THOUGHT LEADERSHIP BRIEF

Data Governance for Smart Cities in China: Opportunities and Challenges

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KEY POINTS

▶ Shenzhen has been regarded as one of the pioneering cities in the development of smart cities. Despite advancements in technology, there is limited understanding of the actual processes involved in collecting, sharing, and utilizing data in smart cities in China.

▶ The government has prioritized a centralized approach. Data governance has evolved from addressing the fragmentation of data among government divisions to fostering the integration of various kinds of data in society.

▶ Further research is necessary to examine to what extent citizens are satisfied with the policies and regulations concerning data governance, particularly with regard to data security and the protection of privacy. It is crucial to encourage citizens' engagement in data governance to implement the people-centered approach to smart city development.

ISSUE

The rapid progress of urbanization has resulted in numerous issues, including the provision of housing, traffic congestion, environmental conservation, and public safety. The concept of the smart city has gained significant interest and sparked extensive global discussions over its possible advantages and drawbacks. Data-related matters are the central focus of smart city development, encompassing activities such as data collection, storage, transmission, and governance using innovative technologies. Designing and implementing appropriate data governance systems is a critical task in order to enable the use of data to provide technology and services to users while also addressing societal concerns around data, particularly data security and privacy.

China presently leads the global smart city movement with over 500 smart cities either launched or planned, representing over half of all smart cities worldwide. Shenzhen is among the pioneering cities in China that have ventured into the development of a smart city. With highly developed supply chains for the electronic sector, the city has formed an industry cluster capable of supplying essential components for the smart city. Compared with technical development, it is not well understood how data is actually collected, shared, and used in smart cities in China. Many questions remain unexplored concerning various aspects of data governance, including open data management and institutional arrangement.

ASSESSMENT

Since the late 1990s, the smart city development in Shenzhen has progressed from establishing information and communication technology infrastructure and E-government to creating a comprehensive network of data in the smart city. A key feature of Shenzhen's smart city development is close cooperation between the government and high-tech enterprises. These companies collaborate with the Shenzhen municipal government by providing their knowledge and expertise on advanced technologies, including big data, the Internet of Things (IoT), cloud computing, and artificial intelligence (AI). All data are collected from three primary sources: the Supercomputing Center, the Affairs and Resources Center,

and the District-level Data Center. The channels of data collection include Wi-Fi, the government internal network, the mobile network, and the narrowband Internet of Things (NB-IoT). The scope of data covers transportation, business, population, and education. The Urban Big Data Center processes data to build the data resources platform and generic support cloud platform, which support the operation and management of the smart city.

The government is primarily responsible for managing all the data in the data platforms within the smart city. Technology businesses offer technical assistance to the government in constructing data platforms, but they do not directly participate in data collection. The gathered data are made available for utilization by different parties. The data can be accessed via data platforms and other web portals, such as i Shenzhen, Shen i Enterprises, Shen Governance Smart, and Shen Government Easy. The primary recipients of data are government departments, which rely on it to deliver a range of services to the public. Sensitive data related to privacy is primarily stored in the public sector. Government officials assert that they uphold a strict level of secrecy for personal privacy data, which is obtained from residents with their informed consent. Every agency and individual must go through rigorous approval procedures in order to gain access to the data. Upon obtaining authorization, individuals are limited to accessing datasets that do not contain sensitive personal information.

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An important characteristic of data governance in Shenzhen is the active involvement of technological businesses, namely Tencent. They frequently engage in data governance by constructing data platforms and assuming responsibility for their upkeep and repair. These technological organizations have greatly enhanced the capacity and efficiency of smart city systems with their superior data analytics and artificial intelligence technology. It is important to closely monitor and regulate their access to sensitive data. The government faces a critical challenge in finding a balance between exploiting the data processing technologies of digital businesses and safeguarding sensitive data from potential misuse by these private entities.

Initially, China's institutional arrangements for data security and privacy protection were inadequate. In response to this difficulty, the government has implemented a set of laws and regulations aimed at ensuring data security and safeguarding privacy. In September 2021, the Cyberspace Administration of China introduced the Data Security Law. This law offers legal safeguards for personal information and critical data, in contrast to the Cybersecurity Law enacted in 2016. The Data Security Law encompasses all aspects of data governance across its entire lifecycle, encompassing the collecting, storage, transmission, processing, and utilization of data, as well as the safeguarding, oversight, and management of data security. This law has implemented a data security framework that categorizes data based on its classifications and levels of importance.

It is crucial, however, to establish effective mechanisms for regulating the government's power in data governance. The laws and regulations are unclear in determining and supervising whether the government misuses the gathered data or infringes upon personal privacy. While it is necessary for public authorities to acquire agreement from citizens prior to collecting or utilizing their data, this alone would not be adequate to limit the power of the government. Due to the lack of transparency in the data acquisition and management process, it would be challenging to effectively detect or prosecute any wrongdoing in practice. Regulatory

ambiguity makes it unclear how rigorously the law will be enforced and what repercussions will be imposed to safeguard citizens' privacy.

A major challenge in data governance is motivating stakeholders to collaborate and utilize data for diverse applications, including economic and social objectives. It is important to clearly define the conditions and requirements for data handling to assure data users that their data assets will be protected. The Shenzhen municipal government released the Data Regulations of Shenzhen Special Economic Zone in July 2021. This legislation has provided a structure for data markets to facilitate the flow of data, together with additional details on the categorization of data. For example, the rule differentiates between government data and public data, which encompasses a wide range of information collected, generated, recorded, or stored in a specific format by government agencies when delivering public services. Regardless of whether data is managed internally by government departments or obtained from private sectors, it can be considered public data as long as it is utilized for public objectives.

The data regulation also includes provisions that outline the rights of stakeholders in society regarding data. Specifically, personality rights have been established to empower individuals in managing the commercialization of their personal data. It remains uncertain whether individuals are entitled to receive benefits from transactions involving their personal data. Data corporations usually possess the legal authority to collect and own the data they gather and the copyright over the data they generate. Furthermore, the definition of personal data would vary across different rules and regulations. This could create confusion among private firms when adopting data security management and privacy protection and hinder the sharing and utilization of data to foster innovation. Additional clarification is also needed regarding the appropriate amount the government should pay for data obtained from other organizations and the feasibility of providing data services that combine government-owned data with data from private firms.

CONCLUSION

There are challenges that need to be addressed in order to effectively implement data governance for people-centered smart cities in China. Private sectors and citizens lack adequate incentives to share their data for the purpose of data sharing. Enterprises involved in the smart city face challenges in assessing the value of their data assets, which hinders the exchange and utilization of data for collaborative innovation with other stakeholders.

Individuals are often not adequately informed about the specific types of data being collected, how these data are processed, and the objectives for which they are utilized. There is currently a lack of well-established institutional structures to guarantee the proper handling of data gathered from citizens by public entities, ensuring that it is not used for any reasons other than providing public services. In addition, it is not certain that citizens would possess the requisite knowledge or competence to utilize the data accessible via open data platforms effectively. To better understand data governance in China, future research could focus on more specific aspects and explore emerging institutional arrangements and policy measures. It is crucial to promote the active participation of citizens in data governance to ensure that their opinions and preferences are effectively considered for the people-centered approach to smart city development.

Reference:

Xie, Siqi, Ning Luo, and Masaru Yarime, "Data Governance for Smart Cities in China: The Case of Shenzhen," Policy Design and Practice, 7 (1), 66-86 (2024).

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