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An Analysis of Design-Reality Gap in Smart city Building: the Case of Ho Chi Minh City

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Abstract

This paper's main objective is to propose an appropriate framework to analyse the design/reality gaps in a smart city by considering views from stakeholders within a smart city. Ho Chi Minh City is selected as it is a rapidly developing city with initial plans to implement a smart city, whose six main pillars include Smart Governance, Smart Economy, Smart Mobility, Smart Environment, Smart People, and Smart Living.

In the process of transforming a city into a smart one, the design/reality gap is shown as the key reason for failure in several ICT-based projects. Design/reality gaps can be found in five main aspects: Strategy, Technology, Organization, People, and Environment (or STOPE). The differences (or gaps) between where a city is currently at and where it aims to be, regarding these factors can hinder the successful implementation of a smart city. Moreover, smart cities must be built upon the participation of all relevant stakeholders, and not merely a top-down approach. Hence, when looking at these gaps, the perspectives of various stakeholders are considered. Stakeholders may be internal (i.e. public managers and civil servants) and may also be external (i.e. citizens and businesses). If the smart city objectives are poorly understood, conflicts of interest between stakeholders may exist and thus, failure can be unavoidable. Therefore, our framework will be used to investigate what gaps are present in STOPE, from the view of three groups of stakeholders: the government, businesses, and citizens.

Out of the 6 pillars of smart city, this paper specifically looks at Smart Governance because Ho Chi Minh City has had plans to develop a shared database that will facilitate better public decision-making. The four characteristics of smart governance are citizen participation in decision-making, public and social services, transparent governance and political strategies & perspectives.

Finally, through the framework, our paper explains how the design-reality gaps are related to the many aspects of a smart city in general and smart governance in particular.

Keywords: Organization • Environment • Transparent governance • Stakeholders

Introduction

Smart City has recently become a centrepiece for discussion of local government authorities around the world [1]. Several cities, in both developed and developing countries have been building and researching the new generation of smart modern cities.

Smart city is a relatively new and evolving concept. Therefore, it is no surprise that there have been a limited number of studies into this recent research area. However, there have been initial efforts to build a framework on which a smart city is to be developed and ranked. A framework of six dimensions developed by Manville this study will adopt an approach analyzing one of those dimensions. The dimension which will be included in this project is: smart government.

According to Mellouli et al. [2] smart government is when the government uses technology as an extension to follow two necessary trends: open data and technology ubiquity. The author believes that adapting these trends could contribute to a more efficient understanding of societal problems and enhancing the relationship between government and other stakeholders like citizens, private organizations, NGOs and other governments.

The AHP is used to find the weights of the factors in the above table that influence the design- reality gap. In the field of e-government, the AHP method is recommended for e-government assessment as an effective method for prioritizing a set of factors to improve their practical value [3]. This method was developed by Saaty [4] based on the relative priority of each factor through pairwise comparisons, this multi-criteria decision-making method enables decision makers to set priorities and determine their best options to achieve goals and context [3]. The AHP method can evaluate qualitative data, to mine expert knowledge, and to structure a decision problem to induce a wider variety of organizations and individuals to use the proposed technique [3,5,6]. Further, this method will be discussed in the methodology section.

Using this method, decision-makers and practitioners can better understand the situation and discover more efficient methods for successful implementation. In addition, setting priorities has more significance in the context of developing countries, where a lack of resources is the foremost concern. Sound resource allocation based on priorities established considering the significance of particular factors may contribute to efficient and effective national administration [3].

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Definitions and benefits

Definitions of smart city

Despite the fact that the concept of smart city has been increasingly used, it is relatively new and evolving. In addition, the "smartness" is difficult to measure and thus a universal definition has not been found. Some authors contend the "smart" is something moreuser-friendly than intelligent, which is limited to having a quick mind and being responsive to feedback. In addition, there are other definitions which are considerable overlap of the smart city. The variants include intelligent city, knowledge city, sustainable city, talented city, digital city and eco-city. Smart city is, however, a commonly-used concept Some earlier definitions can be found in the below:

- A city that monitors and integrates conditions of all of its critical infrastructures including roads, bridges, tunnels, rails, subways, airports, sea-ports, communications, water, power, even major

buildings, can better optimize its resources, plan its preventive maintenance activities, and monitor security aspects while maximizing services to its citizens

- Schaffers define that a city may be called 'smart' 'when investments in human and social capital and traditional and modern communication infrastructure fuel sustainable economic growth and a high quality of life, with a wise management of natural resources, through participatory governance.
- Other defines it as a future reality for municipalities around the world which will use the power of ubiquitous communication networks, highly distributed wireless sensor technology, and intelligent management systems to solve current and future challenges and create exciting new services and is the key to servicing the next generation.
- Smart City is a city seeking to address public issues via ICT-based solutions on the basis of a multi- stakeholder, municipally based partnership.

What are the dimensions of a smart city?

A review of the literature shows that the core factors which drive the implementation of smart city include technology, human and institution. In the technology dimension, there are various cousins of the smart city concept that draws from a technology perspective. For example, a digital city can refer to a connected community that combines broadband communications infrastructure; a flexible, service- oriented computing infrastructure based on open industry standards; and, innovative services to meet the needs of governments and their employees, citizens and businesses". An information city refers to creating a digital environment that collects information from the local community and authority and deliver the information to its citizen via web portal. Intelligent city is described to have all the infrastructure, info-structure of information technology including the latest technology in telecommunications, electronic and mechanical technology, furthermore those foundation thrive initiative and create conscious effort to use information technology to transform lives in the region. A ubiquitous city (U-city) is an extension of digital city concept which addresses the ubiquitous computing available to the urban elements such as people, building, infrastructure and open space. Despite there are several names and concepts addressing the smart cities and its "cousin", these frameworks have at least 1 typical common and core elements that is Information and Communication Technology (ICTs).

On the human dimension, the final purpose of enhancing the efficiency of one system is to serve its end-users, in the case of smart city it is the citizen. On the other hand, human resource places a key role in contributing to development via delivering creativity. Creativity is recognized as a key driver to smart city including four main factors: people, education, learning and knowledge. A creativity city is also a humane city that nurture multiple opportunities to exploit human potential, consequently develop high-skill and smart people. A smart city is also a learning city which improves the competitiveness of urban context in global economy.

Regarding institution dimension, smart communities can be defined as a community ranging from a small neighbourhood to a nation-wide community via common shared interest, whose member; organization and governing institution are collaborating closely to implement information technology in the transformation of their living circumstances

Toward a working framework of a smart city

As mentioned earlier, smart city is a relatively new and evolving concept. Therefore, it is not surprised that there have been a limited number of studies into this young research area. However, there have been initial efforts to build framework on which a smart city is to be developed and ranked. This study adopts the framework of six dimensions developed by Manville which are considered to be more holistic and inclusive. This framework has been combined various early studies on smart city. The six dimensions include: smart governance, smart economy, smart mobility, smart environment, smart people, and smart living (Tables 1& 2).

Table 1. Descriptions of these dimensions are presented in the above table.

Dimension	Descriptions
Smart Governance *(Participation)*	is joined up within-city and across-city governance, including services and interactions which link and, where relevant, integrate public, private, civil and European Community organizations so the city can function efficiently and effectively as one organism. The main enabling tool to achieve this is ICT (infrastructures, hardware and software), enabled by smart processes and interoperability and fueled by data. International, national and hinterland links are also important (beyond the city), given that a Smart city could be described as quintessentially a globally networked hub. This entails public, private and civil partnerships and collaboration with different stakeholders working together in pursuing smart objective satcity level. Smart objectives include transparency and open data by using ICT and e-government in participatory decision-making and co-created e-services, for example apps. Smart Governance, as a transversal factor, can also orchestrate and integrate some or all of the other smart characteristics.
Smart Economy (Competitiveness)	includes e-business and e-commerce, increased productivity, ICT-enabled and advanced manufacturing and delivery of services, ICT-enabled innovation, as well as new products, new services and business models. It also establishes smart clusters and eco-systems (e.g. digital business and entrepreneurship). Smart economy also entails local and global inter-connectedness and international embeddedness with physical and virtual flows of goods, services and knowledge.
Smart Mobility (Transport and ICT)	is the ICT supported and integrated transport and logistics systems. For example, sustainable, safe and interconnected transportation systems can encompass trams, buses, trains, metros, cars, cycles and pedestrians in situations using one or more modes of transport. Smart mobility prioritizes clean and often non- motorized options. Relevant and real-time information can be accessed by the public in order to save time and improve commuting efficiency, save costs and reduce CO emissions, as well as to network transport managers to improve services and provide feedback to citizens. Mobility system users might also provide their own real-time data or contribute to long-term planning.
Smart Environment (Natural resource)	include smart energy including renewables, ICT-enabled energy grids, metering, pollution control and monitoring, renovation of buildings and amenities, green buildings, green urban planning, as well as resource use efficiency, re-use and resource substitution which serves the above goals. Urban services such as street lighting, waste management, drainage systems, and water resource systems that are monitored to evaluate the system, reduce pollution and improve water quality are also good examples.
Smart People (Social and human capital)	are who have e-skills, working in ICT-enabled working, having access to education and training, human resources and capacity management, within an inclusive society that improves creativity and fosters innovation. As a characteristic, it can also enable people and communities to themselves input, use, manipulate and personalize data, for example through appropriate data analytic tools and dashboards, to make decisions and create products and services.
Smart Living (Quality of life)	is ICT-enabled life styles, behavior and consumption. Smart living is also healthy and safe living in a culturally vibrant city with diverse cultural facilities, and incorporates good quality housing and accommodation. Smart living is also linked to high levels of social cohesion and social capital.

Source: Giffinger and Gudrun (2010) and Manville et al. (2014)

Table 2. Public organizations model, modernization phases, and ICT-driver role (adopted from Jiménez et al. (2015).

Organization	Modernization Phase	ICT Role
1. Bureaucratic	Initial. Target: Winning efficiency andeffectiveness.	Automatization of workflows and reorganization of internal processes. (e-Administration).
2. Professional	Advanced. Adopting the public management perspective (emphasizing efficiency but citizen service too).	Without forgetting the previous phase, now ICT help to interact with citizens through websites and portals. (e- Government).
3. Relational	Adopting the governance paradigm(acitizenisn'tjust a client but it participates within the governability processes andprocedures).	Key related to transparency and accountability on onehand and, on the other hand, related to institutional collaboration. (OpenGovernment).
4. Intelligent	Adopting the Interoperability Principle maximizing efficiency.	Interconnected "ecosystem" and management (Smart Government)

Although the six dimensions are commonly applied, there have been no studies analyzing the stakeholders and their interests in these components. As mentioned earlier, a failure to put in place a mechanism which could incorporate interests of stakeholders can end up in a malfunction of smart initiatives.

The concept of stakeholder is not new as it can be traced back to the 1970s, when American businesses were viewed as something of an industrial managerialism; however, practical implementation of the concept was understudied and somewhat modest [7]. The development of stakeholder literature can be dated back to 1980s, especially when Free introduced stakeholder approach in the first edition of his famous book: Strategic Management: A Stakeholder Approach Despite deep rooted in management field, stakeholder theory has spread its effect to other areas. Rose et al. [7] contend that e-governance initiatives often fail to address the legitimate but diverse interests of many stakeholders, and this is a source of failure. Far more than smart governance, smart city has multiple stakeholders which make its building process more complicated [8].

E-government

After the coining of the term e-government over two decades ago, it has been used explosively in and out of scientific circles [9]. There are no universal, but rather numerous definitions for the term. In essence, it is defined as the use of emerging technologies, or ICT by governments to reform processes of service delivery and citizen engagement [9,10]. To simplify, governments take advantage of internet technology in administrating services to citizens, which exploits the ability to obtain, process, manipulate, store, retrieve and report data on a more effective, consistent and trustworthy manner [11]. Pereira et al. [12] summarized and identified the three main themes of the benefits of e-government. They are administrative efficiency, effectiveness, and productivity, service improvement [13] and citizen- centricity [14].

Firstly, the use of ICT in the government helps improve efficiency in administration within the government departments [7].

Information can flow seamlessly between governmental departments, thereby reducing processing time, labour and information handling costs, as well as improving speed and accuracy in completing administrative tasks [12,15]. The shared infrastructures and integration of data are referred to as interoperability [16]. The second theme relates to the improved dissemination of governmental information to related parties, improved response time and communication speed with external organizations or citizens [17,18]. Lastly, e-government allows for more transparency and a more democratic relationship between government and the public [19]. The focus on citizens leads to more trust [12] and even a reduction in corruption [20-22].

Smart government

On the other hand, over the past decade, besides the e-government, smart government has become another major concept relating to government and the United States is a particular example [23]. Although both government systems have the same objectives of using internet technology to improve administration operation and decision-making process to serve citizens, smart technology is a more advanced concept that informs and connect public more effectively and also connects economies globally [23] in order to provide seamless service experience for citizen across all government programs and activity domains and support solutions for well-being of the community [24]. As mentioned above, smart government follows two major trends which are open data and technology ubiquity to understand societal problems and enhance the relationship between government and other stakeholders.

Regarding the openness of data, Jiménez [25] believe that without open government, there is no smart government because according to Gartner group [26] smart government is the integration of open government and smart city. The former involves the collaboration of citizens and government, whereas the later is developed to improve quality of life of residents [25]. From the perspective of Obama the open government principles include transparency, collaboration and participation; and Jiménez [25] add another one called 'interoperability' principle. In fact, in 2007 Gascó proposed a three-level model of public organization including bureaucratic, professional and relational in corresponding to the ICT roles which are e-administration, e-government and open government. However, by including the achievement of the interoperability as a principle, Smart Government has achieved a new level of ICT role from Gascó's model which is illustrated in the table below. From the table, the term 'interoperability' has fostered the ICT role to another level which is interconnected "ecosystem" and management in the government to achieve another principle of public organization, 'Intelligent'.

Gil-Garcia [27] recognized many dimensions of smartness that are essential for the development of smart governments and some of them could also fit e-governments such as integration, efficiency, citizen-centricity and technology savviness. However, Pereira [12] emphasized the three extended dimensions that should be focused on to gain benefits from smart environment. Firstly, Sustainability and Resilience are two concepts that have been commonly used to discuss the view of governments and wider society as a whole [12] and Gil-Garcia [27] claim that those dimensions should be considered in the ecological implications of growth and development to improve the quality of life in the future as well as quickly recover from emergency and disaster. Secondly, Creativity factor facilitates a diverse culture of smart citizens and Entrepreneurialism can be fostered by motivating the integration of knowledge-based and innovation-oriented economic development (Pereira et al. 2018). Moreover, regarding Social Equality, reducing social exclusion and promoting social justice could be achieved by utilizing ICT, data and proper strategies [27]. Though, some authors [28-30] argue that technology could bring disadvantages for certain categories of general population such as elderly, lower-income and people with disabilities. Lastly, Citizen Engagement involves the role of citizens to engage in decision-making processes so they improve government openness, transparency and accountability which strengthen the relationship between governments and citizens [12].Besides, by collecting, analyzing and sharing the information and knowledge to assist Evidence-based Decision-making Process, governments are able to increase the efficiency of decisions on public policies and programs [12].

Cases of smart government in developed countries

Governments all over the world are facing the challenge to become more innovative, more connected, and more responsive to citizens, which calls for the use of e-government and smart government. For the past two decades, the world has seen a tremendous transformation as more countries adopt more smart governance [31]. A UN report simply ranks the countries' e-government readiness through the presence of official government websites. They act as portals for the public to easily access information and public services or as a way for citizens to interact with public administration [32]. It was clear at this point in time, the early efforts to drift away from telecommunication networks to web-based platforms were made [33]. In order to achieve more, countries need to overcome complex socio-technical problems that depend on institutional readiness, socio-cultural and technological factors [34,35]. However, in recent years, a transformation in the public sector can be witnessed, with countries turning cities into smart ecosystems [36]. The newest global survey [37] points out the implications of transformative technologies, such as data analytics, artificial intelligence, Internet of things and cloud computing. Theliterature provides multiple examples of successful implementation and applications of smart government.

Countries like Germany have been formulating E-governance at the federal level, with a clear framework being implemented at the municipal level to provide a transparent and innovative government [38]. Dubai is setting up the cornerstone for a smart city transformation with the success of its smart government initiatives including the use of smart cards and ICT in governmental services [39], which are also applications of cities like Singapore [40], and Beijing [41]. Countries that have been at the forefront of smart governance like Denmark and Finland are moving from the triple-helix model (industry, academia and policy actors) to quadruple-helix model, including the citizens and workers, in an effort to improve collaboration of all stakeholders [42]. Copenhagen, Amsterdam, Lisbon and Manchester harness the power of Big Data thathelps involve citizens in political and social affairs, to improve people's quality of life, as well as implementing plans to reduce the carbon footprint and improve environmental sustainability. Other interesting examples of smart government includes the management of risks of natural disasters thanks to ICT in Costa Rica [43] or the adoption of Big Data technology by Police Departments of Kent County, Santa Cruz and Los Angeles for crime prediction activities [44].

Success Factors

So, what are the success factors or reasons for failures of smart government initiatives? One thing is for certain: The technological infrastructure is the cornerstone, but not necessarily the building blocks of a smart government.

With regards to success factors, those that determine the success of smart government initiatives, Yaghi and Al-Jenabi, Svara [45,46] hypothesize that they are moral values, in other words, a sense of duty, honesty, and integrity of the government, together with rational values, namely the public and organizational interest. On the other hand, the analysis of Guenduez [36] revealed that institutional (clear governance, legal and digital understanding), organizational (structures, capabilities and human factors), and leadership are key factors. The participation of all stakeholders should also be highlighted: the government, citizens, and business should all be involved in the planning and implementation of smart government services [47]. However, in order for that to happen, a major factor that needs to be taken into consideration is trust [48-50]. The citizens' trust in not only about the technology but also the government which will influence the adoption of e-government services [51].

Failure of smart government in developing countries

Developing a smart government in developing countries can be particularly challenging [52]. Even though e-government initiatives have achieved success in many developing countries such as Brazil [53] India [54] China [55] Oman [56] etc. Examining e-government and smart government, literature and empirical evidence shows that the majority of e-government initiatives have been met withdifficulties. According to an analysis of 40 reports on smart government cases of developing and transitional countries, more than a third are total failures and a half are partial failures. A World Bank study showed ICT applications in the least developing countries were either partial or total failures [57]. Another recent note by Hidding and Nicholas says that 24% of ICT projects were incomplete and 44% were completed and operational but with functions lower than set out standards.

Context of Vietnam

Ho Chi Minh City is the largest financial and economic hub of Vietnam. It is also the most populated city in Vietnam, with the official registered residence approximately 8,444 million people, accounting for 9 percent of the whole country population excluding a large number of immigrants from other provinces. Its population density is 3589/km^2, nearly 15 times higher than the country average, 265 people, per square km. [58].

However, a smart city is a relatively new concept for the city. The city authorities have been finding smart solutions to accommodate the increasing demand from citizens, investors and tourists [58].The very first plan to apply technology in building a smart city was publicized on 25th November in 2017, which focuses on four main pillars, particularly an open data centre, a smart administrative centre, simulation and forecasting centre, and information security centre. The plan also emphasizes smart government, where the city's shared data centre can enable the authorities to achieve comprehensive management. This plan is scheduled for a 3-year period to 2020 and is expected to bring many benefits to the citizens, including low energy costs, favourable traffic systems, and easier administrative procedures. Initially, the city leadership mobilized support from the private sector and research institutions to participate in its smart city initiatives. Upon its announcement, the plan was met with skepticism by locals, citing it was too unfeasible and macroscopic. Whilst it is true that attaining these goals are a long-term process, progress has been made. After 18 months, the project to transform HCMC into a smart city has made progress, successfully complete the first stage of building a shared database, and information ecosystem, which is the most important foundation for further applications. Within the next period from 2019 to 2020, HCMC has plans to perfect the technology infrastructure of the shared database as well as receiving feedback on measures to develop the smart city from residents and businesses. Other initiatives regarding smart cities also comprise cooperating with and learn experiences from European businesses to build a smart city and recruiting experts in various fields like IT, IoT, smart city, etc. extra financial incentives.

Conceptual framework

Design-reality gap is referred to by Heeksas the difference between where we are now (reality) and where we want to be with smart government (design). A number of studies have attributed the difficulty of building a smart government to design-reality gap, especially in developing countries like Malasia [60], Kosovo [61] and India [62]. It is generally agreed upon that the larger the design-reality gap is, the higher the chances of failures are and vice versa [63].

To understand the development of smart cities in the context of developing countries from the perspective of reality-design gap, we propose a conceptual framework of smart cities based on the literature. Previous studies have pointed out the most common basis for smart cities are Technology, Organization and People [64]. Developing countries have distinct characteristics compared to developed countries came up with the STOPE framework which includes five constructs: Strategy, Technology, Organization, People, and Environment to investigate the design-reality gap in creating a smart government.

Strategy

Strategy is the first dimension contributing to the smart city incentives in any country and it relates to the process of identifying the overall goal and then enhance feasibility by assisting this goal at upper level of government. This dimension includes three sub-dimensions which are Goal and Strategy,

Leadership and Political commitment. Yoon &Chae [65] believe that any project implementation needs clear goal and sound strategy by considering specific characteristics and particular backgrounds in order to be successful, especially in the context of developing countries where initial or transformative stages of smart government system deploy. Moreover [66] also mention the essential role of leadership to improve e-government efficiency and effectiveness. The complexity of smart government systems requires high cost, risk and challenges, so the leading stakeholders would be the ones to understand costs and benefits to influence management before, during and after project implementation. The last factor of strategy dimension is political commitment which expresses the political support behind e-government including financial matters for innovation or public sector reformation and other drivers to implement e- government smoothly and constantly in long-term perspective, especially in many developing countries where political problems such as corruption and political instability are existing.

Technology

A smart city is surely the one that applies digital and communication technologies to enhance the quality of all aspects inside a smart city [67]. All problems can be anticipated and avoided thanks to the huge data available with the help of Big Data [68]. Networks of devices, people, businesses, infrastructures, and other components are linked together to facilitate the collection of data and real-time decision making. Smart cities will take advantage of this technology to help improve the quality of life for citizens [69].

Organization

Institutions represent the cooperation between stakeholders and the government as well as the legal and regulatory framework that enables the development of smart cities. A smarter government not only regulates the implementation but also connects well with other stakeholders including the citizens, businesses and the community. Furthermore, policymakers should take into consideration whether the laws and regulations are facilitating and restricting IT projects. However, there are major inherent challenges of developing countries such as limitedtransparency, accountability and resources are affecting the success of smart city implementation.

People

Human is another basis for a smart city that is often overlooked as more focus is on the technological and policy aspects of smart cities [70]. The role of human capital is essential because smart cities need citizens to communicate with each other, the organizations, and the government in the implementation of smart city. And in order to do that, trust plays an important role in getting people to participate and overcome feelings of uncertainty and risks. Another important human factor is skills. People need to be familiar and comfortable with technology to facilitate smart changes.

Environment

According to Meneklis and Dougligeris [71] environment factors play a key role in the development of e-government in both physical, like ICT maintenance, and institutional infrastructures, like laws, regulations and regimes. In developing countries where ICT development has not achieved harmonious technical and institutional improvements like developed countries, a significant concern is legal issues so determining specific context in each country is essential to establish the appropriate institutional system. Additionally, issues from social background is the last component of environment dimension, including demographics, history, culture, economics and politics and digital divide is the most critical issue due to inadequate levels of publics education and big gaps between urban and rural areas in developing countries.

All of those aforementioned factors will influence the success of smart initiatives. In other words, the bigger the design-reality gap is in any of the factors, the more likely the smart initiatives are to end up in failure. And in turn, the successful implementation of smart initiatives will help result in the 6 pillars of smart cities: Smart people, Smart Economy, Smart Governance, Smart Environment, Smart Mobility, and Smart living (Figure 1).

Conclusion

Smart government has just been recently implemented in Ho Chi Minh City. Despite the many benefits it can bring, its implementation can be met with a number of challenges which need to be overcome. Therefore, this study aims to develop a framework that seeks to identify the possible difficulties of smart government initiatives by adopting the reality-gap framework and AHP method. The identified gaps are helpful in that modifications can be made and appropriate measures taken to ensure the success of smart city initiatives in Ho Chi Minh City.

The expected findings will corroborate with the framework explained above. To be more specific, when looking at smart government initiatives in Ho Chi Minh City, we will expect design-reality gap will have to be narrowed in some respects. We expect to find that the people working in the government will face some problems not with the set-up of technology, but rather with people trying to adapt to the new technology. We envisage that many older government officials, and senior citizens will find the new technology confusing or unfamiliar. Another factor with regard to people is trust because a lack of trust will certainly affect the adoption of smart government services. The news reported a feeling of doubt among people when the smart

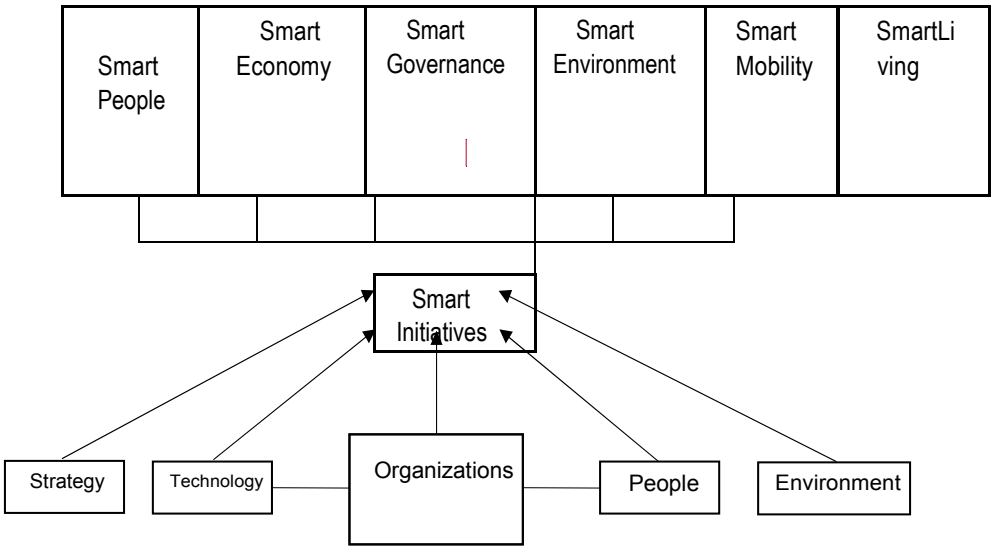

Figure 1. The successful implementation of smart initiatives will help result in the 6 pillars of smart cities: Smart people, Smart Economy, Smart Governance, Smart Environment, Smart Mobility, and Smart living.

initiatives were announced; therefore, it will be something that needs to be taken account of.

Apart from people, the design-reality will also exist in the Environment dimension. Vietnam is a country with varying gaps between the rich and the poor, urban and rural area, educated and uneducated. Different communities will have their respective wants and needs within cities, and the smart initiatives may only be insensitive to balancing the needs of various communities in our society. Another problem that may arise is part of the institutional settings. Despite being a metropolitan and one of the most developed cities in Vietnam, laws and regulations have not yet paralleled with those in developed countries. The model, therefore, cannot be exactly copied and replicated like it is now from developed countries.

With these in mind, we intend to provide some recommendations for the modification of smart city to narrow the gap between reality and design. In that way, goals can be achieved and the full benefits can be reaped with specific conditions in Ho Chi Minh City.

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