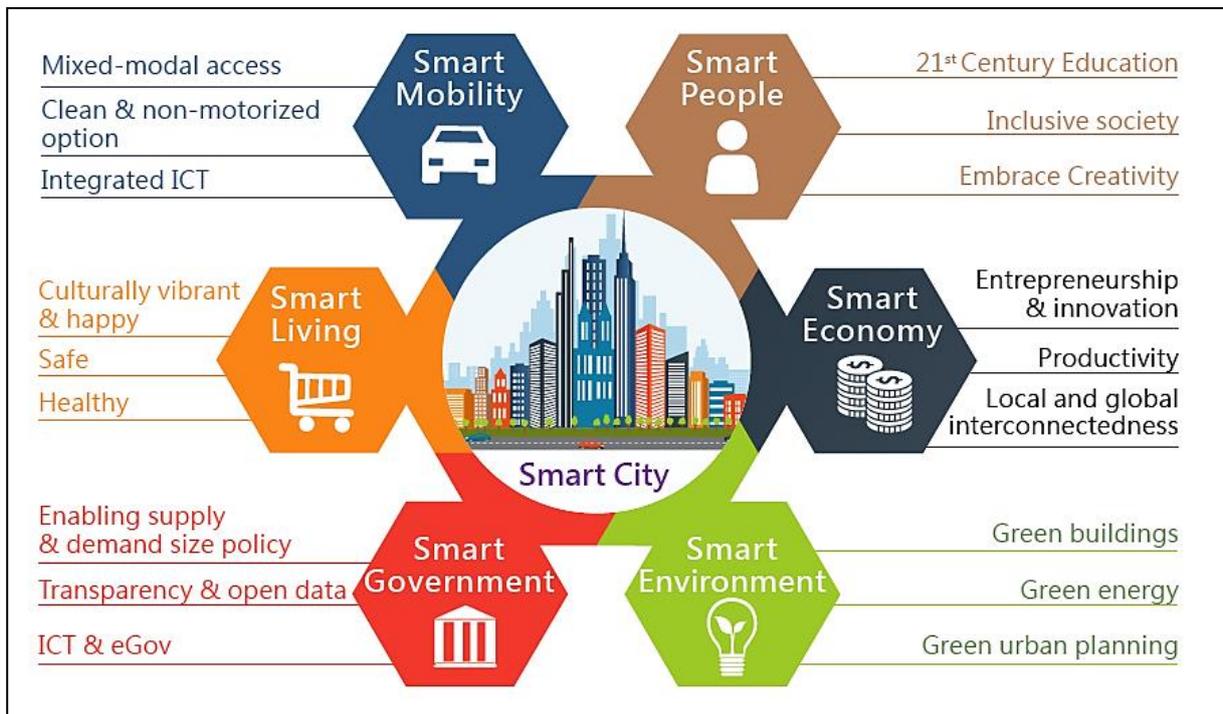




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## អត្ថបទស្រាវជ្រាវ

### Smart City: Framework, Experience and Lesson-Learned for Cambodia



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**Smart City: Framework, Experience and Lesson-Learned for Cambodia**

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**ABSTRACT**

*Smart city initiatives are becoming the trends toward not only to enhance social and economic development, but also to address specific challenges and issues arised from urbanization processes and climate changes etc. This paper looks at smart city from theoretical framework and strategic development perspective. The paper also identifies strategic experiences of some nations in developing their smart cities to be lesson-learned for Cambodia. As for global context, smart city framework involves utilizing technology, ICT and IoTs etc. to embed in its management and development processes. Smart City possesses six key elements namely (1) Smart Government, (2) Smart Environment, (3) Smart Economy, (4) Smart People, (5) Smart Mobility and (6) Smart Living. Learning from the experiences of some countries, smart city development project should focus on the country's own context in term of technology, economic and social settings etc. From theoretical framework, the success of smart city initiative needs to involve three core principles: People, Processes, and Technology. For Cambodia, the government and all involved stakeholders should have clear vision and concrete policy so that smart city initiative will become a reality. Conceptualizing Cambodian situations as well as the experiences of some countries, these six development strategies are recommended: (1) define clearly the community for smart city, (2) study the community, (3) define key economic drivers, (4) develop smart city policy and framework (5) engage the citizen and (6) encourage private secotors for more investment.*

**Keywords:** Smart city, framework, lesson-learned, smart city policy, smart government, smart environment, smart economy, smart people, smart mobility and smart living.

## 1. INTRODUCTION

Entering the 21st century era, we have seen a lot of growth and development in term of technology, physical infrastructures and so on. The process of urbanization has been spreading to every part of the world with large numbers of people have been moving to the cities or urban areas for different purposes. On the plus side, urbanization has created more opportunity for individuals as well as businesses and even public institutions. However, on the minus side, with the rapid expansion of urban population, the development of cities is restrained by the environmental issues such as pollution and the shortage of resource in term of land, space, energy and clean water (Ji et al. 2011). Undeniably, even there are certain negative impacts along with this drastic growth, this will not restrain us, especially the government of the developed world from moving forward. In response to this, we could see that the developed countries begin to study how to use innovative information technology, knowledge and intelligence technology to re-examine a series of key problems in the development of modern cities, such as nature of the city, urban functions, adjustment of the urban structure, and city image (Zhang, 2011).

With the expansion and development of cities and urban areas, we could witness that, cities around the globe are undergoing two important transformations. First of all, they are growing with a majority of the world's population lives in urban areas (Joshua, 2017). According to an article published in World Economic Forum website mentioned that nearly 70% of the world's population estimated to live in the cities by 2050 (Andy Dunn, 2020). Secondly, they are beginning to evolve into "Smart Cities" (Joshua, 2017). With these transformations, and according to Falconer & Falconer (2012), cities and communities around the world face intractable challenges, including:

- *Increased populations:* More than 50 percent of the world's population lives in cities, placing massive pressure on city infrastructures (transportation, housing, water, power, and city services), many of which require enormous redesign and capital expenditure.
- *Polarized economic growth:* The 600 largest global cities will contribute 65 percent of global GDP growth from 2010–2025.
- *Increased greenhouse-gas emissions (GHGs):* GHGs are forcing cities to develop sustainability strategies for energy generation and distribution, transportation, water management, urban planning, and eco-friendly (green) buildings.
- *Decreased budgets:* The economic climate continues to place huge budgetary constraints on cities, which are becoming limited in their ability to respond to these pressures.

With major technological, economic, societal and environmental changes, there have been many countries devoted significant resources to developing smart cities not only to address the emerging issues mentioned above, but also to provide more benefits to the communities and the citizens. In Hong Kong, for example, the Innovation & Technology Bureau (ITB) started their study for the development of a "Smart City" in collaboration with research institutions, public and private organizations. According to Jens Kastner (2019),

China, a home to half of the world's Smart Cities, is rapidly enhancing its technology to upgrade urban management and development. With the imminent rollout of the Internet of Things (IoT), China is leading the world to promote its smart city development projects that are featuring a centrally-controlled approach to just about everything.

A report released in June 2019 by Navigant Research, a U.S.-based firm that analyzes the international smart city movement, noted that there were at least 443 smart city projects in 286 cities worldwide. The firm estimated that, for the next decade through 2028, the cumulative global smart city technology market will reach \$1.7 trillion. According to Peter Huhl, former CIO City of Adelaide and Central Coast Council, has noted that cities and organizations around the globe are putting more attention on investing in smart technologies in almost all areas of infrastructures and service provision. These smart and modern technologies could be witnessed in most aspects of the society such as online payment systems, e-planning services, IoT-based water management system, smart lighting, waste management, air monitoring sensors, autonomous vehicles and artificial intelligence etc. (Peter Huhl, nd). Peter has pointed out that being a smart city is no longer an aspiration, it's necessity as the country or organizations could improve efficiencies, reduce costs, increase profit margins, stimulate investment, attract and boost the country's economy.

In Cambodia, the concept smart city is immature due to its contextual situation in term of technology infrastructure and its economic environment. However, in 2019, the government of Cambodia approved three cities, namely Phnom Penh, Battambang and Siem Reap to join the ASEAN Smart Cities Network (ASCN) with the assistance from the Japanese government (May, 2020). The smart city projects will be developed sustainably by integrating information and communication technology (ICT) aims to mainly focus on using modernized technology as a means of telecommunication to deal with some issues such as housing, traffic jams and the environment. In addition, with significant increase in Chinese investment in Cambodia, especially in Preah Sihanouk province, this will transform this port province to become one of the leading smart cities in the country.

With its long-term goal, South Korea is planning to build a highly efficient and eco-friendly city in Cambodia using its latest information technology to support the Southeast Asian nation's public housing program (The Korea Herald, 2016). In addition to this, in order to proceed with this ambitious plan, the Korean Ministry of Land, Infrastructure and Transportation (MOLIT) has put ahead the MOU with Cambodian government to develop Sihanouk Ville to be the smart city in the future. In this connection, Phnom Penh Master Plan 2035 was introduced to support the urban development in Phnom Penh. The master plan was developed upon a smart city concept to ensure sustainable and economic development while, at the same time, accommodating the increased urbanization, in which 8 million people are expected to be living in urban areas by 2030.

## 2. METHODOLOGY

This paper looks at “Smart City” in relation to its global frameworks and vision, with the aim at diving into smart city initiatives and conceptual framework to build a better residential areas for the 21st century living. Moreover, it also focuses on some practical experiences of a few developed and developing countries serving as lesson-learned for Cambodia. With regard to these, the we discuss relevant literatures concerning the updated status of smart cities around the world. Overall, this paper has the following objectives:

Objective 1: Study the smart city framework and initiatives for the 21st century

Objective 2: Study the experience of developed countries in preparing and developing their smart cities as lesson-learned for Cambodia

The study employs qualitative-based research methodology where content analysis on relevant policy documents, literatures, scientific studies, and website contents about the topic were used to make the finding more relevant and comprehensive. The experiences and framework of four countries, South Korea, Thailand, Japan and China, in constructing their smart cities, were studied to serve as lesson-learned for Cambodia. In the sense, the discussion in this paper lies on the perspective of policy and strategic development rather than focusing on the theoretical concepts of smart city.

## 3. FINDINGS AND DISCUSSION

### 3.1. SMART CITY FRAMEWORK

According to Remington Tonar and Ellis Talton (2019). Smart cities initiatives can be traced back a hundred years to the work of early 20th century urban planner Le Corbusier, who understood the home as a "machine for living in." However, during that time the term “Smart City” had not been widely discussed until 2009 that it was used to describe sustainable urban development.

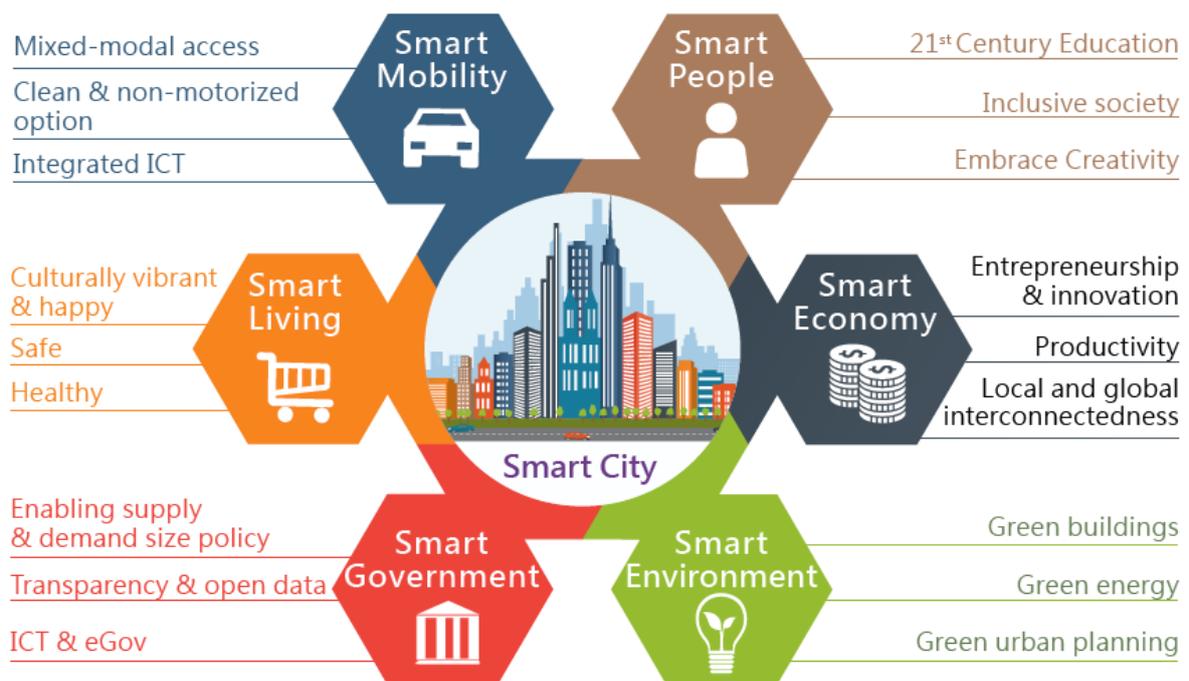
*What does it mean by the term “Smart City”?*

In global context, the term “Smart City” has, so far, never come up to unique definition as there is no univeral accepted answer to the above question, and they means different things to different people. The conceptualization of the term, therefore, varies from city to city and country to country, depending on the level of development, willingness to change and reform, resources and aspirations of the city residents (Smat City Mission, 2017). Because of different conditions and contexts into which smart city technologies are developed, there is no conclusive definition for a smart city, including its describing attributes. Smart city projects in Latin America, for example, focus on security, local government and mobility while those in Europe emphasize on efficiency of public services and inclusive society (Neirotti et al., 2014).

Even there is no unique definition concerning smart city, the conceptual framework does not vary with its involvement of technology, ICT and IoT and the like as a core consideration in urban planning and management. As an ultimate vision, smart city will be

highly efficient, eco-friendly and equipped with a seamless infrastructure involving roads, power, water, environment and security systems based on information and communication technology and automation for every aspect of society and living (The Korea Herald. 2016; Schaffers, Hans & Komninos, Nicos & Pallot, Marc. 2012). In business world, smart city will be built to be capable of collecting and analyzing vast quantities of data to automate processes, improve service quality, provide market signal feedback to users, and to make better decisions (Joshua, New, (2017).

Regardless of how it was defined, the ultimate goal of a smart city initiative is to enhance the quality of life enjoyed by all residents through using technologies, ICT and IoTs to improve the efficiency of social services (Smart City Consortium, n.d). According to Boyd Cohen, an internationally renowned urban strategist, Smart City consists of 6 major components, namely Smart Economy, Smart Environment, Smart People, Smart Mobility, Smart Living and Smart Government.



**Source: Smart City Consortium**

According to *Bee Smart City Website*, the six dimensions of smart city have been discussed as follow:

- **Smart Government**

*Smart Government* refers to the administration and management of business processes related to government with the help of technology, IoT, smart objects and cyber-physical systems for the efficient and effective performance of public tasks. In other words, Smart Government is about strengthening the connections and interactions between the

government and all stakeholders - citizens, businesses and other organizations of the civil society by utilizing technology and innovative approaches.

- ***Smart Environment***

In one sense, *Smart Environments* refers to the use of technology to connect the world or environment we are living with sensors and computers. These sensors and computers are integrated with everyday objects in peoples' lives and are connected through networks. These smart devices are continuously working to make people' lives more comfortable by replacing the hazardous work, physical labor, and repetitive tasks with automated agents. In another sense, Smart Environment could refer to the utilization of new technology and innovative methodology to improve and facilitate sustainable standards and practices. The reduction of waste production, monitoring and managing pollution, emission reduction, water management, achieving energy efficiency, and accelerating the local energy transition are some important goals of Smart Environment initiatives.

- ***Smart Economy***

*Smart Economy* describes all actions aimed at transforming and strengthening a country's economy based on technology, Industry 4.0 framework and intelligent approaches that, in turn, generates stable and favorable conditions for all stakeholders. From a government perspective, "smart economic development" is an important tool to actively seize opportunities and provide conditions that support the creation and growth of businesses as well as new jobs. Improving the overall business climate, a city's attractiveness for start-ups, investors, businesses, and new (highly qualified) talent as well as growing the economy in an innovative and sustainable way to increase competitiveness are the most important goals. In some cases, smart economy is used as sustainable development for "green economy," or "green industry" which we might also refer to modern effective economy.

- ***Smart People***

First, *Smart People* aims at transforming the way citizens interact – via information or the provision of services – with the public and private sector as individuals or businesses. Creating social and digital inclusion/digital equality through educational offers is an important prerequisite for a more efficient provision of information and services based on new technologies. Second, "*Smart People*" is about smart forms of education to facilitate career choices, labor market opportunities, vocational training as well as lifelong learning for all age groups and demographics. Talent development is also an important aspect from an economic development perspective as an increasingly important location factor. "Smart People" solutions support the creation of an accessible and inclusive environment to increase prosperity and innovation within a city or community. Participation, open-mindedness, and creativity are some aspects that are enabled or nurtured by implementing intelligent solutions.

- ***Smart Mobility***

*Smart Mobility* focuses on increasing the efficiency and service quality of urban transportation to enhance the use and adoption of new mobility solutions as well as to increase people mobility through efficient mobility management and targeted infrastructure investments. Achieving cheaper, faster, and environmentally friendly mobility as well as integrated multi-modal transportation is an important challenge for cities and communities. Supporting the combination of multiple modes of public and private transport, and adopting new forms of transportation (e.g. electric vehicles, hydrogen-powered vehicles, autonomous vehicles, bike sharing, carpooling/car-sharing) is an important aspect for a future-oriented strategic approach to foster “Smart Mobility”. A customer-centric and inclusive approach for all citizens, businesses, and visitors is needed to achieve a high-quality mobility service and to ultimately improve the flow of people and goods within a city or community, while at the same time reducing the environmental impact.

- ***Smart Living***

Smart Living aims at increasing quality of life for residents and visitors by following an inclusive strategic approach – across all age groups and demographics. Facilitating livability and optimizing the management of the living environment are two aspects that need to be jointly addressed to maximize benefits for the municipal government and its stakeholders. Smart Living focuses on improving social and digital inclusion (e.g. the use of electronic services, connectivity, and social platforms), on improving healthcare and care for the elderly (e.g. eHealth, Ambient Assisted Living), safety, housing conditions, and smart buildings. New methodologies for civic and social engagement as well as new technologies (e.g. IoT based on WiFi or LPWA network technology) are leveraged to improve accessibility and citizen experience across all focus areas.

Along with its positive attributes, smart city does have its dark side in term of security and privacy protection. Because smart cities require open and transparent data both from individual citizen and the government itself, so protecting such immense and complex data from attacks or malicious activities is an inevitable challenge. Another concern for smart city development would be resources spent on technology and infrastructure development. As a result, it takes huge resources, technically and financially, to build a smart city (Muykim, 2019). While a big amount of money is allocated to the building of a smart city in a certain location, the other areas, in certain cases, may have to delay or wait. Finally, energy security is also an important issue that shall not be overlooked since whether a smart city is able to function smoothly depends very much on electricity supply to its constituents (Muykim, 2019). When the electricity is cut off, the city may no longer be smart. If this does happen, all the processes and operations, including government tasks, business operations as well as etc. will be out of line.

## 3.2. SMART CITIES IN SOME COUNTRIES

### SMART CITIES IN SOUTH KOREA

As mentioned above, the concept of smart city varies depending on each country's commitment toward smart city development. The goals and strategies of each country define how smart city should look like within its own context and situations. Taking an example of South Korea, being as one of the most developed countries in Asia, Korean urbanization processes have attracted million of Korean people moving to live in the cities and urban areas. The population and resource consumption are concentrated in the cities due to rapid urbanization and this people's mobility. Along with this, Korea has experienced various social problems such as fine dust, traffic congestion, water shortage and disaster safety, and these issues are intensifying, posing a major threat to the city's sustainability for the country. In South Korea, urban development plans were managed by the government and large private conglomerates which caused growing urban issues which was a global trend towards urbanization.

For the last 15 years, the Korean government has tried to cope with urban issues using new technologies with several of its smart city projects. In this sense, Korea defines Smart City as 'a platform to improve the quality of life for citizens, enhance the sustainability of cities, and foster new industries by utilizing innovative technologies of the 4th Industrial Revolution era'. Since the launch of the Smart City National Project, this initiative can help Korea address climate change and reach reduction targets concerning greenhouse gas emissions in terms of the development of cities. This, together with the collected views of experts from industry, academia and research institutes, has led to a national roadmap for Smart Cities development. The Korean government is pursuing smart city policies with the aim of solving urban problems, developing an inclusive smart city that cares for citizens, and building an innovative ecosystem and strengthening global cooperation utilizing the advanced technologies of the 4<sup>th</sup> Industrial Revolution. South Korea has prepared five-year mid-to-long term roadmap to develop and expand smart cities in four major areas:

- Continue to create smart cities tailored for each stage of urban growth (new-existing-old)
- Strengthening the foundation for smart city expansion by simultaneously developing technologies and fostering human resources for city operation based on data and AI.
- Establishing a smart city innovation ecosystem through bold regulatory improvements and corporate and civic engagement governance.
- Planning to strengthen our global network to share insights and experiences with countries around the world.

Taking a particular smart city investment of Norwegian companies, smart cities in Korea, although there are many focus areas in Smart Cities, the following are the sectors that represent areas of opportunities for Norwegian companies:

- **Smart Transportation**

The aim is to build a nationwide charging infrastructure that will allow electric vehicles to be charged anywhere. A vehicle-to-grid system is also planned, which will charge batteries of electric vehicles during off-peak times and resell surplus electricity during peak times. Also, autonomous vehicles, trucks and ships are in the actual testing phase in Korea.

- **Smart Energy & Power Grid**

Innovation in interconnections between consumption and supply sources is the goal here. This will allow for new business models to arise and improve power grid malfunction and automatic recovery systems to ensure a reliable and high-quality power supply. The Korean government plans to increase the share of new and renewable energy in the entire primary energy to 11.0% (13.4% of the total electric power) by 2035.

- **Smart Buildings**

Energy self-sufficiency of houses, buildings and villages is the ultimate goal. The aim is to build smart renewable energy power management complexes across the nation by rolling out microgrids and deploying small-scale renewable energy generation units for every end-user.

- **Smart Hospitals**

Seoul National University Bundang Hospital (SNUBH) is one example of a next frontier healthcare system. SNUBH recovers USD 275 million in revenue per year. It operates with a force of 515 physicians, 780 nurses and 640 staff. Since 2003, SNUBH has been acting as South Korea's national medical research hospital.

- **Smart Governance**

Korea ranked first in the UN e-Government Survey for three consecutive terms. The Korean government has worked for decades to build and improve its e-government systems, launching innovative e-public services such as e-procurement system and 24-hour public service portal. As a result, most of the public services are delivered online now, making the Korean government ever more transparent.

- **Construction of Testbeds for Smart Cities**

The Governmental Smart Cities Committee has been inaugurated and the actual cities for Testbeds were announced as Sejong and Busan, and the existing Smart cities such as Songdo, Sungnam, Kimpo, and Goyang are continuously looking for a new technology partner to make the city smarter at a local governmental level.

## **SMART CITIES IN THAILAND**

Smart City projects in Thailand, on the other hand, put more focuses on economic perspective which relies on ecosystem to promote agriculture and tourism industries, which is the economy-driven sectors of Thailand (Jillian Louis, 2020). Thailand views that promoting these sectors will benefit the nation in closing the income gap and accelerator much-needed

growth in the country's economy as a whole. During the 2019 ASEAN Summit, Thailand introduced the Eastern Economic Corridor (EEC) initiative to transform three Thai provinces into smart cities – which has turned out to be a success. The recent focus on smart cities in the country is all part of the government's Thailand 4.0 initiative, which is a new economic model that aims to transform Thailand into a high-income nation. With these initiatives, Thailand aims at creating a center for trade, investment, regional transportation, and a strategic gateway to Asia (Jillian Louis, 2020).

Thailand have identified 10 S-curve industries that will push the country to become a developed nation in the region. The S-curve industries are divided into two categories – S-curve and New S-curve (The ASEAN Post, 2018). S-curve refers to existing industries such as smart electronics, food technology, agriculture, automotive, and medical tourism; meanwhile the New S-curve involves robotics, aviation, biofuels, medical hubs and the digital sector. To reach this ambitious goal, Thailand has escalated smart city projects with strong supports from the government and close collaborations with private industries and other stakeholders.

## **SMART CITIES IN JAPAN**

The Smart City Institute Japan (SCI-Japan) has been established as a not-for-profit organization by Mitsubishi UFJ Research and Consulting Co., Ltd. and Nikkei, Inc. SCI-J aims to provide a membership program for public, private, and social sector organizations engaged in the development of smart cities in Japan. As articulated in the Society 5.0 initiatives, installing smart cities in Japan has been one of the priority measures to resolve social and economic issues related to mobility, health, tourism, energy, environment, finance, government services, etc. Smart city project in Japan seek to utilize AI and big data to manage at least five of 10 areas within a designated city. The 10 areas are transportation, logistics, payments, municipal administration, medical and nursing care, education, energy and water, environmental management and waste control, crime prevention, and disaster control and safety (Eric Johnston, 2020). In Japan, the projects are administered by local governments, which each local government can work with private technology firms and other stakeholders to come up with plans for creating their own smart city (Eric Johnston, 2020).

There are several factors that distinguish Japanese smart cities from their counterparts overseas. Smart cities in Japan focus on the following areas as priority.

- A focus on smart energy systems and disaster resilience
- A “whole of government,” integrated approach
- An emphasis on building up from the micro as opposed to bolstering the macro-grid
- An accelerating deployment due to the March 11, 2011 (3/11) Fukushima disaster

Japan's smart city paradigm is expressed in hundreds, if not thousands, of policies and progress reports on smart-energy, disaster, spatial and other planning initiatives. While in the U.S., smart city projects tend to focus on making technology upgrades to drive efficiency and awareness, in Japan, smart city initiatives are more likely to focus on driving social cohesion and addressing social ills, such as the country's aging population, (Brian Buntz, 2020).

## SMART CITIES IN CHINA

National Development and Reform Commission of China defines smart city as “new idea and new mode of promoting smart city planning, construction, management and service, using the Internet of things, cloud computing, big data, and spatial geographic information integration, etc.” (NDRC, 2014). China has made the smart city projects part of its national development strategy, which were mentioned in the 13th Five-Year Plan (2016-2020). To reach the goal, China has also encouraged technology companies to become leaders at a global level, and to reach out to foreign cities in support of their own smart city development. The country often promotes its smart cities through existing bilateral and regional frameworks (such as the China-ASEAN Summit or the China-Central Asia Cooperation Forum) and in particular under the banner of the ‘Belt & Road Initiative’ (BRI), as well as its derivative, the ‘Digital Silk Road’, which are attracting a significant number of countries (Alice Ekman & Cristina de Esperanza Picardo, 2020).

According to (Atha et al., 2020), Chinese Smart Cities Policies focus on the following:

- Smart cities are part of a decades-long pattern of Chinese government programs that seek to digitize and “informatize” cities to improve China’s comprehensive national power and internal strength.
- The central government’s top-down approach to smart cities pilot programs and shift away from city-led initiatives has led to the centralization of decision-making and the decentralization of implementation. This has resulted in a nonlinear and unpredictable development trajectory for Chinese smart cities that allows for course-correction and experimentation.
- Chinese smart cities policies have begun to coalesce and standardize after an initial period of experimentation and bureaucratic overlap.

## 4. CONCLUSION

Whether to improve security, resiliency, traffic congestion, public safety, power consumption, or to make city’s private and public services better, each community may have different reasons for wanting to be smart. However, all smart communities share common characteristics that is the utilization of smart connections, technologies, IoTs in all aspects of life and the society. The connections of People, Processes and Technology (PPT) are integral part of successful smart city initiative. The government (central and local) and private investment bodies play major roles in promoting smart city projects. However, strong collaboration among universities, research institutes and other relevant smart intellects and stakeholders also contributes significantly to the success of smart city projects. The success of a smart city is neither a top-down nor a bottom-up approach, but it requires both. While the government develops policies focusing on the smart city programs and pours resources into the policy implementation, the enterprises and scientists must ramp up their efforts to invent and update the technologies to match up with the government efforts. The public, apart from

utilizing the super-advanced technologies and services, plays vital roles in participating in the governance and management of the smart cities, known as ‘electronic participation’.

## **5. RECOMMENDATION**

In the wake of emerging social issues in the cities such as traffic congestion, power consumptions, complexity of public administration and climate changes etc., Cambodia needs to pay more focus on smart city development in order to deal with these problems more effectively. The trend of smart city development will be common, and this will be the key solutions not only to the problems mentioned above, but this initiative will also promote social and economical situations of Cambodia. Nonetheless, the government plays significant role in accelerating and coordinating the development of smart cities as the long-term success of smart cities will likely depend on whether the government supports their development. Conceptualizing the current Cambodian situations in term of urban planning, economic drivers, the experiences from some countries discussed and some smart city roadmap proposed by Smart Energy IP. (2018) and Sam Musa (2016), the following recommendations should provide practical guidance for not only the government but also city planners, private and scientific institutions alike in order to make smart city initiative become reality.

### **○ Define the Community for Smart City**

It is true that the concept of smart city differs from one place to another depending on how the government will invest in its development, how the technology will be used etc. Taking smart city framework as guidance, Cambodia needs to clearly define how its smart cities would be. This may relate to geography, links between cities and countryside and flows of people between them. This could also be the size of the community, the role of this community as it is related to the other cities or communities etc.

### **○ Study the Community**

Before deciding to build a smart city, it is necessary to know why we are pursuing smart city project in this community but not the other. Understanding about the community helps the city planners know the citizens, the business's needs, the community's unique attributes, such as the age of the citizens, their education, hobbies, and attractions of the city etc. Knowing the ages of the citizens, their educational background, their hobbies, the city attractions, the businesses, and the resources of the community are all key steps in getting to know the community and why there is a need to build a smart city. The information about the community will provide great benefit for smart city planners in connecting the three principles of smart city: People, Process and Technology.

### **○ Define Key Economic Drivers**

Taking Thailand as example, its smart city strategic development lies in key economic drivers for the reason that these drivers will not only boost the country’s economy, but advancing in these areas will also bridge social gaps by providing more opportunity to the

vulnerable groups in the society. With this example, and in addition to understanding the community, Cambodia needs to be clear about the country's economic drivers as well as the potential economic drivers of the community for the smart city projects.

- **Develop Smart City Policy and Framework**

Smart City development is a big dream, and Cambodia needs to have a smart city policy and framework to drive this initiative. The policy will serve as guidance and provide directions for city planners and other urban developers to move forward. This policy will also define roles, responsibilities, objective, goals and strategies to achieved this ambitious plan, so that it provides greater benefits to the people, society and the country at large.

- **Involve the Citizens**

One component of smart city framework is 'Smart People', and of course if we look at the whole framework, people involve in all aspect of the six components of smart city. The success of smart city development also relies on the connections among its three principles: People, Processes, and Technology. With this regard, the government has to involve its citizens in the processes of smart city initiatives. The government would engage the citizens in various forms including listening to their needs, involving them through the use of e-government services, open data and sport events etc.

- **Engage Private Sector for More Investment**

Of course, government plays major role in smart city development projects, but more investment from private industries makes the projects be realized. With this, Cambodian government has to create more pleasant investment atmosphere and opportunity for private sectors, especially those investments on urban planning and development as well as advanced technologies, ICT and IoT etc.

Beside the strategy recommendations above, New et al. (2017) also suggested that national government further provide more supports and seek solutions to the following areas:

- Supporting shared projects in at least four areas:
  - 1) R&D on key technical challenges, such as cyber security and advanced technology
  - 2) Research and demonstration projects that develop and test particular new smart city applications
  - 3) Shared applications and tools that make cities better equipped to work with smart technology and data
  - 4) Demonstration projects to establish a few comprehensive smart cities to test system-wide applications.
- Allocating a share of infrastructure investments to specifically target smart infrastructure, such as intelligent transportation systems and smart grid systems.
- Developing policies and common standards for smart city technologies that encourage interoperability and data sharing to increase the effectiveness of smart city applications and increase the value proposition for smart technologies.

- Fostering collaboration and coordination in the smart city ecosystem to facilitate inter-city learning and reduce knowledge-sharing barriers.
- Ensuring that efforts to support smart cities, such as through pilot programs, infrastructure investment, or support for public-private partnerships, address the needs of underserved communities.

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