, a similar trend is now occurring in the public sector. The tremendous development in information technology has supported to address and overcome the manual processing of administrative procedures, achieve higher efficiency and accuracy in public service performance and made possible to conduct administrative reforms as well as to modernize the public administration system (Alcade, Laura & Manuel, 2015). According to Centeno, Van Bavel and Burgelman (2005), e-government has become an indispensable part of public sector reform, as an instrument to achieve the greater efficiency as well as competitiveness. In this trend of globalization and digitalization, countries around the world have recognized that e-government can bring many benefits for their governments and citizens by starting to deliver information and transaction online (Alaa, Fantazy and Kumar, 2016).

When it comes to the term "e-government," it can be immediately followed up that there are significant economic and social benefits it may bring to developing countries, and thereby it may also contributes to the sustainable development of these nations (Bwalya and Mutula, 2014). E-government has not only assisted governments in the role of administrating in order to deliver high quality public services for their citizens and offer greater opportunities for them to participate in democratic institutions and processes, but also meet the need of globalization by applying modern technology. Particularly, the automation of public service processes leads to the improvement of effectiveness and efficiency in public sector's operation, and it also drives the reduction in service time, costs, and overlap as well as duplication of complicated procedures (Mpinganjira and Mbango, 2013). Furthermore, developing e-government has become a significant trend of development in every country around the world, and is one of the most essential contributing factors to the "Smart city" roadmap.

As mentioned, urbanization, technological achievement, and the growing environmental concern and awareness are contributing determinants to the new innovative form of city administration (Höjer and Wangel, 2016). Thanks to the automation, artificial intelligence, and other technological initiatives, the concept of "smart-city" has arisen to describe the extraordinary and comprehensive transformation of the whole management system to enhance the innovation and sustainability (Khan, et al, 2018). Admittedly, the concept of "smart city" appeared for such a long

time ago, also further effectiveness and efficiency are apparently perceived and accepted widely. In particular, the smart city project is acknowledged to embellish the people's standard of living, strengthen the public services delivery, and effectively to exploit the energy resources and natural resources (Ghaemi, July).

1.2. E-government in Vietnam

As a country in the stage of integrating and growing, Vietnam cannot stand outside of the growing digitalization, e-government or smart-city development. Regarding this, implementing and developing e-government from local government to central government has been consistent with the global development trend and it has helped the country to develop and integrate into the world. Particularly, in April 2018, the Government of Vietnam issued the Decree No. 61/2018/ND-CP about the implementation of the single-window system and interlinked single-window system for handling administrative procedures. In October 2018, the Minister issued the Directive No. 30/CT-TTg about enhancing the quality of handling administrative procedures at ministries, sectors, and local government. These plans indicated that the Vietnam government's leaders aimed to reform the public sector by employing modern information and communication technologies for greater efficiency and participation for citizens as well as better delivery of public service.

Further, according to Asia New Monitor (2018), Vietnam's Prime Minister Nguyen Xuan Phuc stated the importance of e-government in pushing administrative reform and emphasized on building e-government as the urgent national task. In addition, Resolution No.17/NQ-CP regarding certain key tasks and measures of development of the electronic government for the period 2019 – 2020 with vision towards 2025 was approved in March 2019. These efforts have had positive effect on Vietnam's position in the E-government Development Index (EGDI), which evaluates the distribution of e-government through performance rating of national governments. Vietnam was grouped in the High EGDI with the value between 0.5 and 0.75. Moreover, in term of Online Service Index (OSI), Vietnam was also assessed as the country with the high level of using information technology in delivering public service at the national level (des Nations Unies, 2018).

In the case of Ho Chi Minh City – the largest economic and finance center in Vietnam, there is the high demand for reforming the administrative procedures by transferring from the queuing "in-line" to online processes to assist government and citizens in enhancing performance and transparency in public administration, lowering costs and reducing service time. Notably, Vietnam's Government published Decree No.43/2011/ND-CP on Jun 13rd, 2011 regarding the provision of

online public information and services or electronic portal of governmental organizations. In the Decree, online public services are categorized into four levels:

- Online public services level 1 implies services to ensure the adequate provision of information related to the administrative procedures and other associated documents.
- Online public services level 2 indicates level 1 online public services and allows citizens to download forms at home and complete the required documents. Then, the completed file will be sent directly at the public agencies or by post.
- Online public services level 3 involves level 2 of public services and allows citizens to download forms and submit online to governmental agencies or organizations providing services. The whole process of transacting procedures will proceed online. However, payment of fees (if any) and result return will be carried out directly at the public agencies.
- Online public services level 4 refers to the level 3 of online public services and allows the payment of fees (if any), and result return will be handled online. In some cases, the result can be sent via post to the citizens.

Additionally, Ho Chi Minh City 's People's Committee and agencies have implemented many measures to pursue and achieve the smart city model in order to improve the local living standards, including establishing e-government through information and communication technology (Asian New Monitor, 2016, 2017). Therefore, setting up e-government is considered as one of the key contributing elements in turning the southern metropolis into a smart city.

1.3. Objectives of the research and research questions

As described above, the public sector reform is extensive and every country needs to consider how the transformation to e-government and towards smart-cities affect its economy and citizens. Hence, this research investigates the reform of administrative procedures and its contribution to the smart city roadmap, mainly, through the application of e-government in Ho Chi Minh City (HCMC), Vietnam. The purpose of this study is to recognize opportunities and challenges related to e-government application, as well as to the smart city deployment in District 10, Ho Chi Minh City. This is a timely a topic in Vietnam and HCMC because the country and the city are both trying to transform and become smart and innovative. This study aims to provide new information to help administrative leaders in Ho Chi Minh City to better understand the transformation and citizen’s

viewpoints when applying e-government and deploying smart city model. To fill these aims, the research aims to answer the following three research questions:

1. What is meant by ’e-government’ and ’smart-city’ – concepts and what are their linkages?
2. How do people adopt the projects of e-government and smart city?
3. What are the main opportunities and challenges in implementing e-government and smart city projects in HCMC?

Since the administrative reform and especially e-government as well as the “smart-city” model are considered timely issues and relate directly to the development of Vietnam, this study aims to answer the research questions in order to better understand how local and state governments can better support and manage the transformation.

1.4. Structure of the thesis

This study has six main chapters. The first chapter provides the overall description of the research topic, research objectives and a short description of the situation of e-government in Vietnam. The second section presents a literature review, and it provides an overview of the theories and concepts used in the thesis. Third chapter explains the methodological approach used for answering the research questions. After that, fourth chapter analyses and discusses the research results. Then, the final chapter reflects the main findings of the whole study, answers to the research questions and provides some recommendations for further research.

Chapter 2 Literary review

2.1. E-government

2.1.1 Definition and categories of E-government

Asgarkhani (2005) defined the term digital or electronic government (e-government), which refers to the governance systems and processes that function under the technology implemented in order to offer their citizens the ability to interact with governments in many different manners, enhance the operational efficiency and service offering, and foster citizen engagement as well as democracy. Technology offers two critical benefits for governments: enhanced operational efficiency by lowering costs and boosting productivity, and increased convenience and accessibility of public services to citizens (Gil-García and Pardo, 2005; Carter and Bélanger, 2005). Similarly, another definition of e-government was presented by Scholl (2015) who states that e-government is a domain of action and study marking the full exploitation of information and communication technology to assist and enhance the government's functions and public services via supporting citizens in their participation in political processes. E-government is also considered as a useful tool in removing barriers between governments and citizens and helping them to interact with each other directly using advanced technology (Chai et al., 2006). Despite the multidimensional and multifaceted explanation of e-government, the key component in all definitions is the use of information technology to renovate the public sector by reforming its internal and external ways of operation and, its interrelationships with citizens and other stakeholders (Ndou, 2004). Therefore, in responding to the increasing demand and expectation of value and quality of public services from the citizens, the investment in information technology is considered to be the worthiest option to attain their satisfaction.

According to Chapwick (2018), e-government includes three categories of technological interactions. Firstly, the internal interaction between government and government (G2G), which deals directly with the effectiveness and efficiency of public bureaucracies. Governmental agencies and departments require collaboration and cooperation with other levels of governments within the state to successfully deliver services to their citizens (Riley, 2001). Therefore, the comprehensive system of sharing data and information between government agencies and departments enables the governmental organizations to speed up their operations. Thus, it also helps in eliminating several impeding causes such as data handling cost, paperwork bottlenecks, and long, bureaucratic and inefficient approval procedures (Ndou, 2004).

Secondly, G2B refers to the external interaction between government and businesses. Particularly, thanks to the advanced communication technology and open data systems, any governmental organizations can easily access to any enterprises' information or data whenever they demand. Similarly, owing to the manner of publicizing the administrative procedures online, governments intangibly provide opportunities for growing business. The accessible and straightforward procedures, bureaucracy reduction as well as legal compliance insurance has supported the transactions to be conducted easier and faster through the digitalization of procedures. This encourages business activities and helps to reduce transaction costs. For example, in term of granting construction permits, it is more convenient for the contractor enterprise to submit it online instead of spending time to go to the authorities and fill out some unnecessary forms.

Lastly, G2C denotes the external interaction between government and citizens; this refers to the online processing of citizens' transactions and online-delivery of public services through the Internet and by using the latest technology. These online procedures enable citizens to participate in and engage themselves in the process of their administrative activities. Apparently, although e-government offers huge advantages for businesses and the government, citizens received the most holistic array of the benefits from e-government (Jaeger, 2003). Information technology opens up many possibilities for the government to be more transparent and minimizing the probabilities for bureaucratic exercises (Ndou, 2004). These interactions are considered to play a vital role in the process of reforming administrative procedures.

2.1.2 Benefits and success factors of E-government

According to Viana, Rust and Rhoda (2005), obtaining mainstream information, transacting with governments electronically and engaging in government's decision-making processes are three primary purposes of e-government in term of assisting citizens and enterprises. To be more specific, e-government allows citizens and businesses to have 24 hours, seven days a week interactive access to all governmental organizations and online administrative transactions with government are conducted from home just by using electronic media such as the Internet, Electronic Data Interchange, telephone touchpad or smart cards (Almarabeh, 2010; Pavlichev and Garson, 2004). For instance, thanks to the tremendous development of information and technology, people in some countries nowadays can pay taxes online, register for their business online, apply for driving license online and so on instead of going to the authorities, queuing in a long line and waiting for their turn to have their transactions handled. Procedures that are in the stage of preparation and submission would be done after one click of the mouse. In some cases, the result would be received online, but in other cases,

people have to come to the authorities to have it in-person. Moreover, owing to the vulnerability to the corruption of governmental officials, as they have more authority of the flow of information over citizens, the transparency and accountability that e-government offers can empower citizens to monitor government implementation more closely. (Kim, Kim, and Lee, 2009)

In brief, e-government serves a variety of different benefits. For example, enhancing the public service delivery, lowering transacting costs (Sarpoulaki, Rad and Saleknia, 2008) and achieving higher accuracy, convenience, and flexibility for citizens when handling administrative procedures are mentioned as the benefits of e-government. In addition, bridging the communication gap between public agencies and citizens (Kumar et al., 2007), helping organizations to manage more inquiries in the same period of time and minimizing duplication as well as overlap between intergovernmental departments (Fallahi, 2007). Finally, it has been argued that e-government helps in fighting corruption (Shim and Eom, 2008).

According to Wang and Liao (2008), to sustain the effectiveness and the proficiency of e-government application, critical factors which contribute to the successful performance of that electronic system should be developed. Moreover, these elements could also are considered as measuring indicators which help to establish an assessing mechanism for e-government's operation. This such evaluation offers governments opportunities in determining the level of citizen's satisfaction regarding public service delivery (Gupta and Jana, 2003). From the review of the research findings of several literature studies, citizen's perspective is indispensable in measuring the success of e-government system. Notably, Chai et al., (2006) emphatically affirmed that the success of e-government rely on the quality of service that government provides toward citizens, and the usability of citizen-centric government website is the primary factor according to that success. As government website, conclusively, is an efficient manner that aims to enhance the quality and speed of public services server for the citizens, Almarabeh and AbuAli (2010) also pointed out that availability and accessibility are two essential requirements of the success e-government. This provides citizens the flexibility and ease in processing administrative activities online 24/7 with the convenient integral web-based system. They no longer need to go to different government agencies for different kinds of transactions when an instant mouse click can help to do the same in minutes.

Furthermore, Kim, Kim, and Lee (2009); Sang, Lee, and Lee (2009); Ndou (2004); Srivastava and Teo (2007); Von Haldenwang (2004), Napitupulu et al (2018) stated that e-government attain the success in implementation when it gains many achievements such as efficiency in the form of cost reduction; enhanced service quality to stakeholders; transparency, accountability, democracy; and competitive advantage gaining. In addition, according to Delone and McLean (2003), the linkage

between the success of e-government implementation and the adoption of information technology is indicated to be correlated. Also, Alomari (2012, 2014) stated that this mechanism's innate ambition aimed toward the customer-centric approach, and citizens play the core concerns in providing public services. Particularly, it means that the more citizens utilize the technology in transacting public service procedures, the further success of that e-government system.

2.1.3 E-government adoption and challenges

Rana et al. (2016) and Shareef et al. (2011) referred the adoption as the public's usage and attitude toward the e-government application since this new technological initiative's obligation is to offer such noticeable benefits to its stakeholders, mainly their citizens. They mentioned the adoption of e-services as the citizens' intention to use e-government but do not include the satisfaction factor. The importance of measuring the level of citizens' acceptance has been affirmed through the great number of empirical studies (Goharipour and Karimi, 2011; Yahya Sheibani, 2012), that it was essential to obtain and assess the citizens' perception regarding e-government as well as the change in their daily behavior in transacting administrative procedures. From the findings of Carter and Weerakkody (2008), the citizens' confidence in the new technological initiative were consistently considered as the most significant determinant impacted on the adoption owing to the provided advantages it brings to citizens. Transacting activities frequently require the user to exchange their sensitive personal information such as identity card, birth certificate, professional qualifications, and so on. Therefore, the impersonal attribute of internet was remained as the most concerned of participants in security measures. From that, the e-services provider system has to prove its quality and safety in order to have a positive influence toward the users' perception and usage. The lack of citizen's trust is claimed to be the intimidating barrier to their acceptance even though the offered relative advantages are apparent (Wang and Emurian, 2005).

However, AlaaAldin, Fantazy and Kumar (2016) expressed several positive factors on the citizens' adoption and satisfaction, such as social influence, system quality, information quality, and perceived effectiveness. They equated these factors without measuring the level of influence like Carter and Weerakkody (2008). These authors expounded when governmental e-services is widely used effectively, the provider system's trust, privacy, responsibility, and reliability are intensified in order to meet the acceptance of citizens. Besides the offered advantages that e-government has claimed to bring to the citizens, there still remain several challenges in implementing the successful mechanism. Since information communication technology is the core contributing factor to efficiency gains and successful performance of e-government (Asgarkhani, 2005; Scholl, 2015), deficiency in

technology investment, insufficiency of technology infrastructure can lead a country into a predicament of deploying e-government (Mukamurenzi, Grönlund and Islam, 2018).

It is evident that without necessary technology infrastructures such as electricity and internet connectivity, it is impossible to implement e-government. In addition, lack of technically skilled personnel is the major challenge of e-government initiative because the availability of appropriate skills is central for successful e-government implementation (Ndou, 2004; Mohammed et al., 2016). Technical knowledge and ability for the establishing, maintaining, and implementing technology infrastructure, as well as skills for utilizing and handling the governmental web-based system are notably necessary (Abdul–Alrahman, 2011). Moreover, other predicaments such as cultural differences (Waller and Genius, 2015), limited financial resources (Alshehri and Drew, 2010), weak legal framework, inadequate digital divide, language barrier, and illiteracy levels (Nkohkwo and Islam, 2013) would lead to the inability to implement e-government and citizens are unable to employ e-government services.

2.2. Smart city

As a familiarized phenomenon for recent years, ‘smart city’ has become a catchphrase and gained excessive attention among countries without a universally agreed definition (Bibri, 2019). Despite of the high frequency in using, the term ‘smart city’ did not include a precise and consistent understanding of the concept (Chourabi et al., 2012). Höjer and Wangel (2016) exposed their concerns relating to the instability of technology assistance toward the ‘smart’ feature of the new innovative city planning. However, they concluded that the term of ‘smart-city’ provoke the comprehensive and ultimate application of technology in the whole national administration system.

Batty et al. (2012) defined that a smart city is a city in which traditional infrastructures and modern technology are joining together. Al Nuaimi et al. (2015) stated that one of the factors contributing to the smart city is that technology is applied for enhancing governance and participatory processes in order to deliver the qualified public service. Likewise, Kitchin (2015) consolidated that smart governance, smart economy, smart people and smart environments are the result of the smart city. Further, Bibri (2018b) argued that technology has played an essential facet as well as a vital attachment to all domains of the smart city. According to Finger and Razaghi (2017), the smart city is layered among the strong interactions between two sides: technology and society. From that, the role of technology in smart city conceptualization was involved as the systematic application and comprehensive penetration to the entire city. However, Nam and Pardo (2011) claimed that for a truly

smart city, the integration and connection of all systems is required as the fundamental basis, in which infrastructure takes the central role and technology is the facilitator that makes it achievable.

Although multiple perspectives in a different context can lead to a variety of different concepts, some commonalities exist among various definitions. First, cities are considered to be smart when they apply technology in their operation effectively (Hollands, 2008; Caragliu, Del Bo and Nijkamp, 2011). Second, while the ubiquitous infrastructures and applications are prerequisites, the human capital is considered as the indispensable component to the success of smart-city (Giffinger et al, 2007; Harrison et al., 2010; Boulton, Brunn and Devriendt, 2011). Third, enhancing public service delivery is perceived as the most crucial purpose of smart city deployment (Washburn et al., 2009; Anavitarte and Tratz-Ryan, 2010). Fourth, the interconnection and integration of systems and infrastructure are prerequisites for the cities to be called smart (Chourabi et al., 2012). Fifth, a further vision toward a better future is also included in several definitions, which present the overall intention of smart city deployment (Gil-Garcia, Pardo and Nam, 2015).

Chourabi et al. (2012) listed out eight factors that help to envision a smart city: management and organization, technology, governance, policy, people and communities, the economy, built infrastructure, and the natural environment. However, this thesis paper focuses on investigating the smart governance – as one of the driving factor contributing to the smart city roadmap. Particularly, smart governance is defined as the information and communication technology based governance (Chourabi et al., 2012) and aims to enable citizen centric services (Das and Misra, 2017). In addition, it has been claimed to be the core element of smart city success (Giffinger et al., 2007).

According to Albino, Berardi and Dangelico (2015), a smart city is conceptualized as the integrated system where there is no isolation between its subsystems. However, in previous studies, researchers have had several ways to break down the concept of a smart city in order to better understand the contributing components as well as the features of the whole system. Giffinger et al. (2007) analyzed smart city as a combination of four segments that focus on enhancing the citizen's life quality, such as participation, industry, education, and technical infrastructure. Giffinger and Gudrun (2010) claimed that a smart city is characterized by six dimensions, namely smart economy, smart people, smart governance, smart environment, smart mobility and, smart living. These six dimensions rely on the traditional and neoclassical theories of urban growth and development. Lombardi et al. (2012) have associated these components with various aspects of urban life. In particular, smart economy relates to the smart industry where the use of technology plays a central role in production processes. Smart people refers to the high level of citizens' education. Smart environment indicates the natural resources. Smart mobility mentions modern transport technologies.

Smart living involves the high security and quality of citizenry. Finally, smart governance refers to the application of e-government, which offers multiple channels of communicating between citizens and governments and opportunities for citizen engagement in administrative activities. Moreover, Anthopoulos (2015) also provided a conceptual framework toward the smart city structure and its components: resource, transportation, infrastructure, living, government, economy, and coherency. In addition to all studies and categorizations, there is yet another way to break down smart city into three multi-dimensional elements: institution, human, and technology factors, as depicted in Figure 1 (Nam and Pardo, 2011).

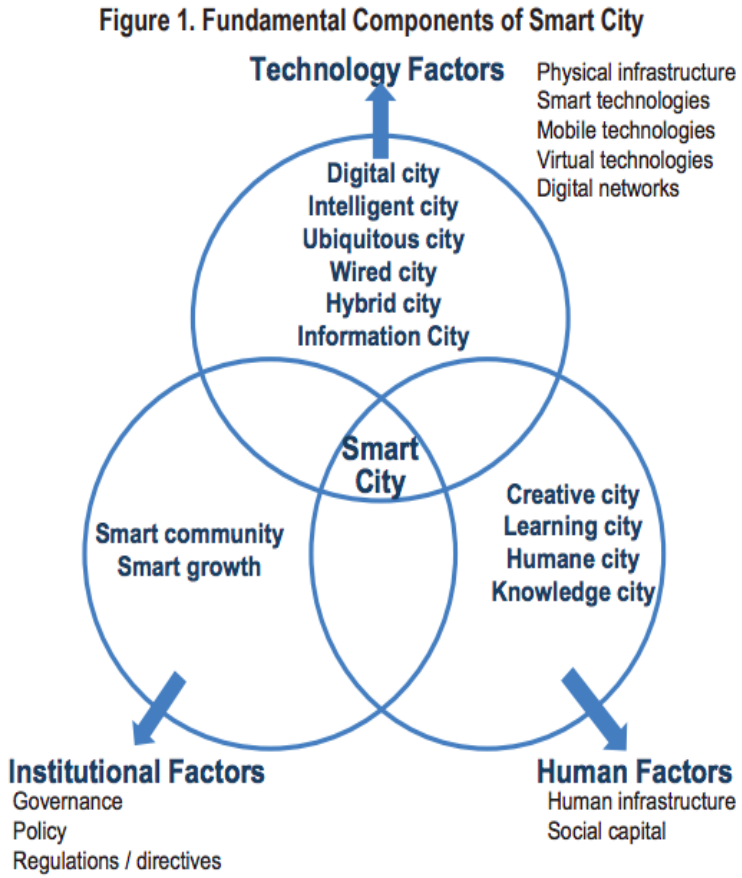


Figure 1: Fundamental components of Smart city (Nam and Pardo, 2011).

These three core elements help to synchronize the transformation of the entire city without omitting any section or area. In other words, it indicates that the absence of any above dimension does not lead to the success of the smart-city deployment. From that, with the immense exploitation of information communication technology, a city with the ubiquitous accessibility and sufficient

infrastructure has a suitable climate for collaboration, information exchange through virtualization, and interoperability (Malek, 2009; Anthopoulos and Fitsilis, 2010; Boulton, Brunn and Devriendt, 2011; Yovanof and Hazapis, 2009). The collection of mobile, virtual, ubiquitous, and smart technologies applied in optimizing the city's operations creates advantages to city dwellers in the mobile lifestyle (Washburn et al., 2010).

Additionally, technology is not the only contributing factor for smart city transformation (Caragliu, Del Bo and Nijkamp, 2011). Giffinger et al., (2007) proved the crucial role of human capital and knowledge infrastructure to the success of smart-city since smart people plays a function as the author or operator of these reforming projects. Concerning human factor (which is illustrated in Figure 1), in order to achieve the success of smart city roadmap, the city aims to attain the creative and knowledge city as well as to seamlessly boost the city's competitiveness. From that, the social human base and learning infrastructure, including skilled workforce, prolific professions, knowledge network, intellectual and social capital, and so on are pivotal axis for the smart deployment of the city (Bartlett, 2005; Florida, 2002; Glaeser and Berry 2006; Plumb, Leverman and McGray, 2007). Moreover, also according to the Figure 1, the technological and human factors are not able to cover the whole meaning of the smart city concept. The supportive policies, reliable and transparent government facilitate the engagement and enthusiasm to cooperate and collude between public institutions and private sector, designing the city's operation and its services becoming absolutely "citizen-centric" (IBM, 2010; Lindskog, 2004; Yigitcanlar and Velibeyoglu, 2008; Nam and Pardo, 2011). As affirmed by many scholars and publications, the citizens' adoption of smart city has brought wide contributions to the economic growth, social stability, and environmental enhancement (Caragliu, Del Bo and Nijkamp, 2011; Yeh, 2017). This explains why the smart city is currently pursued as an innovative and effective mechanism for cooperation between governmental organizations and other stakeholders.

From the national level, technology adoption has proved its beneficial offerings to the wealth of the country via actively encouraging and promoting the production of goods and services, and intensifying the citizens' involvement, therefore, assisting the national economic prosperity and citizens' quality of life, ultimately, expediting the country's worldwide competitive capacity (Comin and Hobijn, 2008; Foster and Rosenzweig, 2010). Hence, the smart is claimed to provide national sustainable wellbeing holistically (Kulkki, 2014). Particularly, according to Su, Li, and Fu (2011), technology takes the leading role in constructing every aspect of smart city employment such as wireless city, smart home, intelligent transport system, smart public service, smart medical treatment, green city, smart tourism, and intelligent urban management owing to the advancement of wireless

network infrastructure and the Internet of things. Apparently, this smart project has exploited effectively the application of automation, artificial intelligence, and other innovation initatives in deployment and implementation to make the wise investment for the future (AllAfrica.Com, 2017). In addition, the smart city is claimed to offer benefits not only in the public sector but also in the private area. While public gains help to meet the public demands due to the enhancement of the services, the private sector also is benefited from the use of innovative and futuristic infrastructure, and the active and consistent collaboration systems (Bakıcı, Almirall and Wareham, 2013).

Aside from the massive offered advantages that smart city has claimed to bring, there remain many challenges in deploying the successful project that some countries probably might encounter. According to Zhang et al. (2017), security and privacy are considered as the first and foremost concerns in applying smart city owing to the private data leakage. Also, Elmaghraby and Losavio (2014) expounded that these challenges include the full availability and accessibility of citizens' locations and activities. From that, due to the impersonal feature of the internet and the increase of cybercrime, citizens afraid of the illegal access and attacks of their information by applying dossiers through the internet. They prefer to put their trust in public servants to submit their personal information such as identity cards, birth certificates, professional qualifications, and so on rather than submit online. Further, research of Bawany and Shamsi (2015) added several challenges concerning the deployment of this reforming project: technology infrastructure, big data management, financial investment. Particularly, since technology infrastructure plays a fundamental role in implementing a smart city project, the lack and insufficient infrastructure remain a significant barrier (Suresh, 2011). Plus, in order to achieve the smart city's objectives, the collection of data across the city must be widely available through the process of collecting, storing, and generating. The need for a big data management system to handle this information is considered extremely vital to the success of this project (Bawany and Shamsi, 2015). Regarding the economic challenge, Alawadhi et al., (2012) mentioned that many countries are facing the budgetary constrains in proceeding smart city initiatives, such as equipping, operating and maintaining.

2.3. E-government in a smart city context

As clarified in the initial description of the entire thesis, this paper is aims to investigate the application of e-government and deployment of smart city, as well as its interconnection through it the implementation of these projects. Therefore, this part proceeds forward to examine the integrated concept of e-government.

2.3.1 Smart governmentin reforming administrative procedures

The smart government is stated to be one of the smart city components and considered as an essential part of driving and coordinating smart city initiatives and efforts (IBM, 2010; Nam & Pardo, 2014). While Mellouli, Luna-Reyes & Zhang (2014) affirmed that smart government indicates the extensive utilization of technology in implementation by governments, Harsh & Ichalkaranje (2015) pointed out that smart government is the transformation of e-government through open data. Similarly, some scholars defined smart government as the next movement of e-government (Savoldelli, Codagnone, and Misuraca, 2014; Du and Qin, 2014) or stated that as the widely use of technology in enhancing collaborative governance (Pereira et al., 2018). In other words, transparency in operation, the large scale of collaboration, and openness in data provision (Gil-Garcia, Helbig and Ojo, 2014) are the main features of smart government. However, smart government and e-government both share the same objective of offering citizens with easy access to accurate, real-time, high-quality services and information with the use of technology (Almuraqab and Jasimuddin, 2017). Therefore, for the scope of this study, the terms "e-government" and "smart government" are used interchangeably.

With the proliferation of technology, e-government has transformed the government's operations and intensified efficiency and effectiveness (Chen, 2002). Likewise, with ample evidence as IT-based models for policymaking, geographic information systems, and business resource management, the information and technology have also been considered as the engine of administrative reform in order to produce better public service to citizens (Kraemer and King, 2006). Although reform intended to be defined as the process of enhancing the internal operations of administration (Brans, De Visscher and Vancoppenolle, 2006), the term "administrative reform" has been conceptualized and recorded by multiple views of points. However, the expected outcome of such reforms should be efficient and productive public service, enhancement of public sector operational administration, and economic growth (Caiden, 2014).

Mainly, in terms of administrative procedures, technology has been a reforming instrument to facilitate the ease of handling administrative transactions through simple and flexible processes. For instance, Beh (2007) provides ample evidence related to the reform of the administrative procedure by applying technology such as cutting off the bureaucracy, simplifying and expediting public service delivery via employing new electronic forms of application, equipping mobile counters and establishing one-stop clearance office. Again, the pivotal role of e-government in reforming administrative procedures is affirmed in many countries all over the world bringing a new stage to

public sector reform (Kudo, 2008). It is obvious that the technology deployment enabled by governments allows the transformation of methods and processes in handling and delivering public services as well as communicating with citizens.

Furthermore, parallel with renewing internal administrative processes by applying technology, ”one-stop-shop services” has also been mentioned as the effective instrument for reforming public sector for many decades. In several studies, the phrase ”single-window system” has been used interchangeably with ”one-stop services,” owing to its similarities in responsibilities and functionalities (Wescott, 2004; Hammar, 2009). Apparently, the separation of power in most governments leads to complicated issues such as tasks overlap, procedures duplication, responsibility avoidance, power abuse. Therefore, Kubicek & Hagen (2000) supported the ”one-stop integrated mechanism” implementation and stated that it is the best solution in resolving these matters. They suggested the model ”one building for all services” to bring multiple departments or organizations together, from that, citizens would cut off time of traveling among governmental agencies and have their dossiers quickly done in a one-time visit. In addition, Liu and Zheng (2015) proved that collaboration among functional departments enhance the organizational effectiveness and efficiency and minimize the possibilities of corruption. Admittedly, the integration of various information systems as well as the departmental collaboration is considered to be a crucial requirement of e-government’s citizen-centric point of view.

In terms of Vietnamese legal documents, Decree No 61/2018/NĐ-CP defines ”single window” mechanism is the method of coordinating among public agencies in receiving dossiers, handling and returning the results of the related administrative procedures, as well as monitoring and evaluating these processes of the authorized public organizations or individuals. In this Decree, Article 8 mentions four tasks to clarify the functionality of the National Single Window (NSW):

1. SNW has to wholly and timely publicize the List of administrative procedures which shall be carried out by SNW, through electronic approach or paper documents; assist citizens in cases of do not able to access online.
2. SNW has to guide citizens on implementing their administrative transactions through different processes, including receiving, transferring, handling dossiers, and returning the result; monitor and evaluate over these processes for organizations and individuals; collect fees (if any) according to regulations;

3. SNW has to coordinate with other public agencies or units to solve, and delivery services to organizations or individuals in cases when administrative procedures require immediate conducted or procedures that are authorized to be solved by the specific official in SNW.
4. SNW has to coordinate with other related public agencies to train for officials, public servants, and employee who are in charge of guiding and handling administrative transactions.

Additionally, Scholta et al. (2019) suggested that governments should progress to ”no-stop shop services” as the integration of modern technology and ”one-stop-shop services mechanism”. Citizens, with the over-reliance to governmental organizations’ operation in every single aspect of life, apparently, would be benefited from the suggested mechanism owing to its ”proactive and predictive paradigm” in some specific cases. For instance, the hospitals are responsible for informing about a birth-giving situation to the registry organizations electronically, and the information would be stored and consolidated through the integrated system then birth certification would be sent to a home for citizens. From that, with the high level of accuracy in data storage, deep integration of functional departments and the proactive and predictive paradigm, public organizations can anticipate which administrative procedures do the citizens need at the particular point of time and then proactively progress these processes for their citizens without their requirements. However, Scholta et al. (2019) also indicated several associated challenges in deploying that paradigm, and affirmed it would not be implemented in every case owing to other unpredictable circumstances such as getting married or opening businesses.

2.3.2 Smart government for smart city deployment

In the process of deploying smart city, smart government is meant to be a cornerstone of the entire application, and characterize the commitment and cooperation among citizens and public institutions in service delivery and decision-making (Glaeser and Berry, 2006; Giffinger and Gudrun, 2010). Hence, the technology-interfered government is a substantial endowment to the smart city's success via merging the citizens' participation and monitoring in order to ensure the transparency in the implementation and decision-making processes (Paskaleva, 2009). According to Anthopoulos and Reddick (2016a), smart city has a dimension of smart government and is considered as a practice area for smart government deployment. Likewise, smart government is the central element of smart city and plays a pivotal role to manage and coordinate smart city initiatives and efforts (Gil-Garcia, 2012; Scholl and Scholl, 2014; Nam and Pardo, 2014).

The ubiquitous governance investment is a significant contribution to the smart city roadmap because it results in smart mechanisms that optimally facilitate the operation of the innovative and advanced city management forms (Anthopoulos and Reddick, 2016b) and enhances the local government efficiency (Khan et al., 2014), such as wireless city (Ganapati and Schoepp, 2008; Scholl, 2014), or green city (Hall, 2000). Also, regarding the further investigation of e-government's contribution as well as association to the deployment of smart city roadmap, several advantages related to enhancing local administration have been specified: bureaucratic practice elimination, paperwork reduction, data utilization, transparency improvement (Neirotti et al., 2014), convenience and safety insurance for public engagement, community participation, and citizen empowerment (Unsworth, Forte and Dilworth, 2014). Moreover, smart government enables a smart city to increase the livability – the city well-being conditions (Marsal-Llacuna, Colomer-Llinàs and Meléndez-Frigola, 2015) and strengthen the city competition as well as reinforce the city competitive advantages in the international smart city platform (Singhal, McGreal and Berry, 2013).

Table 1. Summarizing the key concepts of the study.

	E-government	**Smart city**
Definition	The renovation of government implementation through the application of technology	The comprehensive and ultimate exploitation of technology in the whole city management and development.
Objectives	- Boosting the effectiveness and the efficiency in operation of public sector - Obtaining mainstream information - Electronize public services - Enhancing citizen engagement	- Enhancing the effectiveness and the efficiency in the city management. - Strengthen the interconnection and integration between the internal operation. - Assisting the national economic prosperity and citizens' quality of life - Expediting the country's worldwide competitive capacity

Success factors	- The development of technology - The quality of public services - The availability and accessibility of the government system - Citizen participation	- Technology factors - Institutional factors - Human factors
Challenges	- The defficiency in technology and infrastructure investment - The lack of technical knowledge and ability of public servants - Limited financial resources - Weak legal framework - Inadequate digital divide - Language barrier - Illiteracy levels	- Technology infrastructure - Security and privacy - Big data management - Budgetary constrains

Apparently, when e-government in is connected to the concept of smart city, people prefer the name of smart government since they share the same definition, objectives, and critical determinants (Almuraqab and Jasimuddin, 2017) and smart services evolve consistently to critical functions of e-government. As mentioned, since the smart city study is interdisciplinary, smart government is one of six critical dimensions to the complete capacity of smart city (Giffinger and Gudrun, 2010), and also stands for the institutional factor – one of the three fundamental components of smart city's success (Nam and Pardo, 2011). One explanation for this is that the smart city encourages the citizen participation in local governance and city's management through the technological mechanism (Alawadhi et al., 2012). In addition, e-government is recognized to be one of the most critical innovation solutions to the city's transformation, and the existence of e-government is a result of the fast evolvement of the smart city industry (Anthopoulos and Reddick, 2016). Notably, according to Anthopoulos and Reddick (2016), the interrelationship between 'smart city' and 'e-government' was demonstrated by five corresponding issues: 1) the potential performance of e-government to the local

administration, 2) the application of technology to the enhancement of policymaking, 3) the indispensable function of technology to the smart city's management, 4) the capability of e-government in dealing with smart city's challenges, and 5) the community's' participation and engagement. These five issues were found to be corresponding points between studies on these two domains: smart city in e-government research and e-government in smart city research (Anthopoulos and Reddick, 2016).

Chapter 3 Methodolody

The previous chapters have provided the theoretical framework that brought e-government and smart-city approaches together from the viewpoint of administrative reform. Hereafter, in order to answer the research questions regarding the application of e-government and deployment of smart-city project in District 10, this chapter will describe the collection of empirical data from citizens and public servants in District 10.First, however, the empirical context of the study will be further elaborated.

3.1. E-government and smart city deployment in Ho Chi Minh City

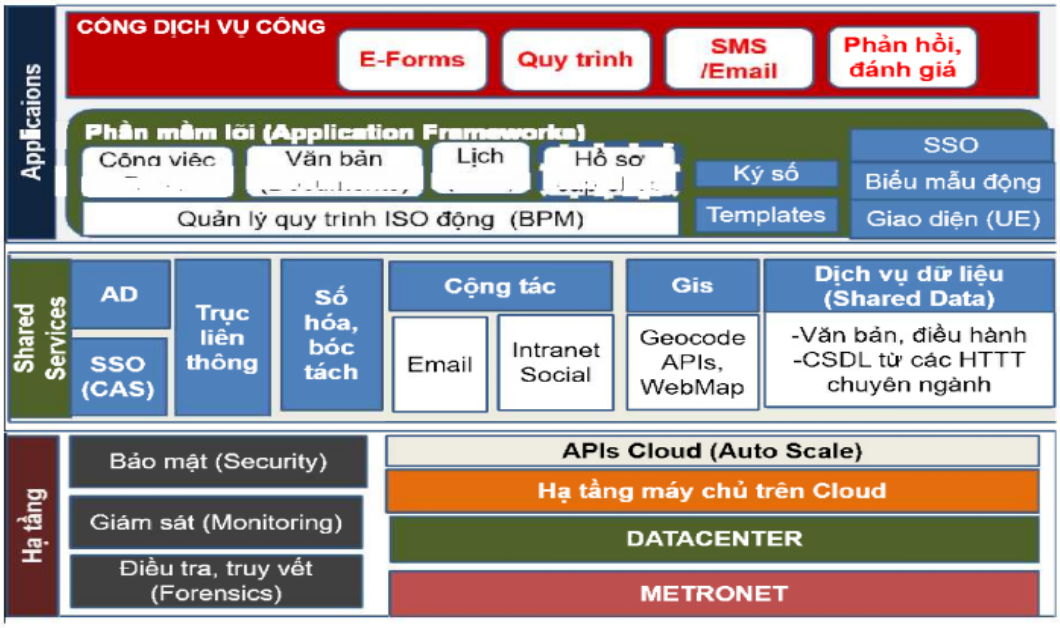
People's Committee is a governmental organization that belongs to the administrative system of the Socialist Republic of Vietnam. It is a law enforcement agency at provincial, district and ward levels. The head of the People's Committee is elected by the People's Council, which is the representative organization directly elected by the local citizens. People's Committee is considered as the most critical functional organization in establishing and deploying all transformation projects. Power of the People's Committee is specified in the Constitution of the Socialist Republic of Vietnam and the Law on Organization of Local Governments "Article 114" (The Constitution Of The Socialist Republic Of Vietnam in 2013):

1. The People's Committee elected by the People's Council is the latter's executive body, the body of local state administration, and is accountable to the People's Council and superior state bodies.
2. It is the responsibility of the People's Committee to implement the Constitution and the laws at the local level, to organize the implementation of the resolutions of the People's Council and to exercise duties assigned by the superior state bodies."

With an attempt to achieve the successful e-government implementation as well as the smart city deployment, Ho Chi Minh City's People's Committee has made an appropriate proceeding. Notably, the model of Ho Chi Minh City's e-government includes:

- Port services involve Information portal, Online integrated public service portal, and Portal to receive opinions, reflecting of citizen (hotline 1022);
- Application of building a collaborative working environment;

- Specialized applications include applications deployed by ministries, sectors, and, organizations, and other specialized applications including licensed applications;
- Shared applications, especially applications of the Core Software system (Ho Chi Minh City E-government Framework);
- Shared Services: System of identification and one-time authentication (Single Sign-On), Enterprise Service Bus, digitized data extraction;
- Data integration and sharing services: Data integration flatform, Interconnection, and storage of text documents.
- Components of physical infrastructure architecture layer such as Metronet network infrastructure, Data Center infrastructure, computing cloud infrastructure;
- Specialized information security and safety assurance system, including applications implemented by ministries and other specialized applications including licensed applications.



Hình 1. Mô hình Chính quyền điện tử hiện tại của Thành phố Hồ Chí Minh

Table 2: the current model of Ho Chi Minh City's e-government

On November 23rd, 2017 Ho Chi Minh City's People's Committee issued Decision No 6179/QĐ-UNBD on approving the Project" Building Ho Chi Minh City into a smart city period 2017-2020, vision to 2025". The project will be implemented in two periods from now to 2025. The first phase until 2020 will establish a technological foundation for smart urban areas and pilot projects to meet the City's essential demands. This project aims to achieve four comprehensive targets:

1. Ensuring economic growth, towards knowledge and digital economy;
2. Enhancing the effectiveness of urban governance;
3. Improving the citizens' quality of the living and working environment;
4. Embellishing the citizen participation in administrative management.

The city is moving to operate based on digital data as an inevitable trend in the world. Clearly, accompanying the development of smart urban is a combination of IT systems, IoT devices, data. Therefore, risks of network security need to be identified and prevented from the beginning. Hence, the establishment of the Information Security Center will ensure network information safety and risk assessment; monitor and attack detection; assist in warning early, timely preventing and handling incidents which related to information security as well as safety for information systems and automation systems, monitor and control systems in the city's critical infrastructure and data.

The People's Committee of District 10 that steers the administration and management of e-government and smart city projects consists of 15 People's Committee at ward level and 12 functional offices assisting the District's authority in specified areas, such as culture and information, economic, finance, environment and resources, labor - invalids and social affairs, home affairs, education, healthcare, inspection, and office work. Each functional office at the level of District has an advisory role to the head of the People's Committee regarding its specified profession. Under the leadership and direction of Ho Chi Minh City's authority, People's Committee of District 10 have carried out various steps towards e-government application and smart city deployment:

- People's Committee of District 10 issued Decision No 1059/QĐ-UBND on January 29th, 2019 about approving Plan of implementing administrative reform in District 10 in 2019.
- On March 19th, 2019, the Plan No 2505/KH-UBND on applying technology in District 10's governmental organizations was approved. Mainly, the Plan focused on enhancing the technology application in the internal operation of District 10's governmental organizations and the external activities with citizens. Also, People's Committee of District 10 promulgated

Plan No 2506/KH-UBND about launching the electronic portal and applying technology in assessing citizen's feedback in 15 wards of District 10.

- On March 20, 2019 People's Committee of District 10 published Plan No 2547/KH-UBND on deploying online public services at People's Committee of 15 wards in District 10.
- Regarding Plan No 7169/KH-UBND on June 25th, 2019 of People's Committee of District 10 about deploying Project "Building Ho Chi Minh City becomes a smart urban area in the period of 2017-2020, vision to 2025", seven primary tasks are mentioned: building civil status database; establishing image processing center, monitoring the security and the public transport through camera system; building electronic portal and assessing feedback mechanism in 15 wards; deploying online public services system; digitizing archives of the District People's Committee; establishing District 10's website portal and applying to handle social order violations electronically; and deploying the model "meetings without papers".

3.2. Research method

This research examines the opportunities and challenges of e-government application and smart-city deployment in District 10, Ho Chi Minh City. A qualitative approach was chosen because it enables to study social events in a natural context, and assists in investigating the circumstances of organization's performance or people's participation attitude (Teherani et al., 2015). Although e-government and smart city have been gaining massive attention for a long time in Ho Chi Minh City as the instrument for public sector reform, the adoption and implementation of these phenomena are still ambiguous and uncomprehensive. Moreover, very few studies have been conducted in Vietnam about the e-government and smart-city utilization, and even fewer studies has combined these approaches. Therefore, there is a need to assess the effectiveness of the current implementation as well as the execution of the District's authority regarding in this area.

As data collection method the researcher uses in-depth interviews of District 10's public servants and citizens who are having their dossiers done at 15 wards (the subordinate unit of the District). Interviews with citizens consist questions regarding their subjective experience and opinion in using online administrative services, what factors satisfied them, and what were the main challenges in or hindrances for using the services. Qualitative approach was found appropriate considering the differences in individuals' thinking and their feedback in terms of e-government and smart city, and the lack of previous study in this field. There were three main themes in interviews: 1) the respondents' acknowledgment and adoption, 2) the success factors, 3) the deficiencies in

implementation, and their interrelationships. From the data, the researcher is able to answer the empirical research questions regarding the opportunities and challenges of e-government and smart city implementation.

The chosen qualitative approach articulates the whole purpose of this paper because in-depth interview method requires interviewees to spend a long time engaging to the conversation to provide a substantial amount of information (Creswell John and Plano, 2007). Regarding the e-government application, as mentioned above, the online public services in HCMC are categorized into four levels. From that, level four enables the entire process of transacting administrative procedures online. Concerning other services' divisions, citizens still have to come to the public agencies for many different directions, such as to submit required papers, to pay fees (if any) or to receive the results. Therefore, in order to directly access to the citizens, who are actually transacting with governmental organizations, the researcher conducted interviews to citizens at the People's Committee of 15 wards in District 10. Since those people are the ones who have practical experience of using public services, they are good informants to tell about the differences between before and after applying technology in progressing administrative procedures. In addition, all citizens are intended to be benefited from the reform; thus, there is no exception to the analogous mechanism - the smart city project. Therefore, similar to the previous manner, the researcher will carry out the in-depth interviews with citizens and public servants to investigate their awareness and personal perceptions toward the on-going smart city project in the District's area.

Concisely, the sample population of this paper composes two groups of respondents, which include 15 citizens aged eighteen or older, and 15 public servants in District 10. Among all interviewees, the majority of e-services participants were at young age, ranging between 18 to under 40. The researcher used opportunity sampling in order to eliminate the personal bias from assessing the contemporary e-services application and the smart city's implementation in the whole district. In addition, deep face-to-face conversation with random respondents expedites the researcher to gather comprehensive and explorative information, which helps to strengthen this paper's persistence. All interviewees agreed to cooperate in answering all the questions that were developed by the researcher. However, regarding several mentioned cornerstones of the conversation, such as success contributing factors, deficiencies in implementation, and the correlation between projects, public servants in District 10 are mainly targeted interviewees for these issues because they are conductors and operators. From that, they could expose their knowledge and feelings from the other perspectives than citizens who are not able to explore this side of the on-going projects. In addition, this is an opportunity to measure and examine the level of acknowledged profession among public servants.

3.3. Data collection and analysis

According to Burns (2000), researchers are claimed to be exceedingly benefited from using structured interviews in collecting data because the researcher is actively leading the conversation and can stick with the interview plan. However, Burns also pointed out several advantages regarding conducting the semi-structured interview in gaining more explorative and comprehensive data from respondents. In addition, the researcher prefers to create an ambiance discussion with interviewees by friendly language, and give them encouragement and opportunities to freely expose their thinking and spontaneously raise back queries regarding any new concepts. This method allows the researcher to follow the respondents' story carefully, and provides flexibly in controlling the conversation in order to draw information as much as possible. Therefore, in this study the researcher initially outlined the interview framework, and then designed the list of open questions with several extensive contents for cases of new ideas come up from the responses.

The interview comprised three components, commencing with some personal questions regarding respondents' age and career. The other two main sections of the interview contain two key themes of the study including e-government application and smart city deployment. However, the researcher actively breaks down the general substances into several mainstays, namely the respondents' acknowledgment and adoption, the success contributing factors, the actual deficiencies in implementation, and their interrelationships. The main aim was to get to know the typical behaviors as well as the satisfaction of citizens in using online public services and also the situation of the implementation. Public servants were asked about their thinking and personal assessment of the effectiveness of the execution of the entire system. In term of the smart-city roadmap, the interview focused on surveying the level of the acknowledgment among citizens and public servants, on seeing whether they have perceived any specific achievement in the deployment of the People's Committee of District 10. Moreover, the semi-structured method allows an in-depth conversation with public servants and a thorough discussion about the relationship between the governmental e-services and the roadmap of the intelligence community. The respondents found these questions difficult to answer and therefore the researcher prepared several further questions to obtain the explorative and sufficient information and brought up some topics based on the literature review.

The researcher conducted the interviews randomly with citizens at 15 head offices of the People's Committee of 15 wards in District 10 during April 2019. The researcher interacted with 30 interviewees including citizens and public servants. Nevertheless, only 22 respondents were willing

to spend their time to participate the interview. Others refused owing to their time restrictions or working conditions. In total, 22 valid interviews were used for the data analysis. In order to meet the interviewees, the researcher had to stop by the head office of each People's Committee of each ward during working hours. The researcher interacted with citizens who were transacting administrative procedures or waiting to receive the results. After the introductions, the researcher strived to create the welcomed and intimate discussion, commencing with asking the respondents for recording permission and informing that they were free to deny answering any questions or close the conversation whenever when they want. Additionally, the confidentiality of their personal information is completely assured. Recording every conversation allows the researcher to stay concentrated during the interview and not to omit or overlook any piece of data afterward.

Language in all interviews was Vietnamese – the mother-tongue of all respondents, to enable a fluent dialogue among the researcher and interviewees, and also help them to fully express their point of view. During the interview, according to the interviewees' background information and responses, the researcher prepared several techniques for guiding and conducting the conversation successfully. For instance, to some citizens have dissension in their explanation and expression, or digress from the main topic, the researcher investigated additional questions in order to gain more detail and particular ideas. Moreover, the researcher had to restate their opinion and ask for their confirmation to make sure the accuracy and adequacy of their responses. As the research's primary theme was related to the whole public sector, some public servants and citizens might hesitantly unveil their actual thinking and, in some circumstances, deliberately point out the opposing opinion toward the executives' leading. Therefore, in order to strengthen the feasibility of this study, the researcher had to re-assure respondents anonymity and encouraged them to cooperate to give contribution to the enhancement of the public sector. Closing the interview, the researcher thanked the interviewees and appreciated them for their valuable information and time spent. After two weeks of gathering the data, the researcher began to transcribe all conversations word by word and prepared to analyze the results. Since this paper chooses to apply the qualitative method, the findings of this interview are generated from the respondents' actual experiences and acknowledgment rather than precise statistics. Therefore, the result must be transcribed word by word in order to ensure the accuracy and reliability of the conversations.

Chapter 4 Research results

As mentioned above, the interviews were broken into two key parts: 'e-government application' and 'smart city deployment' with five subsections. Therefore, the result are presented in five subsections as well.

4.1. The acknowledgment among respondents

Regarding governmental e-services application in District 10, there are 10 out of 12 citizens are well aware that online public services are being deployed and developing. Some said that they knowed it through mainstream media and newspaper, others said these information has come from their friends and family:

> ”People recently says lots of things about e-government on television, radio, and newspaper. At first, I was skeptical about it, so I started to search for information and get to know how the online public services work. After one or two times successfully accomplishing, now I'm pretty confident in using it and also recommend this kind of services to my friends and family.”(Interviewee 3, citizen)

However, some people said that they do not know; even some citizens exposed their apathetic attitude toward this issue. In contrast, all public servants who were interviewed had responsive knowledge on the topic of e-government since their work is associated directly to it. They are considered as the ones who are planning and executing these projects:

> ”If you ask me about e-government, I have to say that this subject is gained massive attention from the top of the city's authority. My colleagues and I must know about it since there are many inspecting campaigns in each month regarding the applying e-government in 15 wards of District 10.” (Interviewee 8, public servant)

> ”E-government is applying in every administrative institution, I think it is the first achievement in reforming the public sector…” (Interviewee 1, citizen)

When the smart city roadmap of Ho Chi Minh City was mentioned, the researcher gained unexpected results regarding the respondents' acknowledgment. Notably, there were only 05 out of 12 citizens showed their consciousness to the transformation of the city.

”I heard a lot about the smart city model on news tv program, Ho Chi Minh city is trying to be another story of Singapore in the next few years. But I have not seen any notable smart project deploying in the area, except for the massive exploitation of technology in public’s sector execution.” (Interviewee 15, citizen)

”I noticed that the Metro station has been under construction for such a long time. This station might be the first and most typical achievement, the representative for the upcoming smart community - Ho Chi Minh City. But I do not really know what exactly the year of completion. Still anticipating...” (Interviewee 2, citizen)

Other citizens show their neglect to the deployment of the city, or some do not even know about the renovation of the city. Regarding interviewees are public servants, they all well knowledgeable of the deployment of smart city roadmap. Though, there were only 4 out of 10 public servants have a high level of acknowledgment concerning this field. Others said that they just know about the deployment, though their working profession are not correlated, so they do not have an opportunity to keep all the detail informed:

”Smart city is prevalent project these days. Though my current workload is super heavy, and I don’t really have time to pay enough attention to the smart city project by reviewing many administrative documents. I mainly find information through reading newspapers and watching television.” (Interviewee 20, public servant)

”I’m working at the Office of home affairs in District 10. I’m in charge of constructing and developing administrative reformation. My responsibility is to undertake the higher authority’s directions in transforming the whole public sector, which is known as one of the most crucial missions of the smart city project.” (Interviewee 21, public servant)

4.2. The respondents’ adoption

Some people have known about the e-government, but they do not tend to use it for some reasons. Some said that they were used to applying manually or that their houses were near to the People’s Committee. ”Face- to –face” transaction give them opportunities to speed up the information exchange between citizens and public servants, from that their dossiers will be completed easier and private information would be prevented from being spilled due to the increase of cybercrime. Especially psychologically, it was inconvenient for some people to adopt new mechanism and learn how to transact procedures electronically. While young people have a high tendency in using online

services, middle and old aged people found that difficult to deal with computer or smart-devices' operation and internet function:

> "I heard that now I can apply several procedures online, but I choose to do it manually because I do not know how to use the internet as well as computers. Though computers have been equipped already at the office and one person in charge of guiding us in transacting online, I still refer to come straight to the receiving-counter to ask for procedure's dossiers." (Interviewee 10, citizen)

For another group of citizens, when e-government was referred, they appraised the new mechanism as the innovative solution for handling administrative procedures owing to the convenient such as time and costs savings. They also said that the publicized online procedures help them to easily access and get information from the portal without traveling to the agent or office or asking public servants because the website service is always accessible. Plus, governmental e-services have changed this group's behavior in using public services, apparently through the increase of readiness of public service participation. Particularly, they satisfy and enjoy using the new mechanism, and are willing to participate in transacting administrative procedures at any time at any places although these procedures are not compulsory at that point of time. This willingness definitely facilitates the administrative management of the entire public sector:

> "I'm working at the bank, so when I need to handle any procedures, I have to ask my boss for a day off. I used to be afraid and hate to applying procedures because it frequently took me 2-3 times traveling to the Office for completing dossier. But now, with the open website, I can easily search for the dossier's component online, and then start to prepare at home for the applying. So now, I just come here to apply procedures, it takes me only 15 minutes with one-time visiting." (Interviewee 11, citizen)

> " I am a public servant working in the People's Committee of District 10 and my house in District 6. One time, when I need to excerpt my birth certificate from – that I have lost for many years. Manually, I have to contact and come to in People's Committee of District 6 to apply for the exception. However, the working hour in every People's Committee is the same, so that if I one to transact my procedure, I have to ask my boss for a day off. Fortunately, as a public servant, I have specific knowledge of this area. Thanks to the e-government application in Ho Chi Minh City, all I have to do now is access to the website: http://www.hotichtructuyen.moj.gov.vn to apply for my birth certificate excerption. After 3 or 5 days of working, the result would be sent directly to my house via post. That such a massive transformation." (Interviewee 12, Public servant)

According to some citizens and public servants, they are all greatly benefited from these such reforms. E-government helps them to manage and control the progress of transacting administrative procedures online, and citizen participation raises the responsibilities of public servants in delivering services.

> ”I used to transact administrative procedure manually, and generally after applying, I have to wait for 7 or 14 days to receive the result. But now, with the open website, I can follow my dossiers’ process closely, to see which specific stage my dossier is being dealt with. If there is any mistake or delay in my procedures, I will be informed instantly.” (Interviewee 16, citizen)

> ”When citizens apply dossiers which require the direct application at the office, I receive, handle, and transfer (if necessary) the file. Also, I am responsible for keeping track of the procedures’ progressing, and actively repairing any impediments at any stages, to make sure that citizens will receive their dossiers on time.” (Interviewee 5, Public servant)

Likewise, as the smart city deployment has made a significant influence on the city’s transformation, primarily affect to the living standards of all citizens, this reforming project has gained massive attention and also the public’s concurrence. Not only citizens are benefited from this deployment, but also public servants have their own convenience and effectiveness in their work:

> ”The rapid growth of population in Ho Chi Minh City, especially in District 10, has led to the infrastructure overload, which has caused many consequences such as traffic congestion, flooding, environmental pollution, complex crimes, lack of housing, and health services… Therefore, I believe that the priority for the city is now to establish the smart reforming project to ensure the issuance of reasonable strategies and policies to address these problems and also promote Ho Chi Minh City’s sustainable socio-economic development.” (Interviewee 12, public servant)

> “When I knew that Ho Chi Minh City’s authority has been transforming the city into the smart concept, I think that it is such an incredible idea to turn Ho Chi Minh City to be the second Singapore with the high technology infrastructure offering citizens with a higher standards of living in every aspect of our life. Though the process has just begun recently, lots of architecture are under construction such as buildings, public transportations, road, road and bridge construction.” (Interviewee 13, citizen)

4.3. Success factors

In order to have the accomplishment of e-government and smart city projects, the need to specify the contributing factors to success is mentioned. From that, the authority of District 10 would be able to figure out the comprehensive strategies in order to achieve their objectives. Different views of point lead to different perceptions toward these contributing factors. Particularly, out of 22 respondents, total ten public servants participated in the interview, most of them are well acknowledged about the e-services application and smart city project and stated that ”citizen participation” play an essential role in the success of these reforms:

> ”In the guiding documents of higher authority, the main aim of e-government and smart city projects is serving citizens and make them satisfied with the services. Thus, we try to reform the administrative procedures through e-government in order to make it convenient for them in transacting. While citizen participation is a necessity, their satisfaction is sufficient conditions to the success of e-government implementation.” (Interviewee 28, public servant)

> ”The primary responsibility of the authority is that it always takes care of citizens’ lives and continuously enhancing their living standards. The deployment of smart city project focuses entirely on the factor of citizens. In every meeting, we keep raising questions about whether the sub-projects are welcomed by the public or not, whether it brings convenience to them or not… The higher authority uses citizen participation and satisfaction as the critical success measurements of the e-services project. We have to reform to attract citizen participation continuously. The more effectiveness that it brings, the more citizens enjoy using it.” (Interviewee 4, public servants)

Nevertheless, some interviewees assumed that the development and sufficient of technology and assessibility are indispensable to the accomplishment of these project owing to its massive advantages in implementation:

> ”In my opinion, e-government and smart-city projects are never success without the sufficient infrastructure, mainly, without the internet connection and the availability of computers or electronic devices, I can not do anything except going straight to the office and keeping transacting manually…” (Interviewee 6, citizens)

> ”I witnessed one frowning situation, when I almost finish transacting administrative procedures online for one of my cousins at my home town, the electricity went out and

my computer suddenly shut off. You know that I have to wait until the next day in order to complete the procedures." (Interview 7, citizens)

4.4. The defficiencies in execution

There are still existing several concerned challenges of applying e-government in District 10, mainly, the lack of infrastructure and knowledge are two problematic issues that most mentioned by all public servants and citizens. Although District 10 is considered as one of the central areas of Ho Chi Minh City, the standard of people's intellectuality in the whole area is different from every person. Hence, the ability to utilize the web-based mechanism and technological devices also differ from each citizen. Whenever they are not able to use the online public services influentially, they still want to stick to the traditional way of transacting procedures. From the perspective of public servants, the obsoleted and insufficient infrastructure and, the lack of information-technology officers in 15 wards have remained as the core contributor to this predicament.

> "At the level of district, we have several technological staffs to timely support the technical problems and replace the aging infrastructure in order to maintain the continuity of serving citizens. But at the level of the ward, with the limited budget and human resources, when there is the computer or web-based error, public servants reported to the supervisor and ask for the repairing permission and fees. Until then, civil servants have to delay transacting online and guide citizens to apply manually. ... From that, another administrative procedure is generated between public servants and their supervisors through the process of asking for permission and money. All these things are supposed to put more pressure on citizens by lengthening the time of transacting procedures. .." (Interviewee 12, public servant)

Additionally, some citizens responded that the application of e-government is not useful in the whole conception. They admitted the prosperity of the transformation, but not the synchronization of the entire process. It still brings them difficulties in transacting e-services effectively:

> "Even though now I can participate in the online public services, with several procedures, I have to it manually. Because some procedures require the participants to appear at the offices or demand the authentic paper that we have to submit directly." (Interviewee 9, citizen)

Regarding the deployment of smart city roadmap, the researcher found it impracticable to ask citizens about their conception since there are no specific achievements of this project perceived. However, when the researcher asked public servants about their personal thinking, they exposed the opposing feedback or suspicion toward the implementation of authority concerning several deficiencies.

> ”I really appraise the project, however, when you ask me about the effectiveness.. hmm. I have to say that I’m not really sure about it. Since the application of a smart city is transacting at the low speed, step by step, so maybe the citizens hardly perceive any specific change in the transformation of the city. To public servants, we all know about the project as the widespread phenomenon, but as I know, the deployment of smart city model in the whole city is not comprehensive. It is implementing separately in each section without the consistent interconnection. So the effectiveness of the project is not assured.” (Interviewee 17, public servant)

> ”Hmm.. about smart-city?...Hopefully it will work in the future... ” (Interviewee 20, public servant)

> ”I do not really think the effectiveness of these reformations. Although the providing benefits are apparently perceived, the matter of the problem is the application. For instance, the People’s Committee of Ho Chi Minh City set up the online conferences with the People’s Committee of District 10. It requires the participation of all heads of divisions. I have to say it really takes time and unattractive. We already have the agenda of the meeting, however, the other sides of conferences keep reading exactly the same what is written on paper.” (Interviewee 25, public servant)

4.5. The interrelation of e-government and smart city projects

In the concept of innovative transformation of the city, public servants are aimed at the targeted respondents in the question of whether it is any influence or contribution of e-government application to the deployment of the smart city roadmap, and vice versa. Since public servants are a direct conductor and have a certain level of acknowledgment of these such deployments, they are considered to give reliable and objective responses toward this connection. Surprisingly, there were 100% of public servants in this paper agreed on the positive inter-correlation between these projects:

”As I know, the e-government is one of the core responsibilities of the Project of building a smart city in Ho Chi Minh City. The higher authority initially oriented to build up and turn Ho Chi Minh City to the smart city, then the e-government project was established as the beginning step of achieving the success roadmap... Therefore, I firmly believe that the success of e-government consistently leads to the successful transformation of the smart city.” (Interviewee 30, public servants)

”In my opinion, the term ”smart city” envisage me the holistic, intelligent and modern city with the effective use of technology in order to reconstruct the people’s lives in the fundamental and significant ways. Likewise, the term ”electronic government” provoke my thinking toward mobile and virtual governmental organizations. It also transforms the public sector’s operation to serve its dwellers better. Hence, I think that these projects are definitely affected by each other in many ways… The smart city is never called ”smart” when its government keeps function in the obsoleted mechanism, and vice versa.” (Interviewee 27, public servant)

Even though public servants are aimed to be the targeted respondents in this issue, several citizens showed their interest in e-government and smart city concepts — they enthusiasm in answering every question and willing to respond to all extras from the researcher. At first, the researcher was skeptical about the quality of the provided information. However, citizens observed the problem in another view of point and brought the topic to another aspect of the investigation. From that, particularly, when one citizen raised his opinion regarding the smart city deployment, he compared the perceived achievement of the deployment of smart city and e-government. Though he partially exposed skeptical attitude toward the unfinished projects:

”Owing to the recent deployment of smart city project, there is a great deal of smart architectures are under construction such as Benthanh metro station, Public security monitoring center, Information security center… Therefore, I initially perceive the efficiency in public sector transaction through the timely implementation of e-government project. I still waiting for the completion of Benthanh metro station, if this project is under operation, I believe it would change the face of the city’s transportation.” (Interviewee 19, citizen)

Chapter 5 Discussion

5.1. The acknowledgment and adoption among respondents

On February 18th, Ho Chi Minh City's People's Committee Office promulgated the Decision No 79/QĐ-VP on issuing Plans of examining administrative procedures, applying information technology and developing e-government in Ho Chi Minh City. According from that, the Plan No 2505/KH-UBND of the People's Committee of District 10 was issued on applying technology in the execution of the whole public sector, the main content of the Plan heavily focus on reforming administrative procedures. These activities related directly to the citizens, thence, the interview's result showed that most of them are well aware of the e-government through the applying technology in transacting procedures in 15 wards of the District.

Although there are few citizens, show their skeptical attitude or even do not interested in the online procedures and smart concept of Ho Chi Minh City, others have a great acknowledgment and adoption of these projects' application. It is similar to the findings of Carter and Weerakkody (2008), trust plays a critical role in the adoption of citizens. Though the effectiveness of e-government is currently observed and accepted widely, and also there is a sufficient technology and accessibility, some citizens without the confidence in the new mechanism choose not to participate in the governmental e-services. They prefer to put their trust on public servants to submit their personal information such as identity card, birth certificate, professional qualifications, and so on rather than submit online. Due to the impersonal feature of the internet and the increase of cybercrime, citizens afraid of being spilled or stolen sensitive information by applying dossiers through the internet. However, some cases fit the study of AlaaAldin, Fantazy and Kumar (2016), some citizens first using e-services thanks to the recommendation of family and friends. After several times of successful experiencing, citizens have more confidence in the system's quality. From the responses of interviewees, it is evident that e-government has brought a great deal of convenience to all citizens, including public servants – whom actual experiencing the e-services as the position of citizen.

Likewise, concerning the smart city deployment in Ho Chi Minh City, when citizens have not perceived any specific achievements from the smart project, they are unconscious to the development of the city. Even that some citizens have heard about the implementation of Metro station - the first step of accomplishment of the smart project, still the station has been under construction for several years. Hence it boosts the suspicion among citizens toward the smart city deployment. These findings appropriate with the conclusion of both studies Carter and Weerakkody (2008) and Carter and

Weerakkody (2008). On the other hand, the concept of the smart city is contemporary abstract and entirely unfamiliar to the citizens; also, it composes the abundant dimensions (Giffinger and Gudrun, 2010; Lombardi et al., 2012; Anthopoulos, 2015). Thus, it is impractical for all interviewed citizens to envision and adopt this conceptual approach without recognizing any procurement.

Nevertheless, being equipped with the higher level of expert knowledge, public servants definitely know about the application of these reformations in the area of District 10. Also, the Plan No 2505/KH-UBND promulgates several primary obligations for public servants: establishing and enhancing the technological applications to serve for the operation of the entire People's committee. From that public servants are demanded to update the portals seamlessly and managing software of the District and 15 wards, intense the applying scope of the level 3 and 4 of the administrative procedure, reduce the length of times to handle procedures for citizens. Since they are conductor and operator, they are able to perceive the attainted advantages, mechanism's quality. Plus, they are responsible for advertising the e-government application in order to influence and gain their confidence in using the e-services. They are considered as the pioneer in utilizing technology in every domain of the city and contribute to the smart community comprehensively. For instance, concerning the inter-operation of public sector, public servants are required to use governmental email account and digital signatures, utilize the document management software in working, equip mechanism for citizen to rate their satisfaction in each wards. Also, the city's authority currently attempts to eliminate paper in every meeting through increasing the furnishment of technological devices, and gradually digitalizing all stored data and documents. This innovative initiative helps to design mechanism to bring the concept of "smart city" more closer to the public sector.

5.2. Success factors

In the literature studies of several researchers (as fully expressed in 2.1.5), there are ample of factors contributing to the success of e-government and smart city from their extent perception. Regarding e-government application, although after analyzing from all the responses of this paper, as the position of citizens, they pointed out the sufficient technology infrastructure and ubiquitous accessibility is a critical contribution to the success (similar to the conclusion of Almarabeh and AbuAli, 2010). This absolutely fit the context of District 10, thanks to the adequate furnishment of technological infrastructure in 15 wards, the citizens are more able to reach the e-services application with the intimate guidance of public servants.

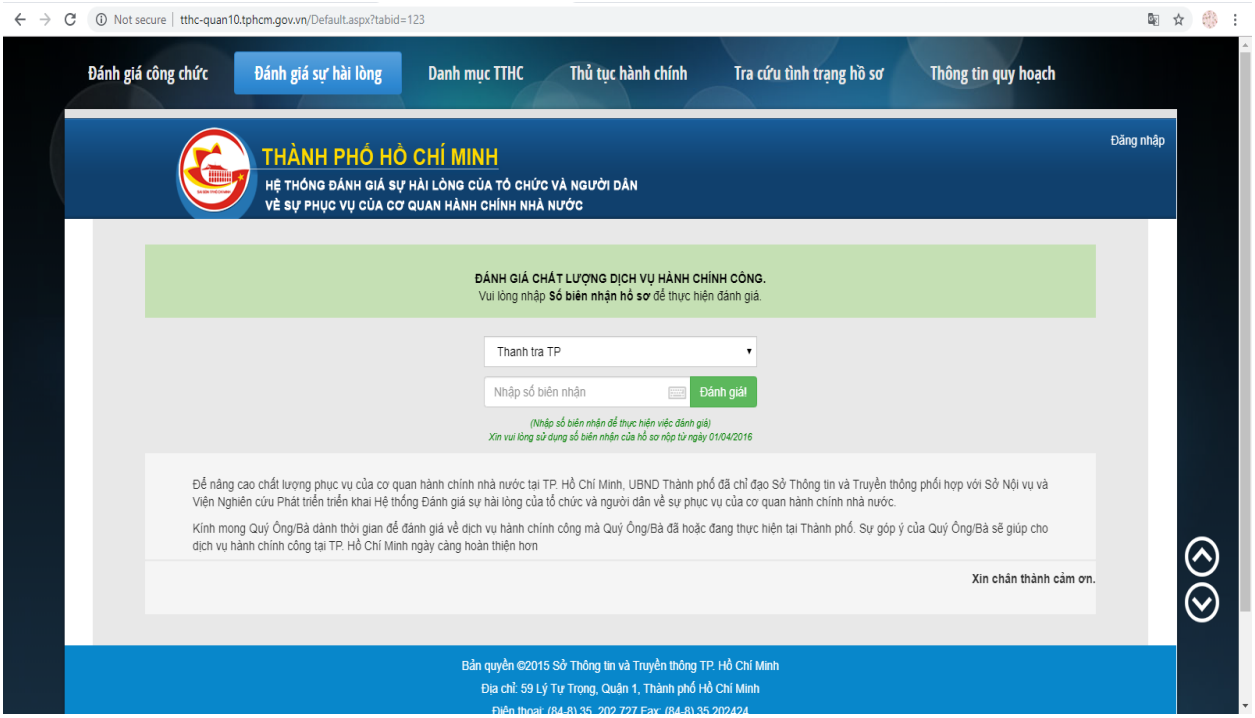
Picture 1: Citizens can search for instruction or information from kiosks.

Still, the availability of technology and instruction support is not convinced enough for some citizens to participate in e-government owing to their typical behaviors and satisfactory experiences in transacting manually. Otherwise, public servants in this study perceived the issue in another approach. Since they are conductors, they obviously expect the enthusiasm of citizens' participation; this finding was supported by Gupta and Jana (2003). Plus, in the policies of the People's Committee of District 10, public servants in 15 wards are encouraged to propose creative solutions in reforming administrative procedures. Particularly, some typical solutions are recorded in the Report No 3529/BC-UBND about the result of administrative reform's inspection in District 10 year of 2019, such as receiving feedback from citizens through Google drive and Zalo – a free messages and call application; allowing citizens to book for appointment to handle the administrative procedures through Google drive and publicizing these procedures by video; establishing the messenger mechanism to inform the citizens when their dossiers are done, cooperating with the delivery services of post office to transfer dossiers to citizens immediately; and conducting the survey of citizens' satisfaction through Google drive. Moreover, on November 23rd, 2017 Ho Chi Minh City's People's Committee issued Decision No 6179/QĐ-UNBD on approving the Project" Building Ho Chi Minh City into a smart city period 2017-2020, vision to 2015". The project will be implemented in two periods from now to 2025. In which, the first phase from now to 2020 will establish a technological

foundation for smart urban areas and pilot projects to meet the City's essential demands. This project aims to achieve four comprehensive targets:

- Ensuring economic growth, towards knowledge and digital economy;
- Enhancing the effectiveness of urban governance;
- Improving the citizens' quality of the living and working environment;
- Embellishing the citizen participation in administrative management.

These supportive policies of the city attempt to facilitate the reformation of administrative procedures in order to make the city dwellers pleased and satisfied when participating. Citizens now can show their satisfaction through the available kiosks in every ward, or they can access the website of the People's Committee to raise their feedback. From that, the People's Committee of Ho Chi Minh City directed the Department of Information and Communications to coordinate with the Department of Home Affairs and the Institute of Development Research to develop the assessing mechanism regarding the satisfaction of the organization and the citizens toward the public services delivery. However, in order to ensure the objective results and eliminate the bias, whenever citizens give feedbacks at home through the website, they have to enter the number of receipts – which provided when citizens have their administrative procedures transacted.



Picture 2: Citizens have to enter the number of receipt whenever raising feedbacks online

Furthermore, citizen satisfaction in District 10 is also strengthened in the facet of increasing the quality of public servants' performance. On 31st Jul 2019, the People's Committee of District 10 has opened the course of training the ability to craft the administrative documents and enhancing the attitude of dealing with citizens for all public servants in the entire district's area. From that, whenever citizens raise their complaints regarding the slow progressing of administrative transactions or the attitude of public servants, the responsible and related public officials have to write the clarification statement to the supervisor of the district to expound the reasons for citizens' disappointment. Also, that public servant has to send an apology letter to that citizen. Plus, the People's Committee of District 10 immensely facilitates the engagement of citizens through establishing channels of receiving citizens' feedback, such as by mail, hotline call, or even by documents. Moreover, as it is mentioned in the Report of performance results of Public administrative governance efficiency index (Public Administration Performance Index - PAPI) in District 10 in 2018, there are six primary inquiries were included: gaining the citizens' participation; enhancing the transparency and accountability; being responsible to the citizens; controlling corruption in public sector; reforming administrative procedures; and boosting the e-services. These mentioned inquiries were focused on improving the citizens' satisfaction and consider the citizens as the crucial role in the implementation of the whole public sector. From this, the city's authority published regulations and score scale for 24 districts to self-ranking, and this index currently becomes one of the most reliable approaches to assess the performance and capability of the district's authority in implementing public administration. This ranking intangibly boosts the competitiveness among districts' authority in fostering the responsibility to their citizens. Similarly, with the attempt to achieve citizen satisfaction, District 10 welcomes any suggestive initiatives in reforming the public sector to increase the operational efficiency and to bring convenience to the citizens. Particularly, in order to reduce the inconvenience for citizens, the authority in several wards of District 10 have furnished the online mechanism for their citizens to set up the appointment in advance for transacting administrative procedures, and also freely raise their feedback or petition straightforward to the head of each ward at any time. From these such endeavors, citizens have consistently confirmed their essential part to the accomplishment of administrative management. Thence, all public servants in this paper articulated the citizens' engagement, or satisfaction is the critical attaining factor of the successful e-government application. Whereas other literature researchers affirmed the efficient performance, quality of services, transparency, and democracy are mandatory requirements (Chai et al., 2006; Kim, Kim and Lee, 2009; Sand, Lee, and Lee, 2009; Napitubulu et al., 2018). Still, this finding is somewhat akin to the conclusion of Alomari (2012, 2014) cause both embraces the center role of citizens in governmental implementation.

The difference in perceptual thinking and responses between citizens and public servants in this paper regarding this issue is accessible. From the position of citizens - as the passive participants, they tend to over-rely on the technological furnishing of governmental organizations and state the importance of technology to that success. Whereas public servants play an active role in implement these projects, they perceive this situation from the other views of point. Public servants attempt to assuage the participation of citizens by establishing the new mechanism in the public sector's operation. Because according to Vietnamese legal documents and also Vietnamese head of the authority, the main objective of the City's and District's authority regarding this area is designed and establish the innovative mechanism, which comforts the massive effectiveness and efficiency of citizens. Plus, the level of citizen participation assesses the success of the new mechanism. Thus, from the aspect of public officials, citizens' satisfaction makes a considerable contribution to the accomplishment of their implementation.

Concerning the smart city deployment, the interviewees include citizens and public servants had the same manner in answering questions toward this issue and the e-government application. Nonetheless, in the framework of Nam and Pardo (2011), which is fully expressed in 2.2.2, technology, human, and institutional factors are three fundamental attaining elements. The provided literature has captured the comprehensive conception of the smart community, without omitting any section or area. When in fact, citizens from this interview concern about the technology factor (sufficient infrastructure and ubiquitous accessibility) and public servants showed their attention to the institutional factor (citizen-centric). This result overlooked the crucial play of human factors – as the importance of creativity, learning, humane, and knowledge. Though the Project of "Building Ho Chi Minh City becomes a smart urban area in the period of 2017-2020, vision to 2015" has emphasized on the importance of human factor by increasingly seeking for the innovative and creative solutions to gradually transform the entire city. It is evident that the higher authority has recognized the significant standing of human factors to the success of smart city projects and commenced to cultivate qualified people in order to be able to work for these such projects. Most of the respondents in this paper are considered to misconstrue the strategies of the City's authority. One explanation for this is that all respondents are subordinated public servants and citizens in every wards. Hence, they only raised the most aching problem base on their actual transacting experiences.

Regarding the basis preparation for applying e-government in Ho Chi Minh City, in the Decision No 6179/QĐ-UNBD on approving the Project "Building Ho Chi Minh City into a smart city period 2017-2020, vision to 2025", Ho Chi Minh City's authority aims to focus on setting up the basis

for Architecture of E-government Framework and deploying technology infrastructure for four critical contents of the Project, including:

1. Building a Shared Data Warehouse and developing an Open Data Ecosystem for the city
2. Constructing the city's Smart Operation Urban Center
3. Building a Center for simulating socio-economic forecasts
4. Establishing the city's Information Security Center.

5.3. The defficiencies in execution

However, from the interview, another finding regarding the predicament in the execution of the authority of District 10 could be referred is that the inadequacy of the ubiquitous and sufficient infrastructure and accessibility. Plus, some public servants are lack of technical skills to function the smart system, and on-time managing any. It is supported by Mukamurenzi, Gronlund, and Islam (2018), the absence of electricity, internet connectivity, and digital devices as one of the formidable barriers to implementing these projects and Mohammed et al., (2016) stated the significant role of technical labors in organizations. The Report No 3529/BC-UBND also points out the actual deficiencies of 15 wards when applying e-government and further recommends the appropriate solutions. Particularly, the Report mainly mentioned the need for equipping and improving the quality of computers and kiosks and also strengthen the connectivity. Moreover, the interview found out one controversy related to the application of smart city and e-government. Note, some citizens criticized the piecemeal synchronization of the application owing to the infrequently observed operation of these projects. However, some public servants clarified that Ho Chi Minh City's authority aims to achieve gradual and progressive development. In other words, they attempt to reform the city partially step by step in order to attain a comprehensive transformation. One example of this is that based on Decree No. 43/2011/ND-CP on June 13rd 2011, regarding the provision of online public information and services or electronic portal of e-governmental organizations. From that, the Decree, online public services are categorized into four levels ranging from one to four. Mainly, while governmental e-services level 1 and 2 allow citizens to access to the information provided and download forms at home, administrative procedures level 3 and 4 can transact online most of the stage. That is the typical evident for the gradual synchronization of applying reform projects. Though, the Decree also gives the reason for such division of online public services is that due to the complexity of the current administrative procedure's requirements. The city's authority exposes its consideration toward the

spontaneous reformation of the whole sector. Therefore, these projects should be conducted step by step in order to assess the effectiveness timely.

Picture 3: Citizens have to come to the office to transact online public services level 1 and 2

5.4. The interrelation of e-government and dmart city projects

When researching the inter-relation between e-government and smart city, the researcher aimed to investigate the public sector, whether they perceive the effect of e-government to smart city, and vice versa. According to Vietnamese legal documents, particularly in Plan No 7169/KH-UBND of People's Committee of District 10 about deploying Project ""Building Ho Chi Minh City becomes a smart urban area in the period of 2017-2020, vision to 2025", it is apparent that the Plan has prioritized the initial mission is that setting up the e-government system with the high responsible public servants who are equipped with adequate skills and acknowledgment to serve the citizen. Similarly, from the level of national administration, the Vietnamese government set out three fundamental objectives in order to conquer the smart community projects. That is the construction of three organizations: Smart Operation Center, Integrated Traffic Information System, and E-government's Steering Committee. Therefore, it can be inferred that the e-government application is

one of the crucial component to the whole transformation of the city. Similarly, from the analysis of all gathered responses, these two concepts are also claimed to be effect positively to each other since the success of e-government contributes to the development of smart-city. Public servants in this study confirmed that reforming the administrative procedures by the e-service system is one of the primary responsibilities of the smart-city project and, e-government is also considered as the indispensable and practical initiative for enabling a smart city. The city is smart when technology is exploited and utilized in every domain of the city's management. Although Anthopoulos and Reddick (2016) raised five extensive issues regarding the corresponding connection between smart city and e-government domain, this paper aims to identify their same finding regarding the potential capability of e-government in facilitating the smart city deployment.

Moreover, it is mentioned in the interview by one citizen that owing to the recent deployment of smart city project and a great deal of smart architectures are under construction, citizen is now initially perceive the efficiency in public sector implementation through the timely and effective application of e-government. Hence, e-government is evidently believed to be the main steering factor in executing the smart city project. This verdict is definitely prevalent in the finding of Bibri (2018b).Furthermore, from the conclusion of IBM (2010) and Nam & Pardo (2014), smart government is mentioned as the component of smart city roadmap. Plus, smart government and e-government are both defined as the utilization of technology in the operation of the public sector, and they both share the same objectives (Mellouli, Luna-Reyes & Zhang, 2014; Almuraqab and Jasimuddin, 2017). Also, in the context of Vietnam, these two phrases are used interchangeably in legal and administrative documents, and also newspapers. This fact supports the inter-relation between these two concepts: smart city and e-government, that the successful e-government implementation accelerates the success of the smart city roadmap.

Chapter 6 Conclusions

6.1. Answers to research questions

This paper investigated the opportunities and challenges of e-government application, as well as the smart city roadmap in District 10, Ho Chi Minh City. The aim was to provide new information to help administrative leaders in Ho Chi Minh City to better understand the transformation and citizen's viewpoints when applying e-government and deploying smart city model. With this purpose, the study set four research questions:

1.What is meant by 'e-government' and 'smart-city' – concepts and what are their linkages?

2.How do people adopt the projects of e-government and smart city?

3.What are the main opportunities and challenges in implementing e-government and smart city projects in HCMC?

A literature review answered the first question, and the results were summarized in section 2. Notably, while e-government is the application of technology in the public sector's implementation, a smart city is the extensive and ultimate exploitation of technology in the whole city management. From these concepts, they both share the commonality in the massive intervention of technology and attempt to maximize the effectiveness and efficiency in implementation to serve for the citizens. However, it is evident that the e-government application is a practical and innovative solution to the construction of a smart city. E-government enables smart cities through its fundamental functions such as smart services deployment, transparency and collaboration enhancement, and bureaucratic elimination, etc.

In order to answer the second empirical question, a qualitative interview study was conducted. For the data gathering, the researcher interviewed 22 persons including citizens and public servants. The results were not consistent. Some citizens are conscious of the transformation of the government and the city some are not. However, all the interviewed public servants were well aware of these projects. The adoption of e-government and smart city among citizens and public servants in District 10 depends on their level of acknowledgment. It is apparent that when participants recognize the prospective advantages and benefits that the reform brings to them, they have a high tendency to use and support the new mechanisms. From this, the Ho Chi Minh City authority in general and the People's Committee of District 10 have to reevaluate the current public engagement system, whether the actual effectiveness and efficiency of these projects are popularized to all citizens in order to gain

their acknowledgment. Particularly, in the Report of District 10's implementation of administrative reform in November, 2019, the popularization of online public services has been intensified by many approaches, such as repeating videos on led screen in District's administrative center, publishing 6000 handbooks and 5000 brochures to popularize the online public services level 3 and 4, holding seminars and conferences to discuss and share experiences in transacting procedures online. Moreover, the implementation of these reforming projects deserves serious consideration from the government since the success of these transformation reflects the capability of the local authority.

Moreover, there are two different responds between citizens and public servants in District 10 regarding the success factors of these reforming projects. The result exposes the actual circumstance of the application of e-government and smart city projects in the entire district, and also reflects the perspective of respondents. In the viewpoint of citizens, technological factors play a critical role in the application of e-government and constructing the smart city. They definitely perceived insufficient technology and accessibility, and experienced the inconvenience when transacting administrative procedures manually, and also the deficiency of modernity and innovation in the city's management in an extended period. The recognization of these deficiencies was collected from a minority of citizens. In contrast, others exposed their considerable satisfaction toward the effort of the District's authority in furnishing the infrastructure and accessibility in 15 wards. However, in order to achieve the success of these applications, the importance of technological factors has been firmly assured by citizens.

On another hand, all public servants in this paper target "citizen participation" as the contributing element to the accomplishment of these reforming projects. Two reasons can explain this fact: first, citizens play a central role in the implementation of the whole public sector. From that, the city's authority points out the main objective of e-government and smart city projects is to offer the citizens a higher standard of living as well as acquire their satisfaction toward the public administration. Second, Ho Chi Minh city's authority establishes "citizen satisfaction" as the critical measurement in assessing the level of success of reforming projects. Mainly, the People's Committee of 15 wards in District 10 has been equipped kiosks for citizens to rate the satisfaction regarding the application of technology in transacting administrative procedures. Also, the city's authority has furnished the mechanism for citizens to directly contact or give feedback whenever the city dwellers have any concerns or opposed ideas related to the reforming projects of the city. Particularly, in the Report No 9357/BC-UBND of People's Committee of District 10 promulgated in August 28, 2019, on the implementation of administrative reformation in the first 9 months of 2019, with over 98095 votes from the District's assessing system, there are 99.88% of citizens rated that they are satisfied

with the quality of public services delivery, 0.03% exposed their disappointed votes, and 0.09 have neutral opinion.

Regarding the third question, the opportunities of the People's Committee of District 10 in applying e-government and deploying smart city projects are considered as external convenience and advantages that contribute to the success of these implementations. In contrast, extrinsic disadvantages and deficiencies in execution are perceived as challenges that the authority of District 10 is facing. As it is recognized from the data analysis, the first and foremost opportunity is the perceived benefit that District10's authority brings to the citizens. These advantages should be widely popularized to all the citizens and guide them about the utilization of online public services. Once citizens acknowledge the real convenience, they will be more active in transacting administrative procedures online. The further opportunity of District's authority is that the willingness to adapt to the new mechanism of the maturity of citizens. This verdict originates from the degradation of citizens' living standards with the overloaded infrastructure owing to the massive and rapid growth of the population in Ho Chi Minh City. The available infrastructure is not sufficient to meet the increasing demand of citizens regarding the perspectives of quantity and quality. Technology intervention to city management is considered as the most effective approach to reach the expeditious efficiency and convenience within a large scale. Therefore, the plan of transforming Ho Chi Minh City into the smart community has been widely supported and encouraged by the citizens. Notably, the project of applying e-government was extensively and positively responded since this reformation engages intimately with civil society, which performs a significant impact on the success of both e-government and smart city projects. As mentioned in section 5, the citizens in this paper exposed their cooperative attitude toward the implementation of these reformations, and that is also recognized as the initial success of District 10's authority regarding prerequisites "citizen participation" and "citizen satisfaction". Furthermore, since District 10 is one of the central areas of Ho Chi Minh City, the high intellectual level of local citizens is also a favorable circumstance of the district's authority. The intellectual capital takes the crucial part in offering the high quality of public servants and progressive civilians, who directly participate in transforming the whole management system. Plus, owing to the overcrowded population, the city has afforded sufficient labor supply with better facilities and infrastructure in order to meet the demand of the reformation.

However, the overpopulation of Ho Chi Minh City is also recognized as one of the most challenging circumstances in executing a smart city project. From that, due to the large scale of application, the operation can not be synchronized in every domain of citizens' activities. For instant, according to Plan No 7169/KH-UBND of People's Committee of District 10 about deploying Project

""Building Ho Chi Minh City becomes a smart urban area in the period of 2017-2020, vision to 2025", the mission of employing technology in every aspect of citizens' life is exclusively concerned as the most demanding tactic in accomplishing this project. Thence, the Plan has also prioritized the initial objective is that setting up the e-government system with the high responsible public servants who are equipped with adequate skills and acknowledgment to serve the citizens. It is evident that from the first days of reformation, the authority partially focused on the e-government project compared to other domains such as transportation, education, healthcare, and environment. One explanation for this is that at this time, when the researcher investigated the acknowledgment of smart city deployment in District 10, most of the respondents perceived the most outstanding achievement is an e-government system. They hardly recognized the importance as well as the potential advantages of other smart architectures since they are presently under construction, such as BenThanh metro station, Public security monitoring center, Information security center. Also, these incomplete constructions are contributing factors to the lack of infrastructure and facilities, which remains one of the most critical deficiencies. Moreover, the asynchronous implementation of the District's authority has left the citizens' suspicion regarding the capacity of the authority in operating smart city project.

Picture 4: Benthanh Metro station is currently under construction

Similarly, in terms of the e-government application in District 10, the implementation is also not synchronized as well. Notably, from the feedback of citizens and public servants in this paper, the innovative mechanism has been transformed the public service transactions to the new level and exposed its prosperities in reforming the whole public sector's operation. Though, the asynchronous application has led to several deficiencies in governmental execution at the district level. For example, according to Decree No.43/2011/ND-CP regarding the provision of online public information and services or electronic portal of governmental organizations, online public services are categorized into four levels (as fully expressed in section 1.2). From that, online public services levels 3 and 4 are conducted comprehensively online. In contrast, with online public services 1 and 2, authorized citizens have to come to the agent or offices to have their transactions done. This classification is explained to be the in-stage reformation of the authority because not all the administrative procedures are transformed into online format instantly. The authority needs more time to gradually convert the citizen's information and integrate these data into the administrative operation system. They believe that after five or ten years of implementation, the whole public sector would be transformed comprehensively.

Additionally, other problematic reality existing at the level of district management is the lack of technical labor. Presently, while there are only three or four technical officials who are working members of the People's Committee Office concurrently, there is no technical official at the level of the ward. Therefore, when there is any system error, the restoration is stagnant owing to the deficiency of full-time professional labor.

With these opportunities and challenges that are analyzed from this paper, it may contribute a small effort to the head of District 10's authority in their way of applying e-government and smart city model.

6.2. Evaluation of the study

Concerning the scope of this paper, the researcher purposely investigates the opportunities and challenges that the People's Committee of District 10 is facing in applying e-government and deploying smart city projects. From that, it opts to explore the individual thinking and perception of local citizens and also public servants in District 10 toward the implementation of the District's authority. Therefore, the finding perhaps not to be applicative in other contexts. The results may be different if the researcher chooses to carry the study in another district. The various features of districts such as population, intellectual level, infrastructure, etc. lead to the differences in results. In

the broader scope of the investigation, at the level of the city or other provinces, it is worthy to implement the new research owing to the distinct local features between geographical areas. Plus, this paper only concerns the viewpoint of citizens and public servants, do not include the envision of the head of authority – as the ones who compete to direct and supervise the entire process. Additionally, though the public sector reform is extensive, this study boundary at examining the progress of implementation of e-government and how e-government contributes to the success of smart city roadmap in District 10. Other scopes of smart city's components, such as smart economy, smart people, smart environment, smart mobility and, the smart living are not profoundly investigated because citizens or public servants cannot access the level of accomplishment of smart city project when there is presently no observable achievements except the smart governance.

Regarding the methodology, the researcher chooses to use a qualitative approach. It works with the objective of the entire paper, that exploring the unspeakable thinking and individual perception of citizens and public servants toward the phenomenon. Owing to the difference in the viewpoint of each respondent with inconsistent variables, it is impossible to conduct this research by the quantitative method though the result of this paper can be used as a preliminary study for a large scale quantitative study in the same manner.

In terms of the theory, the researcher makes use of the international literature review to have a broader envision of the reality of the phenomenon. It is aimed to figure out whether there is a similar viewpoint on the existence and the operation of the public sector between the international literature review and the case of District 10 in Ho Chi Minh City. From that, several similarities are mentioned and also the differences. Notably, the most striking disparity is the view of the success factors of e-government and smart city projects. While most of the international researchers encouraged the technological factor (from the framework proposed by Nam and Pardo, 2011 – which fully expressed in 2.2.2) as the success conditions, the Vietnamese government and citizens determined "citizen participation" is the practical measurement to the success of the mechanism. However, these findings may be biased when applying to other countries or contexts owing to the difference in institutional factors between countries.

6.3. Suggestion for future research

From the reflections as mentioned above, several recommendations for further research could be considered. First, the scope of this study could be extended in various ways: 1) Role of e-government and smart city to the reform of the administrative sector, 2) Collaboration model between

e-government in Ho Chi Minh City and other city or District 10 and other District, 3) The internal integration and connection between functional departments in smart city, 4) Connecting E-government with smart city Initiatives.

Second, further research could further result by interviewing the head of the District's authority in order to investigate the direction and guidance of higher authority profoundly. On another hand, further research could be carried out by the quantitative approach in a large scale of respondents in a broader context such as Ho Chi Minh City or Vietnam. By this way, there are several approaches to conduct the study: 1) Examining contributing factors to the success of e-government and smart city roadmap, 2) Factors affecting to the adoption of e-government and smart city.

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APPENDICES

APPENDIX 1 LIST OF INTERVIEWEES

Interviewee code	Sex	Age	Occupation
Interviewee 1	Male	32	Teacher
Interviewee 2	Male	40	Businessman
Interviewee 3	Female	27	Doctor
Interviewee 4	Male	31	Public servant
Interviewee 5	Female	29	Public servant
Interviewee 6	Female	33	Teacher
Interviewee 7	Male	45	Street vendor
Interviewee 8	Male	30	Public servant
Interviewee 9	Male	28	Office worker
Interviewee 10	Female	48	Housewife
Interviewee 11	Female	30	Bank counter
Interviewee 12	Male	28	Public Servant
Interviewee 13	Male	26	Office worker
Interviewee 14	Female	38	Public servant
Interviewee 15	Male	24	Student
Interviewee 16	Female	27	Office worker
Interviewee 17	Female	27	Public servant
Interviewee 18	Male	49	Public servant
Interviewee 19	Male	56	Office worker

Interviewee 20	Female	35	Public servant
Interviewee 21	Female	25	Public servant
Interviewee 22	Male	26	Public servant

Appendix 2. Interview Outline

Dear Interviewee,

First of all, thanks for your participation in conducting this interview. This paper aims to investigate the transformation of the governments through the implementation of e-government and smart city, as well as the interrelationship between these reforming projects. From that, according to the result of the interview, the current opportunities and challenges of these phenomena in the context of the People's Committee of District 10, Ho Chi Minh City would be exposed. You are free to raise your individual opinion regarding the implementation of the local authority. Your personal information will be kept confidential and only used anonymously in the study after being coded. This research has two groups of Interviewee: public servants and citizens.

To interviewees who are citizens, the interview will compose the following content:

1. At first, please provide some information regarding your background, such as ages, and your career

2. Your acknowledgment of the application of e-government and smart city in District 10.

- How much you know about the e-government, particularly online public service in the People's Committee of District 10? And how do you know about it?

- Until now, do you perceive any specific establishment of smart-city in District 10? If yes, what is it?

3. Your adoption regarding these transformations in your local area:

- What differences are felt before and after applying the e-Government project? Which one do you prefer (manual or online)? And why?

- How e-Government change your behavior in using public service? Do you satisfy with them?

- What differences are felt before and after deploying the smart city project? How do you think about it?

4. Your personal opinion on the success factors of these projects:

- In your view of point, what factors contribute to the success of e-government and smart city project?

5. Your own thinking regarding the deficiencies:

• What are the challenges faced when applying e-government and deploying the smart city project in District 10?

6. Your opinion on the interrelation between these projects 10.

• Do you think that e-government and the smart city roadmap are related to each other? If yes, then how does it work?

To interviewees who are public servants, the interview will compose the following content:

1. At first, please provide your information regarding your background, such as ages and your working positions.

2. Your acknowledgment of the application of e-government and smart city in District 10.

• How much you know about the e-government, particularly online public service in People's Committee of District 10? And how do you know about it?

• Until now, do you perceive any specific establishment of smart-city in District 10? If yes, what is it?

3. Your adoption regarding these transformations in your local area:

• How e-Government change your working behavior and your organization's operation? Do you satisfy with them?

• What differences are felt before and after deploying the smart city project? How do you think about it?

4. Your personal opinion on the success factors of these projects:

• From your working position, what factors contribute to the success of e-government and smart city project?

5. Your individual thinking regarding the deficiencies:

• What challenges are faced when applying e-government and deploying smart city in District 10?

6. Your opinion on the interrelation between these projects 10.

• Do you think that e-government and the smart city roadmap are related to each other? If yes, then how does it work?