

Comparing London and Shanghai as Digital Cities

Min Gong

King's College London, London WC2R 2LS, UK.

Abstract: Smart or digital city projects are sweeping the world at an alarming rate. The rapid pace of technological development, the process of digitisation, 5g, AI, blockchain technology, etc., has led to cities becoming more similar in their engagement with digital, but individual cities still have different forms of expression. These differences are not only reflected in the way they engage with digital, but also in the different models, concepts and objectives, and capital models of digital city development. This paper compares London and Shanghai (China's cultural and economic capital as digital cities, the ways in which they engage with the digital in their specific contexts, and the similarities and differences in their digitalisation processes. And in the 'Discussion' section, the article outlines the key points and the logic behind them, and identifies the shortcomings of the research.

Keywords: Digital City; Smart City; Digitalisation; Infrastructure Development

Introduction

Smart or digital city projects are sweeping the globe at a breakneck speed these days (Paolo, et al, 2019). The 'Smarter Planet' initiative and 'Smarter Cities' were first proposed by IBM CEO Sam Palmisano in 2008 at the Council on Foreign Relations, an American think tank. And then some analysts and politicians proclaimed the end of traditional cities as 'massive developments in telecommunications and the ascendance of information industries' (Saskia, 2019). Nowadays, due to the continuous development of various emerging technologies such as ICT, big data, the operation and practice of digital cities continue to mature. Thus, there is an influx of digital cities such as London, Shanghai, and Singapore. This paper compares London and Shanghai (cultural and economic capital in China) as digital cities, in what ways they engaged with the digital into specific contexts and their similarities and differences in the process of digitalisation. And, in the 'Discussion' section, the article outlines the key points and the logic behind them and points out the deficiencies of the research. In the 'summary' section, the article is briefly summed up and possible directions for future research are given.

1. Approaches engaging with the digital

Shanghai and London, as fast-growing metropolises, are both striving to build smarter cities in a rapidly developing digital economy. However, due to their different political, economic, and cultural backgrounds, the two cities are taking various approaches to engage with the digital, but their overall paths show very similarly.

1.1 Data sharing

Data and technologies form the backbone of smart cities (Carol L, 2015). In the setting of London, the Greater London Authority allocates numerous departments, government staff, and other data providers to aggregate data into a network connection of databases, the London Data Store, that is a free, publicly available data repository. It contains about 700 data sets and 18 categories of urban data, covering all areas of the city, including economics, jobs, transportation, ecology, security, housing, and wellness. It is not only an internationally recognized data resource platform, but also an important starting point for many administrative departments and public service organisations in the city to break administrative barriers, realise data sharing, improve public services, and deal with urban

challenges. For example, city halls can use housing data to support sitting for small developers, modeling the location of new schools, and identifying brownfield sites. Through the demographic data, the population growth of the region can be predicted, and the enrollment demand of the school planning region can be simulated.

Similarly, the government in Shanghai has the most comprehensive and nucleus data, accumulating a massive amount of data strongly tied to the wider public manufacturing and social lives, such as meteorological conditions, account records, risk assessment models, electricity data, fuel data, water supply data, highway traffic data, mass transit data, security jury trial data, real estate data, border control data, entry-exit data, travel data, health records, curriculum data, geographic information, etc. Despite the fact that the government is the major data holder throughout Shanghai, the free sharing of public information resources in China is gradually liberalising due to local government promotion (CSP, 2020). For example, on the Shanghai government Service platform website, citizens can find information resources such as enterprise credit, product quality, food, and medicine safety, comprehensive transportation, public facilities, and environmental quality. Education, medical, employment, tourism, life, and other information resources of Shanghai are also open to society.

1.2 Technological innovation

Technological innovation is the agenda that all digital cities are paying close attention to, as smart cities rely on state-of-the-art information technology (e.g., IoF, ICT) (Francesco Paolo, et al, 2019). A familiar example of technological innovation in the process of digitalisation of cities in London is TfL (Transport for London), which is a good model of using data for technological innovation. TfL has pioneered contactless payments and smart tickets by introducing Oyster cards on all transport since 2003. And in the process of the collected a large number of passengers' travel information, known as 'oyster data'. As a result, TfL has not only been able to pinpoint problems with its operations, but, City Mapper, Countdown, and Legible London are just a few of the popular applications that have been released by the company. These applications can assist residents and visitors in more ideas or approaches to travel routes, receiving timely bus arrival news, and determining the best pedestrian trip plan.

Another relatively young example of the technological innovation for engaging with digital in the context of the post-covid era in Shanghai is that the government of Shanghai has taken unmanned factories, industrial Internet, telecommuting, online finance, online exhibition, fresh e-commerce retail, 'contactless' distribution, online medical delivery and other 12 areas as its development focus. Thus, it has built more than 100 unmanned factories, production lines, and workshops, focused on the development of new manufacturing models such as flexible manufacturing, cloud manufacturing, and shared manufacturing, and built 20 industrial Internet platforms with national influence. This results in the online new economy of Shanghai has enjoyed a good momentum of development since the beginning of this year, with the output value of new-generation information technology bucking the trend and growing by 8.4 percent from January to September.

1.3 Digital inclusion

While open data and technological innovations can offer many options for enhancing life quality, not everyone has access to it, as there are many areas that are not covered by ICT (Marco J, 2018) and many people who are unable to use it (Cher Ping, et al, 2019). Thus, improving digital Inclusion, that is, allowing more people to participate and benefit, is particularly important in the process of urban and digital integration (Simeon J, Elinor, 2020). In Shanghai, the government has mentioned in the '14th Five-year Plan' for comprehensively promoting urban digital transformation that it will comprehensively promote urban digital transformation, improve digital inclusion and reduce the digital gap. On December 25, 2021, the first event of the 'digital transformation achievement interactive experience exhibition of Shanghai' was held in Minhang district south mall square. Before this event, Shanghai Ximalaya Technology Co., Ltd. actively respond to the digital application of inclusive promotion and aging and barrier-free transformation of special actions and launched the big-character mode and louder system in January 2021, which has been recognized and loved by a large number of elderly users.

Digital inclusion is also an important task for the construction of digital London. (Jacqueline, 2016). London as a key model of DI is reflected in the following aspects: Firstly, it is the launch of 'Connected London', a ubiquitous gigabit digital connection. The measures include promoting fiber optic connectivity to homes, promoting the testing of 5G applications, and strengthening public wifi

in streets and public buildings. Secondly, building a digital public participation platform to allow more people to participate in decision-making, such as Talk London. Thirdly, it is the construction of humanized public service platforms to provide barrier-free access to digital services. Furthermore, London is strengthening technical training and gradually eliminating the ‘digital divide’. Under the Roadmap for Advancing Smart London, the Adult Education Budget (AEB) will be devolved in 2019 and free training will be offered to adult Londoners who lack basic digital skills from 2020.

2. Similarities of two digital cities

Through data sharing, technical innovation, and improving the digital inclusive, London and Shanghai, these two metropolia respectively engaged with the digital. In general, both London and Shanghai have the following characteristics in the process of digitisation:

2.1 Infrastructure improvement

Big data offers a vast array of possibilities for city digitisation, transformation, and the provision of useful government infrastructure. (Lyu, Hao, 2021). A clear example in London is that IoT, data science, cloud-based services, ai, blockchain, and other high-tech technologies in London. have been fully implemented in the infrastructure construction of London. Besides, London used GIS, CAD and 3D virtual technology to simulate and informationized 45,000 buildings within an urban area of nearly 20 square kilometers in the West District, providing a new perspective for urban landscape design, traffic control, environmental pollution prevention and control, emergency management and many other fields. A similar example in Shanghai is that the gigabit fixed broadband has covered 9.6 million households, reaching 99 percent coverage. The average available download rate of fixed broadband has reached 50.32 MB, making It the first city in China to exceed 50 MB. In addition, 31,400 outdoor 5G base stations and 49,800 indoor 5G stations have been built in Shanghai. Therefore, in terms of telecom infrastructure strength, transmission range, and user satisfaction, Shanghai and London, as digital cities, attach great importance to the development of digital infrastructure.

2.2 Personalised digitisation

In the process of engaging with the digital, both London and Shanghai attached great importance to the personalisation of the city and avoided homogenisation. According to IESE in the recently released ‘2020 city dynamic index’, London again was named the ‘city of the wisdom worldwide’. This is because London, as one of the earliest digital cities, attaches great importance to its unique charm of urban development. On the other hand, it can be seen from the table of Key Fields of Digital City Construction guided by the Development Strategy of Shanghai that Shanghai attaches great importance to the protection of urban culture when learning advanced technology and experience of other cities in its digitalisation and infrastructure application. Therefore, in the process of digitisation, Shanghai and London are constantly trying to retain their original individuality and avoid homogenization between cities.

2.3 Multi-dimensional cooperation

London and Shanghai attach great importance to the diversified cooperation between the government, enterprises, and all sectors of society in the process of digitisation. London has long been the centre of Europe of technology entrepreneurship, with several well-known academic institutions, research centres, and public social institutions. This provides an important intellectual guarantee for continuing to promote cooperation between the government and various enterprises and institutions, explore new technology partnerships and business models, maximize synergies, thereby build a digital London. In the digital city development of Shanghai, first and foremost, an infrastructure project that is mostly funded by the government and sponsored by significant commercial partners. The digital application of Shanghai is deep cooperation between the government and commercial companies. Even though Shanghai and London have distinct resources, they both place a high value on broad community participation in the digital engagement process, thus contributing to a thriving and prosperous digital city.

3. Differences of two digital cities

Although London and Shanghai adopt the same measures in the process of engaging with the digital and show many similarities,

they still show some differences in the process of city digitization due to the differences in urban politics, economy, and other factors.

3.1 Development patterns

The construction of digital city in London is a mixed development mode, which absorbs the three forces of residents, market and government at the same time, and is mainly promoted by bottom-up development mode. In Shanghai, digital city construction is still in the early stage of development, and it is more inclined to the government-led and enterprise-participated digital city development mode, with vigorously promoting the construction of information infrastructure as the precursor (Peng, et al, 2005). Therefore, Shanghai and London have developed their digital cities in very different ways.

3.2 Concepts and objectives

While engaged with the digital, London focuses more on the smart community and the environment and the development of information design of the physical housing conditions, as sustainability is the basic principle of the overall development and construction of the city (Koichiro, Christodoulou, 2012). The situation in Shanghai is more complicated and macro. The goal of digitalization of Shanghai is to build a world-class smart city, and to strengthen urban infrastructure construction, improve information-based urban supervision, adjust economic structure, and achieve green urbanization and improve quality of life. Shanghai and London, thus, have different understandings of what a digital city is.

3.3 Application areas

The project application of London digital city is mainly constituted of three key parts: government entity, administration, and commercial economics. (Peng, et al, 2016). In the field of application, the construction of public facilities is still the primary concern. However, City design, farming, manufacturing, trade, technology, teaching, catering, medical, e-commerce, and other disciplines are all covered by digital city practise in Shanghai. While government-led projects are including public facilities, smart livelihood, non-government-led projects mainly include commercial projects, e-commerce, and transportation, etc. Therefore, the digital fields of application in Shanghai and London are not quite the same.

Discussion

This paper analyses the approaches, Shanghai and London, have adopted to make their cities engaged with the digital, and through case studies, compares their similarities and differences. However, due to the current academic level and the 4000-word limit, this paper still leaves much to be desired. For example, both London and Shanghai focus on data sharing when digitising, but the extent of data opening in the two cities is different, and the targets of opening are not the same. The reasons behind this are complex, not only because of the different digitalisation processes in the two cities but also because of the various governance strategies of the two countries, which could be addressed in future studies.

References

- [1] Appio FP. et al. (2019) Understanding Smart Cities: Innovation ecosystems, technological advancements, and societal challenges. *Technological forecasting & social change*. [Online] 1421–14.
- [2] Haenssger MJ. (2018) The struggle for digital inclusion: Phones, healthcare, and marginalisation in rural India. *World development*. [Online] 104358–374.
- [3] Lyu KJ, Hao M. (2021) Chapter 10 Policy Recommendations on the Application of AI to the Development of Smart Cities , IGI Global.
- [4] Kravchenko O. et al. (2019) The digitalization as a global trend and growth factor of the modern economy. *SHS web of conferences*. [Online] 657004.
- [5] Malavika S (2018), 5G Will Play a Huge Role in Providing a New Dimension to Digital India, Smart Cities & Smart Village Missions: Sasken. Voice & Data.

- [6] Oliveira TA. et al. (2020) Challenges for connecting citizens and smart cities: ICT, e-governance and blockchain. Sustainability (Basel, Switzerland). [Online] 12 (7), 2926.
- [7] Raco M. et al. (2019) Seeing like an investor: urban development planning, financialisation, and investors' perceptions of London as an investment space. European planning studies. [Online] 27 (6), 1064–1082.
- [8] Yates SJ. & Carmi E. (2020) What do digital inclusion and data literacy mean today? Internet policy review. [Online] 9 (2), 1–14.