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## **CHINESE SMART CITY: A GENEALOGY OF CHINESE SMART CITY METAPHORS**

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Since the Reforming and Opening up in the 1980s, Chinese cities have adopted the paradigm of a mechanized modern city, to emulate Western societies. Maçães perceives this urbanization as a product “in the age of mechanical reproduction”, prioritizing efficiency and financial gain at the potential expense of “genuine spontaneity; the stirrings and desires of life” (Maçães, 2019). However, a notable shift is underway. With the increasing integration of digital and intelligent technologies, such as AI, Chinese cities are evolving into smart cities with a new image. These cities are envisioned as organic entities. Alibaba and local governments metaphorize them as a human brain, namely “City Brain”. The City Brain is anticipated to dynamically sense and respond to real-time city events, making holistic decisions by integrating various aspects of urban life. More importantly, they expect that these organic smart cities are dedicated to serving the people, actively learning and adapting to enhance people's well-being, as affirmed by new regulation (Standing Committee of the 13th Hangzhou Municipal People’s Congress, 2021).

These two contrasting images represent a significant shift in Chinese visions of the role of intelligent technologies in society. While mechanized cities represent a modernist dream, the emergence of organic entities reflects a deeper concern for the citizens' role within an intelligent environment and how such an intelligent environment reshapes social governance. This begs several questions: What does this organic metaphor entail, especially in the era of AI? Why has it emerged? Why is it so crucial that local government have even enshrined it in a new regulation? With smart city increasingly intertwined with people’s lives, how does this new metaphor reshape the citizenship and social governance in China? Like myths nurturing societal aspirations (Mosco, 2005), metaphors serve as constructive tools for structuring sociotechnical ordering. Debunking this organic metaphor helps reveal the present desires of the key stakeholders in China and enriches global debates on smart cities and infrastructures. Research across multiple disciplines has investigated the visions and expectations underlying Chinese smart city initiatives. Public policy and management studies

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researchers have presented varying views on the government and citizenships the Chinese smart city aims to transform in particular. Some focus on the transformation of the governance mode. They argue that the smart city alters the government into a "data-driven surveillance infrastructure" and a "service-oriented platform" which provides service rather than making rules (Gao & Tan, 2020; Yu et al., 2019; Caprotti & Liu, 2020). In addition to the social organization, more critical researchers have paid closer attention to how the citizenships are altered. Some argue that the data-driven surveillance infrastructure is intended to discipline people's behaviour and hence transform them into "ordered, rational" actors (Liang et al., 2018; van Ditmar, 2022, p. 44; Caprotti & Liu, 2020). And Curran & Smart (2021) claim that smart systems, deploying "algorithmic classification", prevent marginalized groups from accessing city space and modes of living, exacerbating social equality. Researchers in urban studies conceptualize China's smart city as a technological way to "optimize sources" and alleviate urban problems (Pan et al., 2016; Wang Jian, 2017; Du, 2021; Bellini et al., 2022). In sum, these pieces of literature show that the Chinese smart city is related to the "modernist narrative of progress" and is regarded as a means for "social engineering" (Bareis & Katzenbach, 2021, p. 5).

However, the aforementioned literature often focuses on specific aspects of the smart city, thereby retaining critiques within the mechanized stage characteristic with the "rule imposition paradigm" (Hui, 2017, p. 29). Consequently, it becomes difficult to notice the evolving visions of the smart city, let alone scrutinize the emerging metaphor of the "organic entities". As Kitchin (2015, p. 132) has observed, "there has been little genealogical excavation of the smart city concept and how it has been formulated and deployed over time, space and by stakeholders beyond a handful of quite thin origin stories". By emphasizing the genealogy in Foucault's sense, Kitchin means that the smart city imaginaries don't maintain the same or develop linearly, but instead, they develop discursively, with contingencies. As he said, "in the face of critique and push back", the old metaphor "continues to find new avenues and ideas to finesse and extend its development and evolve and morph" (Kitchin, 2015, p. 133). These insights inspire this study that, in order to unpack the new metaphor, it is necessary to thoroughly examine its historical roots. However, such historical analysis remains under-researched, underscoring the significance of this study's contribution.

Echoing Kitchin, this paper aims to fill this gap by adopting the genealogy to uncover why this new metaphor has been developed, what new societal strivings have been added, and how the shift happened. To do so, I conducted a four-month ethnographic fieldwork in Shenzhen and Hangzhou, two primary cities at the forefront of smart city development. During this period, I interviewed seven engineers actively engaged in innovative processes related to smart cities. Additionally, I attended ten industrial conferences and official panel discussions, for which I possess voice recordings. Moreover, I immersed myself in the daily life of one of these cities to gain firsthand experience of how the smart city influences local dynamics. Moreover, this study also scrutinizes the institutional co-production of smart city discourses (such as policies, rules, new press, webpages, etc.) in line with the evolution of smart cities over time. The fieldwork and discourse analysis complement each other, facilitating a comprehensive investigation of hidden historical undertakings and visions supporting current metaphors.

In conclusion, by applying the method of genealogy, this work contributes to bringing into view the research's blind spot for the profoundly cybernetic and technocratic histories that have shaped Chinese smart city initiatives. This research delves into how Chinese experts localize cybernetics within China's socio-political environment as transiting towards the age of AI. This process of localization has established a strong basis for the development of a new governance structure and the new roles of citizens, underlying today's smart city metaphor of organic entities. This work also sheds light on the transition from mechanization to intelligentization in China, by analyzing and delineating the characteristics of the intelligent transformation in China.

Chinese smart city serves as a microcosm of the nationwide intelligent infrastructure still underway in China. With its close relations to officials and Alibaba, primary players in the development of intelligent technologies and social engineering, the smart city metaphor is an influential reflection of how intelligent technologies would shape the present and future social governance and citizenships in China. Furthermore, this narrative also offers distinct socio-technical perspectives that diverge from concepts like the neo-colonial city and the neo-capitalist city. Moreover, the Chinese socio-technical evolution from "informatization to intelligentization" represents a unique path of integrating intelligent technologies into society, providing aspirations and serving as an alternative for updating the economy and society in such way.

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