How to Accelerate the Slow Development of Hong Kong's Smart City

2021, Vol.2 No.5
© Economics & Management Review 2021
DOI: 10.37420/j.emr.2021.023
https://masonpublish.org

Yao Wu*
Hong Kong Polytechnic University, Hong Kong, China
***Corresponding author, e-mail: wuyaohk@gmail.com**

Abstract

The development of smart city is a strategy and a necessary choice for coping with the increasingly severe urbanization "disease", seeking sustainable development of city and countries, and enhancing the comprehensive competitiveness of city in the era of information technology. In many international smart city index rankings, Hong Kong's ranking is not impressive, and the rate of improvement in recent years has not been obvious or even slow. The administrative measures of "laissez-faire" and "market-led" have dragged down the overall development speed of Hong Kong's smart city. Lack of effective administrative means and the promotion of administrative efficiency, the cooperation between stakeholders in the development of Hong Kong's smart city is like scattered sand. The government cannot even guarantee the cohesion of its various departments in the development of smart city. Hong Kong is facing a crisis of widening the gap between Hong Kong and the world's first-tier city. Facing the slow development of smart city, the Hong Kong government urgently needs to research how to accelerate the development of smart city in order to maintain the sustainable development of Hong Kong society and Hong Kong's status as a world city.

Keywords

Hong Kong; Smart city; Slow

Introduction

Background

Since the Hong Kong government launched the "Hong Kong Smart City Blueprint 1.0" in 2017, "Embracing innovation and technology and building a world-renowned, economically prosperous and high-quality smart Hong Kong" has always been the Hong Kong government's vision for the development of smart city (Hong Kong Innovation and Technology Bureau, 2021). In September 2015, the Central Policy Unit of the Hong Kong Government (2015) formally proposed a smart city research report and emphasized the necessity of Hong Kong to develop a smart city. In order to cope with more and more complex and non-traditional urban "diseases", including urban transportation, housing, health, medical care, e-government and many other aspects, the development of smart city has become a more efficient and sustainable way for the Hong Kong

government to maintain and improve the social economy and the quality of life of citizens in the era of information technology (Hong Kong Trade Development Council, 2020).

In the era of information technology, the achievements of the development of smart city are not only related to citizens' lives and city internal governance, but also related to the future international competitiveness of the country or region in terms of technology, economy, culture, and politics. The development of a smart city is a necessary measure for Hong Kong to maintain its status as a "world financial center" and "Asia's cosmopolitan city" (Govada, Spruijt and Rodgers, 2017, Chapter 6). In order to accelerate and effectively implement the "Smart City Blueprint 1.0" plan and other smart city-related measures, in the 2017 Hong Kong Government Policy Address (2017), Chief Executive Carrie Lam announced the establishment and personally chaired the Innovation and Technology Steering Committee. And in his speech at the Smart City Blueprint 2.0 online forum, Secretary for Innovation and Technology Sit Wing-hang stated that Hong Kong's smart city is undergoing steady and long-term development (Press release, 2021).

But the Hong Kong Youth Research Center's report (2018) on the application of innovation and technology life to smart city in Hong Kong pointed out that Hong Kong's smart city development is slow and the penetration rate of technological innovation is low during the promotion process. And the main reason is that Hong Kong lacks substantial policy assistance for the "landing" of scientific research, and still maintains outdated laws , Slow opening of data and lack of completeness. Technology itself is not worthy of myth. How to make good use of technology is the focus of the development of smart city. In Hong Kong, the development of smart city cannot just come from the limited government financial subsidies and rely solely on market promotion. The Hong Kong Youth Research Center also found through a questionnaire survey that only 27.1% of Hong Kong youths knew about the policy one year after the launch of "Smart City Blueprint 1.0". In an era based on the development of information technology, especially in the competition among the world's leading city, the slow development of smart city is essentially equal to the regressive and widening gap between comprehensive strength and various levels. Therefore, how to accelerate the slow development of Hong Kong's smart city is the focus of this research.

Organization

This study will use the research model of the policy position paper to propose policy proposals to solve the slow development of Hong Kong's smart city. In the literature review stage, this study combines the results of previous scholars' research on the topic of Hong Kong's smart city to explore the reasons for the slow development of Hong Kong's smart city. It also highlights the seriousness and urgency of the social problem of the slow development of Hong Kong's smart city through the problem statement. In the Proposed Position section, by learning from the successful experience of Singapore and some European countries in developing smart city, this study propose a suitable position plan for accelerating the development of smart city in Hong Kong. The smart city blueprint is a large-scale social policy framework that contains many specific measures. The evaluation and policy advocacies of this study are based on the overall policy framework of smart city.

Literature Review

The Status Quo of Hong Kong's Smart City Development

In 2020, the Hong Kong government launched the Smart City Blueprint 2.0. Compared with 1.0, the Hong Kong government once again added a chapter on the Use of I&T in Combating COVID-19 on top of the original six frameworks. The original six frameworks include smart travel and smart living. , Smart environment, smart citizens, smart government and smart economy. The number of specific measures has also been increased from 76 to more than 130. In the past three years, some major measures have been implemented as scheduled, and a few measures have been well-known to the public. For example, the "StayHomeSafe" application is used to monitor the number of people undergoing home quarantine. "LeaveHomeSafe" app to inform everyone of the possible infection risks. The Hong Kong government actively promotes e-Health (electronic health record sharing system) to protect the lives and health of citizens. The Hong Kong government promotes the IT knowledge training program for middle school students to reserve scientific and creative talents for Hong Kong (BluePrint 2.0, 2020). The mature and advanced MTR transportation system and the high quality 5G that has been widely used in the society have become the pride of Hong Kong in the international community (Press release, 2021).

The Slow Development of Hong Kong Smart City

The index performance of many smart city evaluation agencies around the world differs from the views expressed by the Hong Kong government. In the second "Hong Kong Startup Index" published by EntreLink in 2020, the total score of Hong Kong's Startup Development Index is ranked 5th from the bottom among 13 major Asian city (neighboring Hong Kong, including the newly added Macau). In 2019, Hong Kong ranked second from the bottom. The supply of talents and the technological innovation environment have always been Hong Kong's weaknesses. These two items are the last in the 2019 assessment (EntreLink, 2020). And Hong Kong ranks No. 32 in the 2020 Global Smart City Ranking released by IMD in Switzerland. In 2019, Hong Kong ranked 37th. But Singapore (No. 1) and Taipei (No. 8) were far ahead of Hong Kong. In the Global Open Data Index 2019, Hong Kong is only ranked 24th among the 30 evaluated city in the world. In 2021, the Legislative Council Secretariat released a data report on the community's perception of Hong Kong as a smart city for 2018 and 2019. In 2018, only 30% of citizens, 29 % of large enterprises and 27% of SMEs considered Hong Kong to be a smart city. In 2019, also only 30% of citizens, 44% of large enterprises and 39% of SMEs consider Hong Kong a smart city. The development speed and effect of Hong Kong's smart city have not been recognized by the society, especially Hong Kong citizens (Hong Kong Legislative Council, 2021). From the launch of the smart city blueprint by the Hong Kong government in 2017 to 2020, Hong Kong's development speed and international ranking of smart city has not been effectively improved.

Problems in the Development of Hong Kong's Smart City and Related Solutions

Open data openness is the cornerstone of smart city development. In the academic journal CITES, scholars from the Hong Kong Polytechnic University of Architecture and Real Estate, Ma and Lam analyzed in detail the obstacles faced by stakeholders in the development of Hong Kong's smart city in opening up data. Ma and Lam identified 43 obstacles that stakeholders face in open data openness, such as legislation, technology, operations, and use, and the obstacles are usually intertwined. Ma and Lam used social network analysis

as a quantitative tool to visually analyze and determine the structure of obstacles. And finally found that the biggest obstacle that stakeholders face in open data opening is the lack of an official open data policy. The conservative stance of the government, statutory bodies and private companies on information sharing is the most important factor hindering the development of smart city in Hong Kong in the existing free market. Ma and Lam believe that priority should be given to recommending the government to deal with the lack of open data policies. It also pointed out that in the future it is necessary to improve the IT literacy of the public sector, improve the governance structure related to open data, encourage the participation of private enterprises, and provide users with a feedback loop (Ma & Lam, 2019).

In the journal Telematics and Informatics, scholars Ma, Lam and Leung discussed the potential pitfalls of Hong Kong's smart city development by taking Hong Kong's parking mobile application as an example. The four potential pitfalls of information insecurity, privacy leakage, information islands, and digital divide usually appear in smart city projects based on information and communication technology. Scholars Ma, Lam and Leung found that technology alone cannot make city smart. Each smart city project system is composed of various hardware with different functions and involves a large number of stakeholders. For the development of smart city, designing an operable and sound management and control system is as important as technological development. The development of smart city depends on good governance and cooperation between public and private stakeholders. As a coordinator, the government has the responsibility to guide and intervene in the development of smart city towards healthier reasons (Ma, Lam & Leung, 2018).

Scholars Govada, Spruijt and Rodgers (2017) have studied and analyzed the six frameworks and related specific measures included in the development of Hong Kong's smart city in detail in Chapter 8 of the book Smart economy in smart city. Although Hong Kong has shown the characteristics of "smartness" in life, travel, governance, economy and other fields, they found that the Hong Kong government lacks the necessary efforts, investment and innovation to enhance its status as a smart city. The Hong Kong government is more like simply proposing the direction of a series of smart city development measures, and then become a bystander. The biggest challenge in the development of Hong Kong's smart city comes from the Hong Kong government's inability to guarantee that inside the city, including the government itself, will adopt a comprehensive and cohesive approach to achieve the development of a smart city. Many different stakeholders, governments, companies, and organizations have introduced smart city development initiatives while lacking integration and cooperation with each other, thus negatively affecting the overall success of Hong Kong's smart city development.

Research Sustainability

This study found that most of the Hong Kong government's assessment reports on smart city are inconsistent with academic journal reports by searching in resource libraries (including PolyU Library and Google Scholar). The Hong Kong government's research report on smart city is more like a summary of the achievements of Hong Kong's smart city development. In the academic journal reports, many scholars and organizations critically examined the obstacles encountered in the development of a single project in Hong Kong's smart city and proposed corresponding solutions. But the above-mentioned scholars and organizations did not take the deeper social issues hidden behind the obstacles of a single smart city project as the research object, and none of the above-mentioned scholars conducted relevant research from a policy position. Therefore, this

research takes the policy position as the research method and takes the slow development of Hong Kong's smart city as the core social problem to propose suitable and rational solutions and policy recommendations.

Problem Statement

Problem Statement

Due to the problem of the slow development of Hong Kong's smart city, Hong Kong is facing the crisis of unsustainable social development and a widening development gap with first-tier city in the world. The Hong Kong government urgently needs to research how to accelerate the development of smart city in order to maintain the sustainable development of Hong Kong society and Hong Kong's status as a world city.

Background and Analysis of the Problem

According to the research results of many scholars and institutions on Hong Kong's smart city, it is found that the Hong Kong government in the process of promoting the development of smart citiy which there is lack of policy support, the lack of reasonable development and governance structure, the role of excessive dependence on the market, there is no guarantee that the Hong Kong society of internal cohesion, not to deal with the relationship between the stakeholders and a series of bystander behavior. To sum up, the Hong Kong government only played the role of advocate in the initial stage and formulated more than 130 kinds of smart city development measures. However, in the subsequent development, the lack of administrative intervention and excessive reliance on the market led to the low popularity of science and technology innovation applications, the loss of science and technology talents and enterprises and the slow development of Hong Kong's smart city.

The political beliefs and governance concepts of "small government, big market" and "Laissez-faire" promoted by the British Hong Kong government are completely inherited by the current SAR government. Neoliberalism is regarded as the golden rule by many Hong Kong people. The management philosophy of "small government, big market" is that the government tries its best to transfer social resources to a free market, and uses private ownership and labor employment as the development axis of economic construction and partial policy implementation (Dorn, 2007). The financial management of "how much is used how much" is more like a "scrooge." The Hong Kong government's trillions of foreign exchange reserves dare not spend more money to actively develop emerging technology industries and promote economic transformation (HK01, 2020). Complete private ownership and the self-interested nature of a free market are incapable of being the main axis of policy implementation. With smart city already lagging behind other developed regions, and based on the small size of the Hong Kong market, then Laissez-faire and market-dependent governance philosophy will only lead to the outflow of more scientific and technological talents and enterprises. Hong Kong's smart city development will also be forced to slow down.

Take open data as an example. Open data is an important foundation for the development of smart city. Citymapper, a real-time traffic information platform from the United Kingdom, came to Hong Kong in 2016 and now has a large number of users in Hong Kong. Gene, general manager of Citymapper Hong Kong, said that

Hong Kong's open traffic data is backward. Traffic data such as buses and green minibuses are still incomplete. On average, the update of new bus routes will have to wait one week to one month for Citymapper to know. At present, Citymapper and buses have not achieved true data circulation. Usually Citymapper cannot update the exact arrival time of the bus in time, but the bus's own APP can. If buses and MTR do not release their traffic data, smart transportation will not be able to progress (Faan, 2018). Therefore, the government needs to assume the status of a leader and promoter of smart city development, and establish a data-sharing platform through which the government, enterprises and residents can safely share with each other through administrative means.

According to the "White Paper on Smart Digital city" recently released by Google (2020), as many as 64% of companies and 51% of SMEs in Hong Kong have reported difficulties in hiring talents with STEM knowledge. In the context of smart city, investing and developing talents, attracting and retaining talents, and talent reserves have become the three major indicators that the Hong Kong government needs to consider. Under the market-led model, it is even more difficult for Hong Kong's local science and technology enterprises to survive. Science and technology innovation is an industry with relatively huge investment. In many cases, the local market in Hong Kong cannot support the survival of an enterprise. As a result, many local companies in Hong Kong do not have sufficient funds to attract science and technology talents to stay or come to Hong Kong. The foreign and mainland markets are much larger than those of Hong Kong. Many sci-tech enterprises and scientific and technological talents will choose to go overseas because they worry about the development prospects of Hong Kong. According to the 2020 QS Global Subject Rankings the University of Hong Kong, the Chinese University of Hong Kong, the Hong Kong University of Science and Technology, and the City University of Hong Kong are ranked in the top 100 in the world for many subjects in STEM and have a large number of relevant talents, but the Hong Kong government is unable to retain In them (QS Top Universities, 2020). Factors such as low salaries (market -led), rigid funding systems, inefficient government administration, lack of assistance from supporting policies, and overly complicated applications for scientific research funding have created a shortage of scientific and technological talents in Hong Kong. Moreover, in the absence of government administrative support, Hong Kong's overall technology and innovation industry has been expanding slowly. Taking the open data level as an example, the Hong Kong government has not launched a corresponding data-sharing platform and supporting policies and laws for a long time, many multinational technology and innovation companies have given up investment in Hong Kong. As early as 2013, Google decided to withdraw its plan to set up a data center in Hong Kong (HK01, 2018).

The Expected Consequences of Inaction

With the intensification of urbanization, the old and traditional urban governance and development system can no longer bear the problems caused by the increase in urban population density. Smart city have become an irreversible new trend of sustainable urban development. Hong Kong is also experiencing housing burdens, traffic congestion, social security, health services and other urgent problems that need to be solved due to high population density. When the development speed of smart city lags behind the speed of technological updates, social problems caused by rising population density will explode and the convenience of citizens' lives will not be guaranteed (Central Policy Unit of the Hong Kong Government, 2015). For daily travel in Hong Kong, the intelligent operation system is the basis for effectively ensuring that the MTR and buses carry more than 12 million passengers per day. The electronic payment system based on Octopus allows citizens

to avoid time-consuming processes such as window ticket purchase and queuing when taking public transportation. The 1,200 major road traffic detectors and the non-stop toll payment system in tunnels in various places ensure the smooth travel of nearly one million cars in Hong Kong (Blueprint, 2020). If there is a retrogression in the development of smart city, the convenience of citizens' travel will be hindered and society will be chaotic. On October 16, 2018, MTR caused the worst traffic chaos in Hong Kong since 1979 due to the failure of the two signal systems (Chan, 2018). Therefore, maintaining the rapid development of smart city can guarantee the sustainable development of Hong Kong society.

The development of smart city can not only great deal with the social problems caused by the agglomeration of environmental populations, but also the development of smart city has become a key promoter of technological transformation in many countries and regions. Innovative technology is the main direction of global economic development in the future.Different from the traditional national development model, the development of information technology can refresh a country in a short period of time and promote competition among countries in the world (Vein, 2017). Although the 2019 Global Competitiveness Report published in the World Economic Papers shows that Hong Kong ranks third among the 141 economies in the world, but Hong Kong's innovation capability only ranks 26th with a score of 63.4. In the data of the past ten years (2009-2019), Hong Kong's innovation ability has only been ranked outside the 20th place. The manifestation of innovation ability mainly comes from the training and reserve of talents and the development prospects of local science and innovation enterprises (Chiculture, 2020). In 2021, the Hong Kong Youth Research Center (2021) released the report "Preparing for the Loss of Young Talents in Hong Kong" and pointed out that a quarter of the respondents indicated that they will find employment outside of Hong Kong within the next five years. About 30% of them are engaged in the four pillars or five potential industries of Hong Kong. If the Hong Kong government cannot take effective measures to attract science and innovation talents to stay in Hong Kong or still rely on market operation, then in the next five years, Hong Kong's science and innovation industry and smart city development will face more severe challenges. At that time, the outflow of Hong Kong's scientific and technological talents and technological innovation enterprises will accelerate. And in the era of information technology, If the Hong Kong government cannot effectively solve the problem of slow development of smart city as soon as possible, especially in the competition among the world's leading city, Hong Kong's international competitiveness will be at risk of plummeting.

Proposed Position

Reference Case

Singapore

Looking at the rankings of the above-mentioned multiple international smart city evaluation structures, Singapore's rankings are often in the first or top places. In the global wave of smart city development, Singapore is definitely a comparatively successful case, and it has become the target of emulation for the development of smart city in major city around the world. Unlike other city, Hong Kong and Singapore have too many similarities, such as geography, population, race, economy, etc. Moreover, Hong Kong and Singapore are both world financial centers (Ang & Tan, 2021). Although the governance model of Singapore's "small state

and big government" is fundamentally different from Hong Kong's "small government and big market", the successful experience of Singapore still provides important lessons for the development of smart city in Hong Kong.

Unlike Hong Kong, Singapore's political system is essentially a non-democratic country led by the People's Action Party. The secret of Singapore's economic success comes from its "national capitalist" economic model. The governance model of "small state and big government" has become the core secret of Singapore's successful development of smart city. The development of smart city often involves the administrative style of a country's government and the degree of cooperation between enterprises and residents. Strong governance methods and administrative efficiency have prompted the Singapore government to occupy an absolute dominant force in its smart city development. Moreover, the Singaporean government's image of being efficient, clean and transparent has become an important driving force for its recruitment of external investment and promotion of the development of the smart technology industry (Ang & Tan, 2021).

The "top-down" top-level design smart city development strategy has formulated many smart city development measures, standards and long-term plans for Singapore. In terms of policy implementation, the Government Science and Technology Bureau coordinates the cooperation between the government, enterprises, and citizens, and actively promotes social enthusiasm, initiative and creativity in the development of smart city. After the integration, the relationship between government, enterprises and citizens has become a main line of smart city development and division of labor. Taking open data as an example, the Singapore government deliberately set up a pilot area in the Jurong Lake area to develop, collect, protect and summarize information and data resources, and integrate them for use by enterprises and citizens. The Singapore government also encourages private companies and citizens to upload data to open data platforms to promote the development of smart city in Singapore (JD Digital Technology, 2020).

"Business environment" is also one of the evaluation indicators of smart city. Singapore has stated directly on the website of its Economic Development Bureau that the Singapore government has always adopted a pro-commercial policy. Moreover, a relatively complete intellectual property protection system for science and technology enterprises has been formed. In addition, the Singapore government has also launched a number of programs to improve the knowledge of the administrative departments and government officials on innovative technology and to improve the level of service to smart city. The talent pool is also Singapore's advantage. As of 2018, Singapore has more than 141,000 IT professionals. Loose immigration policies, exclusive tax incentives, and excellent salaries have attracted many overseas talents to come and stay in Singapore. In order to attract foreign university students, the Singapore government launched a tourism work plan as early as 2017 to attract them to work and settle in Singapore in the future. So 80 of the world's top 100 software and service companies have come to Singapore to set up branches. Among them, 15 software and service companies set Singapore as their Asia-Pacific headquarters. Affected by Covid-19, the economy of countries around the world is in a tight period. In the second half of 2020, the Singaporean government decided to increase investment by another 30% in smart city development (JD Digital Technology, 2020).

In the era of information technology, Singapore is committed to breaking away from the traditional "international financial center" status and looking forward to building itself into a smart country. Dr. Chunyan Miao, an associate professor at Nanyang Technological University in Singapore, said that the Singapore govern-

ment's unswerving development of smart city for decades is a strategic choice based on the country's core competitiveness. In the age of technology, Singapore has neither more land nor more natural resources. At a stage where population aging is imminent and international technology is being updated rapidly, the development of a truly smart city can once again stimulate Singapore's potential (China Economic Times, 2014).

Europe

According to the 2020 global smart city ranking published by IMD, seven of the top ten city are from Europe. For example, Helsinki in Finland, Zurich in Switzerland, Copenhagen in Denmark, Amsterdam in the Netherlands and so on (IMD, 2020). Unlike Singapore's centralized government, the political systems of the European countries mentioned above belong to the democratic camp. Under the influence of the wave of neoliberalism, the states and governments of the aforementioned European countries cannot play an absolute leading role in promoting the development of smart city like the Singapore government. The governance model of "small government and big market" and "positive non-intervention" has played down the role of the Hong Kong government in promoting the development of smart city. Therefore, the development achievements and experiences of the above-mentioned European countries will provide effective reference for the development of smart city in Hong Kong.

The focus of European smart city construction is people, and the core of its development is to build a people-oriented sustainable smart city. Facing the era of knowledge society innovation 2.0, Europe launched the Living Lab program, dedicated to creating an innovative urban ecology that is beneficial to the entire society, building the city into a public open space and using it as a vehicle to promote the construction of smart city. In Amsterdam, the Netherlands, the government pays attention to building a platform for the participation of the government, enterprises, scientific research institutions and users through the Living Lab program, and encourages citizens, enterprises, and the government to cooperate so that citizens and even tourists can actively participate in design and co-innovate. In terms of data openness, as early as 2012, the municipal government of Amsterdam, the government of the North Holland Province and the central government of the Netherlands began to work together to actively provide the collected and collated data to data development to develop smart applications (China E-gov, 2017).

In Helsinki, Finland, the Helsinki government created an online "urban laboratory" project based on residents' experience, dedicated to guiding the private sector, government, social organizations, and urban residents to jointly open up and promote the development of smart city. International leading technology companies IBM, Telia, Elisa and Finnish universities have become participants in the online "urban laboratory" project. The concept of "create your own city" has attracted the active participation of countless citizens, thus mobilizing the atmosphere of smart city development throughout the city. The "Helsinki Regional Information Sharing" platform established by the Helsinki City Government in 2011 became the data support for citizens, enterprises and institutions to participate in the "City Lab" project. The SmashHit project plan promoted by the Helsinki government in 2020 has begun trial operation to protect the security of personal and industrial platforms in data sharing (Xu, 2016).

Although the neoliberal wave has played down the role of the state and government, it does not mean that the government can do anything. European governments actively promote the people-oriented concept of smart

city development to attract more companies and citizens to actively participate in the development of smart city. The government promptly promotes various specific plans and platforms to promote the cooperation of all stakeholders, provides a platform for enterprises and citizens to participate, and actively promotes data openness and strong protection of data security. Like Singapore, European countries have also adopted a "top-down" smart city development model. However, European countries have not adopted compulsory administrative intervention, but have adopted active guidance to citizens and enterprises from the level of soft intervention.

Vision of Position and Goals

Hong Kong's smart city development policy is a large-scale framework. Since the launch of "Smart City 2.0" in 2020, it has covered more than 130 specific smart city development measures. Of course, this study cannot make a corresponding specific policy stand plan based on every specific measure. At this stage, Hong Kong is facing the problem of slow progress in the process of promoting overall smart city development. In contrast, Singapore and some European countries have always occupied the forefront of the world's smart city rankings. Their successful experience in developing smart city can be an effective reference for accelerating the development of Hong Kong's smart city.

Option 1: The Hong Kong government occupies an absolute dominant position in promoting the development of smart city, and accelerates the development of smart city with a "top-down" development model and strong administrative intervention.

In view of Singapore's centralized political system, the Singapore government has the absolute right to lay out the development direction of smart city from the top and guide the participation of citizens and enterprises in a "top-down" model. How can a city-state with a small land area develop Singapore into an economically developed capitalist country within 55 years of its founding, and at this stage it has successfully promoted the country from the world's financial center to a smart country? The strong administrative intervention capabilities and administrative efficiency brought about by the Singaporean decision-making body led by the "elite system" and the "small country and big government" governance model have promoted the success of Singapore's smart city development. Of course, all policies cannot be completely correct, and the centralized smart city development model may also bring the Singapore government the risk of public opinion rebound in the future (Ang & Tan, 2021).

As early as the 1960s, the British Hong Kong government began to adopt a "positive non-intervention" governance model. Adhering to a "laissez-faire" attitude towards most of Hong Kong's policy implementation and social development. As the successor of the British Hong Kong government, the Hong Kong SAR government has fully continued the governance model of "positive non-intervention" and "small government and large market" during the British Hong Kong era. It is unrealistic to ask the Hong Kong government to change the governance model that it relies on in order to develop a smart city. Because eagerly changing the governance model of the political system will not only trigger protests from various interest-related groups in Hong Kong, but also cause great social unrest. As a region that relies on elections to generate ruling groups, the ruling groups and government in Hong Kong will not and dare not rashly change the established treatment model. Therefore, it is not feasible to develop a smart city in Hong Kong based solely on Singapore's

development model. However, the Hong Kong government needs to realize that administrative intervention at certain times is often effective.

Option 2: The Hong Kong government adopts a "top-down" model in the process of promoting the development of smart city. Through soft administrative intervention and people-oriented development concepts, it attracts the enthusiasm of enterprises and people to participate, and promotes the cooperative relationship between government, enterprises and people.

Hartley, Department of Asian and Policy Studies, The Education University of Hong Kong, conducted relevant research on the relationship between the government, citizens and enterprises in the development of a smart city in Hong Kong. Since the Anti-Extradition Law Amendment Bill Movement in 2019, Hong Kong society has experienced many demonstrations and violent shocks. The protests reflected the decline in public trust in the Hong Kong government. If the "top-down" model is adopted at this stage and solely relying on the Hong Kong government develop measures and long-term plans on the development of smart city, it will be relatively difficult to realize the rapid development of smart city in the long term. With the impact of social unrest, some members of the public have doubts about the level of trust and political legitimacy of Hong Kong's smart city development. Hartley found through 1017 questionnaire surveys that citizens' trust in Hong Kong's governance mechanisms and models is positively correlated with their support for smart city, and ideology. Unlike Europe and Singapore, Hong Kong's unique social, political and cultural differences and conflicts cannot be solved perfectly for a relatively long period of time (Hartley, 2021). Therefore, a "top-down" smart city development model is not feasible in Hong Kong.

Under the principle of not changing the governance system, soft administrative intervention can become a feasible option. At this stage, according to scholars Govada, Spruijt and Rodgers' research on Hong Kong's smart city, it is found that the Hong Kong government cannot even guarantee that the various departments within the government itself can reasonably and completely coordinate to complete the task of smart city development. Currently, all stakeholders in the development of Hong Kong's smart city are in the stage of loose sand. Moreover, the development of smart city in Hong Kong still lacks corresponding laws, regulations and policies (Govada, Spruijt & Rodgers, 2017, Chapter 8). Since the Hong Kong government proposed the development of smart city in 2015, corresponding data protection policies and laws have not yet appeared. Excluding obvious and rigid administrative interventions, the Hong Kong government can start soft administrative interventions and improve administrative efficiency from the inside, thereby slowly expanding to the entire smart city urban development or the entire social governance.

Option 3: The Hong Kong government adopts the coexistence model of "top-down" and "bottom-up" in the process of promoting the development of smart city. The Hong Kong government takes full advantage of the planning ability of the elite decision-making system, actively listening to the opinions of the community, and timely feedback and adoption. In the process of managing the development of smart city, the Hong Kong government needs to put aside the traditional "laissez-faire" governance model to a limited extent, reduce dependence on the market, strengthen internal supervision and strengthen soft administrative intervention methods, and thereby improve Administrative efficiency and speed up the development of smart city.

It is an established fact that Hong Kong's technological innovation industry is backward and the development

of smart city is slow. The current Hong Kong government has invested billions of funds, hoping to catch up in the field of smart city development. Some pilot projects have been launched in an orderly manner, but the feeling given to citizens is always "big movement and small effect". Measures to support the development of science and technology enterprises are either not in place or have little effect. The development of a smart city requires the close cooperation of the government, enterprises, and citizens. If only relying on the "top-down" and "market-dependent" model, then the development of Hong Kong's smart city can only be scattered. At present, the Hong Kong government is still at a stage where its credibility is damaged after the turmoil, and it is difficult for the "top-down" smart city development plan to get the support of citizens and enterprises. Therefore, the development of Hong Kong's smart city needs to inject "bottom-up" momentum.

In 2015, the Central Policy Unit of the Hong Kong government emphasized in the initial smart city development report that the recipients of the plan were Hong Kong citizens. The Hong Kong government develops smart city to solve the increasingly severe transportation, housing, and medical problems faced by Hong Kong citizens. Therefore, the Hong Kong government and policy makers need to have patience to go to the grassroots society and listen to the suggestions of the society. The Hong Kong government needs to give feedback as soon as possible to the citizens' suggestions and criticisms. Those in power need to use patience and service to offset some citizens' doubts about the credibility of the Hong Kong government in promoting smart city. The attitude of the government and policy makers is the focus of whether companies and citizens are willing to participate in the development of smart city. The degree of social participation is a more important link in whether the development of Hong Kong's smart city can be accelerated.

The importance of the government's role must be emphasized in the development of smart city. The European countries mentioned above still play a very important role in the development of smart city. Strong administrative intervention is contrary to Hong Kong's own governance model. Therefore, the Hong Kong government should adopt a more feasible "soft administrative intervention" model to actively communicate with enterprises and the public, so as to maintain close cooperation between the government and the private sector in the development of smart city. The market is not a panacea. Without sufficient benefits, it is impossible to promote private enterprises to participate in the development of smart city. Just like infrastructure, the development of some public goods that have no monetary return must be undertaken by the government (Anomaly, 2013). Therefore, the "laissez-faire" governance method cannot be applied to the development of smart city. The government needs to strengthen the supervision and intervention of internal administrative processes, so as to improve the administrative efficiency in the implementation of smart city policies. The timing of the launch of supporting policies related to smart city also tests the administrative efficiency of the government and directly reflects the speed of smart city development. Therefore, the Hong Kong government needs to adopt both "top-down" and "bottom-up" models, reduce reliance on the market, adopt soft administrative intervention methods, strengthen internal supervision and improve administrative efficiency in order to accelerate development of smart city in adversity. Therefore, the third option is the best solution to solve the slow development of Hong Kong's smart city in this study.

Implementation

Based on the solution of Option 3 above, the Hong Kong government can adopt the following three auxiliary

measures and details in the subsequent smart city development. The first point is to establish an independent smart city development department within the Innovation and Technology Bureau for the formulation, modification and long-term planning of Hong Kong's smart city development measures. There is also the overall planning of Hong Kong's smart city development and the submission of follow-up smart city development supporting policies and legal proposals. The government should provide the largest possible cooperation with the smart city development department in the administrative and even legislative aspects. Including policies and laws on attracting foreign talents, open data, and data protection. At the same time, at the initial stage of the establishment of the smart city development department, it should be clear that the department has administrative power and must actively guide and promote the development of Hong Kong's smart city. Of course, in the context of overall government governance, soft administrative intervention is more feasible. In the smart city development stage, the smart city development department needs to always play a role as a facilitator or even a leader, coordinating and handling cooperation and disputes between the government, enterprises and the public. Don't leave everything to the market.

For example, relying solely on market operations will only drive away the science and innovation talents and enterprises that are the cornerstone of smart city development. Because Hong Kong's technology industry has a small market share. However, the government should not sit idly by. It needs to impose administrative measures to create a technological environment and promptly introduce supporting development and welfare policies to retain and attract more scientific and technological talents and enterprises to serve Hong Kong.

To cope with the slow development of Hong Kong's smart city, in order to avoid the problem from continuing to expand, the smart city development department should take administrative intervention to meet an urgent need. In the near stage, the smart city development department should plan to concentrate superior resources on the cornerstones of smart city development, including talent attraction and open data. At the same time, the smart city development department should urge the government to formulate and implement supporting policies for smart city development as soon as possible, especially in the two important sectors of talent attraction and open data. In terms of the completion of smart city measures, the smart city development department, under special circumstances, should focus on prioritizing many measures that are close to completion, so as to boost the morale of smart city development in the entire society. In the subsequent stage, the completion speed of smart city measures should be promoted by the government's soft administrative intervention.

The second point is that the Hong Kong government needs to expand the size, powers and responsibilities of the existing innovation and technology steering committee. The original steering committee was established in December 2017, led by Chief Executive Carrie Lam, to supervise cross-bureau and cross-departmental collaboration and investment at the highest level and ensure that the required resources are available in time. However, in the two and a half years since its establishment, the original steering committee only held seven meetings and included only seven topics, and the effect was far from obvious (Press Releases, 2020). The new steering committee needs to supervise the development progress of more than 130 smart city development measures formulated by decision makers, and promptly announce to the public to increase the transparency and credibility of smart city policies. Smart city development almost covers most of the functional departments of the government at this stage. The new steering committee must wait for the government's authorization to have sufficient power to supervise the completion of the tasks of various functional departments and to improve administrative efficiency.

The third point is that the Hong Kong government has established a separate collection and feedback group for the wishes of smart city citizens and enterprises within the smart city development department or Innovation and Technology Bureau. Members of this group should go to the community, cooperate with district councils, NGOs and other organizations, and actively and truly understand the needs of society. After receiving suggestions and criticism from the public and enterprises, it is necessary to provide detailed feedback to the public as soon as possible. From a long-term perspective, this policy action can make up for the credibility of the Hong Kong government that has been crippled. At the same time, the team also needs to create Hong Kong's own "online smart city laboratory" online to attract the participation of the public, enterprises, institutions and universities. "My own city, I am the master" can become the promotion slogan of "Online Smart City Lab". The active participation of society is the biggest driving force for the development of Hong Kong's smart city.

According to the implementation of the above three auxiliary measures, in the short term, Hong Kong's smart development achievements, performance and reputation will be significantly improved within Hong Kong society. After government administrative intervention, the development resources of smart city have been re-integrated and deployed. The smart city development measures that are about to be completed will receive more resources in the first phase to accelerate their completion, and they will be invested in the society in a short time. The launch of many smart city development measures within a short period of time will inevitably arouse the attention of the public, set off the atmosphere of smart city development in Hong Kong, and boost the morale of smart city construction in the whole society. Development to attract talents and open data is not only important for the evaluation of the international smart city index at this stage, but also an important cornerstone of smart city development. The government uses administrative means to increase the investment and tilt of resources, and it will attract local scientific and technological talents and enterprises from Hong Kong in the short term.

After long-term implementation, the development speed and efficiency of smart city under the soft administrative intervention of the Hong Kong government must be far better than the original market-led situation. The government plays the role of facilitator and even leader, strengthens the cooperation between the government, enterprises and citizens, and increases the smoothness of smart city development. Enlarging the scale, powers and responsibilities of the existing innovation and technology steering committee is also highlighting the importance of administrative intervention. This measure can improve the coordination and administrative effect between various departments within the government in the short term. Through timely announcement of the development progress of smart city to the public, the transparency and credibility of government administration will be increased and the degree of support and participation of the society will be provided. Similarly, the government's in-depth understanding of the behavior of citizens and small and medium-sized enterprises and the follow-up of timely feedback to participants in a timely manner will inevitably receive support from the society. In the long run, this measure can also indirectly enhance the government's credibility. The government grasps the latest implementation policy method to build Hong Kong's own "online smart city laboratory", and attracts the participation of many social stakeholders through competitions, games and other modes. This measure can increase society's participation in the development of Hong Kong's smart city as a whole, and can further become the biggest driving force for the development of Hong Kong's smart city. The long-term implementation of the above-mentioned auxiliary measures can effectively promote the sustainable development of Hong Kong's smart city, improve the international ranking of Hong Kong's smart

city development and effectively maintain Hong Kong's status as a cosmopolitan city.

However, resources and administrative interventions are often far from enough for the development of smart city. At the same time, appropriate policies and legal support are also needed. Under Hong Kong's constitutional system, Hong Kong's executive branch has no right to interfere in the operation of the Legislative Council. The policies, laws and finances required for the development of smart city need to be approved by the Hong Kong Legislative Council. The Legislative Council has also indirectly become the place to restrict and supervise government administration. Therefore, without violating the operating procedures of the Legislative Council, the executive departments of the government should prepare more adequately in advance for the corresponding work on smart city development, such as public consultation, in the hope that they can be approved by the Legislative Council.

Conclusion

Under the general trend of global urbanization, the development of smart city has become a strategic goal and inevitable choice for many countries and regions to seek sustainable development and enhance the comprehensive competitiveness of city in the era of information technology. Hong Kong does not have more land and natural resources, and many urbanization "diseases" are imminent, such as aging, housing and other issues. Hong Kong needs smart city development to promote a sustainable social cycle and maintain its status as a world city. The original "laissez-faire" and "market-led" governance measures have dragged down the overall development speed of Hong Kong's smart city, and Hong Kong is facing a crisis of increasing gap with the world's first-tier city. Listening to public opinion, reducing dependence on the market, increasing administrative intervention (softness), and improving administrative efficiency are the effective ways to fundamentally accelerate the development of smart city in Hong Kong.

References

Anomaly, J. (2015). Public goods and government action. *Politics, Philosophy & Economics*, 14(2), 109-128.

Blurprint 1.0. (2017). Hong Kong Smart City Blueprint. Hong Kong Government.

Blurprint 2.0. (2020). Hong Kong Smart City Blueprint. Hong Kong Government.

China E-government. (2017). *The development of European smart city and its enlightenment.* http://www.ceirp.cn/zhzw/gwjy/2017-08-04/2752.html.

Chiculture. (2020). *Innovative technology and talents*. https://ls.chiculture.org.hk/tc/reform-info/537.

Dorn, J. A. (2007). *Big Market, Small Government.* Cato Institute. https://www.cato.org/commentary/big-market-small-government.

EntreLink. (2020). *Hong Kong Startup Index.* http://www.entrelink.hk/2019-2020-hong-kong-startup-index/.

Global Open Data Index 2019. (2019). https://index.okfn.org/.

Google. (2020). White Paper on Smart Digital City.

Govada, S. S., Spruijt, W., & Rodgers, T. (2017). Introduction to Hong Kong's Development. In *Smart*

Economy in Smart Cities (pp. 171-186). Springer, Singapore.

Govada, S. S., Spruijt, W., & Rodgers, T. (2017). Assessing Hong Kong as a Smart City. In *Smart Economy in Smart Cities* (pp. 199-228). Springer, Singapore.

Hartley, K. (2021). Public Trust and Political Legitimacy in the Smart City: A Reckoning for Technocracy. *Science, Technology, & Human Values*. 1-30.

Hong Kong Innovation and Technology Bureau. (2021). *Vison and Mission. HK Smart City Blueprint.* https://www.smartcity.gov.hk/vision-and-mission.html

Hong Kong Legislative Council. (2021). *Information Technology and Broadcasting*. Data Pivot. Retrieved from: https://www.legco.gov.hk/research-publications/chinese/2021issh18-smart-city-development-in-hong-kong-20210204-c.pdf.

Hong Kong Trade Development Council. (2020). *Smart City Development: The Global Scene*. https://research.hktdc.com/en/article/NDQyNjY0OTE3.

Hong Kong Youth Research Center. (2018). *Innovative Technology Research Summary*. https://yrc.hkfyg.org.hk/wp-content/uploads/sites/56/2018/09/YI034_SummaryChi.pdf.

Hong Kong Youth Research Center. (2021). *Preparing for the Loss of Young Talents in Hong Kong*. https://yrc.hkfyg.org.hk/2021/03/15/yi058/.

IMD. (2020). *Smart City Ranking 2020*. https://www.imd.org/smart-city-observatory/smart-city-index/.

JD Digital Technology. (2020). *Singapore, the world's top smart city, why*? https://www.sohu.com/a/426028754_120529115.

Ma, R. Q., & Lam, T. I. (2019). Investigating the barriers faced by stakeholders in open data development: A study on Hong Kong as a "smart city". *City*, 92, 36-46.

Ma, R. Q., Lam, T. I., & Leung, C. K. (2018). Potential pitfalls of smart city development: A study on parking mobile applications (apps) in Hong Kong. *Telematics and Informatics*, 35(6), 1580-1592.

Press Releases. (2020). *LCQ20: Steering Committee on Innovation and Technology*. https://www.info.gov.hk/gia/general/202004/22/P2020042200311.htm?fontSize=1.

QS Top Universities. (2020). *Discover the world's top universities. Explore the QS World University Rankings® 2020*. https://www.topuniversities.com/university-rankings/world-university-rankings/2020.

Ang-Tan, R., & Ang, S. (2021). Understanding the smart city race between Hong Kong and Singapore. *Public Money & Management*, 1-10.

The Central Policy Unit of the Hong Kong Government. (2015). *Research Report on Smart City*. Policy Innovation and Co-ordination Office.

The 2017 Policy Address. (2017). *Hong Kong Government*. https://www.policyaddress.gov.hk/2017/chi/policy.html.

Vein, C. (2017). *Why we need smart city. Digital Pulse. PWC.* https://www.digitalpulse.pwc.com.au/why-we-need-smart-city/.

Chan, J. K. (2018). *New signal system test suspected of errors, MTR burns serial ships*. HK01. https://www.hk01.com/社會新聞/247456/港鐵四線故障-消息-新信號系統測試疑出錯-港鐵火燒連環船.

China Economic Times. (n.d.). *Why Singapore announced the "Smart Nation 2025" plan*. http://finance.eastmoney.com/news/1351,20141128450985497.html.

Faan, H. Y. (2018). *How far is Hong Kong from a smart city?*. Hong Kong Commercial Daily. https://www.hkcd.com/content/2018-10/30/content_1106692.html.

HK01. (2018). *Hong Kong's talent ranking dropped six places. Can high salary alone retain innovation*

and technology talents?. https://www.hk01.com/01 觀點 /261886/ 本港人才排名下跌六位 - 單靠高薪可留住創科專才

HK01. (2020). *Hong Kong, left with money, is in desperate need of "Mind emancipation"*. https://www.hk01.com/ 窮得只剩錢的香港 - 亟需 - 解放思想

Press release. (2021). *Speech by the Secretary for Innovation and Technology Bureau at the "Hong Kong Smart City Blueprint 2.0"online forum*. https://www.info.gov.hk/gia/general/202101/14/P2021011400581.htm.

Xu, Z. Q. (2016). Finnish Ecological Smart City (District) Planning and Construction Experience and Its Enlightenment—Based on the Survey of Helsinki New City Construction Practice in the World Design Capital. *China Famous City*, (1), 69-79.