

# Artificial Intelligence and Urban Governance: Risk Conflict and Strategy Choice

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## Abstract

The rise of artificial intelligence (AI) is an important event that impacts the economy and social form. It has a positive influence on urban production and lifestyles, and it also brings severe challenges. It is undeniable that AI is not Laplace Demon which was known as an omnipotent tool. This paper analyzes the relationship and value of AI with urban governance from the perspectives of human initiative, future development, and human experience. From the angles such as governance, ethics, industry, employment, experience, philosophy, health, innovation, the risks and conflicts between AI and urban governance are analyzed. At the end of the paper, corresponding strategy choices are proposed from the government, enterprises, and the public. This research has particular value for AI and urban governance research, especially for those developing countries that want to promote urban governance by developing AI while could not effectively handle AI's governance.

## Keywords

Artificial Intelligence (AI), Urban Governance, Risk, Value, Digital Economy

## 1. Introduction

Artificial intelligence is an emerging part of the digital economy. Since McCarthy first proposed artificial intelligence (AI) at the Dartmouth college conference in 1956, AI technology has developed rapidly and has profoundly impacted the world's technology, industry, and lifestyle (McCarthy, 1989). Cities are essential carriers of economic and social development. The development of artificial intelligence technology, industry, and its role in production and life is primarily reflected in urban governance. Therefore, in nowadays world, various countries and city governments attach great importance to the cultivation of artificial intelligence technology and industries. As the carrier of technology, industry, and

lifestyle, artificial intelligence has been widely written into the government plans of various countries and regions, and it has also been listed as a critical development content by many cities in China. From the late 70 s last century, especially the reform and opening up, China's economy and technology have improved dramatically. In recent years, China has also attached importance to the development of artificial intelligence. In May 2016, the National Development and Reform Commission issued the "Three-Year Action Implementation Plan of Internet plus Artificial Intelligence" and pointed out to make breakthroughs in several key AI technologies, focus on strengthening AI application innovation in areas of the national economy and society, and cultivate and expand the AI industry. In July 2016, the "Guiding Opinions of the State Council on Actively Promoting the Internet plus Action" stated to foster emerging AI industries and strengthen the construction of innovative platforms such as AI resources and public services. These policies have created a good atmosphere and guidance for developing both the AI industry and urban governance driven by AI technology.

Artificial intelligence is a new round of technological revolution considered a disruptive innovation after steam engines, industrial production, and information technology. AI will significantly change human production and lifestyles by creating new business models, driving new consumption, and increasing labor productivity. It is of great significance to realize the changing of quality, efficiency, and driving force in the high-quality development of China's economy and other developing countries worldwide. At the end of 2019, the COVID-19 pandemic has been raging around the world so far. Digital technologies such as artificial intelligence have been continuously integrated into urban governance and have promoted epidemic defense. Through data support and intelligent algorithms, AI technology has played an important role in real-time tracking, isolation, prevention, and control. In March 2020, Chinese President Xi investigated Hangzhou's digital technology usage in promoting epidemic prevention and control. He pointed out that the modernization of urban governance should be widely promoted through big data, cloud computing, and artificial intelligence, from which the cities can become much more intelligent.

With the development of artificial intelligence, the scholar believes that the world may become 1% of the 'god man' controlled by the algorithm and 99% of the 'useless masses' controlled by the algorithm (Harari, 2014). Human society will have unprecedented inequality on political, economic, social, and cultural. The complexity of cities brings many challenges to urban governance. The development of information technology, especially AI technology, brings more challenges to urban governance. With the AI development, the concept of urban artificial intelligence was proposed, capturing AI's main manifestations in cities (Cugurullo, 2020). As the city is still intertwined in various forms into a tight network through information technology (Audirac, 2002), the urban pattern in which virtual space and physical space coexist has increased urban governance's difficulty. This background provides a direction for our research above AI and

urban governance.

Therefore, based on the discussion of the development of the AI industry and urban governance, this paper posed the value logic of AI with urban governance and put forward some of the risks and challenges that urban governance will face in the AI era. According to the three main objects in urban governance, the respective strategic recommendations are proposed toward the government, enterprises, and people.

## **2. Understanding of the Artificial Intelligence**

### **2.1. Basic Understanding of AI**

In 2016, Google AI program AlphaGo defeated South Korean chess player Lee Sedol, has brought a worldwide controversy about the relationship between AI and human beings. In 2017, AlphaGo defeated Chinese Go player Ke Jie, the world champion, and the discussion above the future of AI was once again pushed to the forefront. Innovative applications such as autonomous driving, intelligent robots, and face recognition are highly concentrated. Urban governors, scholars, and entrepreneurs have all appeared a great interest in AI. Especially with the constant maturity of image, vocal, and automation technologies, the development of artificial intelligence has ushered in an optimistic period of opportunity.

Large digital economy companies such as Google, Apple, Microsoft, Facebook, and other giants are actively deploying artificial intelligence. Based on market applications scenario planning, they have been sticking to increase investment in R & D and products to seize the development opportunity. Leading large-scale digital economy companies in China represented by BAT (i.e., Baidu, Alibaba, Tencent) have also taken advantage of their R&D and market position to deploying related technologies and application fields. Also, some traditional digital economy companies rely on their industry characteristics to actively promote the integration of AI and industry and continue to expand into the field of artificial intelligence. For example, traditional security monitoring companies such as Hikvision, Dahua, and Uniview in China have acquired a considerable accumulation based on continuous R&D investment in recent years. Besides, under the trend of AI, many new companies created by leading scientific and technological talents have emerged, such as SenseTime, Yitu, and iFlytek in China, which have increasingly become leaders in a specific segment of artificial intelligence.

The role of artificial intelligence in urban governance is increasing with the development of artificial intelligence technology. In the past ten years, the rapid development of digital technologies such as information collection, transmission, storage, and the improvement of computer core computing capabilities have laid a solid foundation for the development of artificial intelligence. For example, the optical fiber communication capacity has increased by 100 times, the mobile communication rate has increased by 1000 times, and the supercomputing capability has increased by about 1000 times. Based on this, deep learning algorithms

have achieved breakthroughs and opened the prelude to a new artificial intelligence era (Wu, 2020). Meanwhile, artificial intelligence has been accompanied by the popularisation and the rise of smart cities proposed in 2010, and considerable progress has been made in discipline and applications, which playing an increasingly important role in urban governance.

As a kind of advanced organism, human beings promote civilization with the evolution of the complexity of using labor tools. Artificial Intelligence, traditionally regarded as a branch of computer science, is dedicated to exploring a scientific field that seeks to empower machines with human intelligence. At present, artificial intelligence is still stuck in the simulation stage of basic human-like intelligence. For example, the field of language recognition aims to promote the use of machine learning and algorithms and human-like auditory organs as a model to realize the machine's voice collection and processing and analysis functions. Image recognition is based on human-like vision as a model to realize machine intelligence through the collection, processing, and analysis functions of graphics and images and the text presented in images. Natural language processing integrates linguistics, computer science, mathematics, and other disciplines to systematically study machine intelligence topics from human-machine communication and interaction. Artificial intelligence is often compared with new scientific fields such as space technology, genetic engineering, nanoscience, and energy technology due to its forward-looking, disruptive, and innovative characteristics. Especially in the past 20 years, with the rapid development of computer science, communication technology, and sensor technology, artificial intelligence has made considerable progress. It has been separated from related disciplines at the theoretical and practical levels and has become a systematic science.

The understanding of artificial intelligence has multiple dimensions. AI refers to a new technical science that develops theories and methods to simulate and extend human intelligence from the learning branch angle. It involves computer science, cybernetics theory, information theory, neurology, physiology, psychology, linguistics, and many other branches. When it comes to the technical field, it refers to endowing machines with more human-like functions through technologies such as human-computer interaction, thereby replacing humans in completing specific actions and tasks. In the industrial field, AI is an essential part of the digital economy. The provision of AI products and services in related fields provides a valuable supply for commercial applications. It forms an industry with a specific scale and empowers traditional industries and related industries. This feature also constitutes an essential part of the pan-artificial intelligence industry, which has attracted widespread attention in the market.

## **2.2. AI with the Urban Governance**

Urban planning is the first step of urban governance (Wang, 2014). Although concepts such as smart city, digital city, network city, and smart city emerged more than ten years ago, and most of them are based on information technology

to upgrade cities digitally, the proposed application of AI technology to urban planning has been accompanied by the past two years—the result of the development of artificial intelligence. In China, scholars proposed artificial intelligence to assist in urban planning (Wu & Huang, 2018). State Council PRC (2017) issued the “Development Plan for New Generation Artificial Intelligence,” proposing to build an intelligent urban infrastructure, a city-wide big data platform, and a city operation management system that integrates multiple heterogeneous data and comprehensive perception. It manifests that China’s concentration on AI has entered the level of urban infrastructure and management. It has also proposed new development ideas for the modernization of urban governance systems and governance capabilities.

For example, the urban brain technology currently actively promoted in cities and regions such as Hangzhou, Shenzhen, Shanghai, and Xiong’an New District is a typical AI technology application in urban governance. Liu et al. (2018) believe that the core of the urban brain takes the city as an organism and embeds cloud computing, Internet of Things, edge computing, and other technologies into the urban organism’s system through the urban neuron network, such as the central nervous system, sensory system, nerve endings, realizing the interaction between people and things, and promote various urban organisms’ organic integration. This urban brain system directly applies AI technology in urban governance, effectively improving urban governance’s informatization and intelligence.

### **3. Values of AI with the Urban Governance**

#### **3.1. Focus on People as the Core: Emphasize the Initiative of People**

Artificial intelligence can never ignore humans themselves, and finally, it is to be used by people. Chinese Premier Li once responded to the event of AlphaGo won South Korean chess player Lee Sedol at a press conference, saying, “Regardless of the win or loss, this machine is still human-made.” The city and its residents are both the objects of urban governance. Simultaneously, as the main body of urban governance, human beings have played a leading role in urban governance. In the process of reference and use of artificial intelligence, people’s ideas, methods, and governance will be embedded. Therefore, in a certain sense, the operation mode and results of urban planning and governance are generated by human thoughts through acting on intelligent machines and platforms in the digital economy era.

#### **3.2. Focus on Tradition and Reality: Emphasize the Futurity of Development**

Artificial intelligence is a technology based on the integrated application of comprehensive technologies such as information technology, sensor technology, big data technology, intelligent algorithms, mechanical power, etc. It applies to both production and living in an all-around way and embodies different industry

characteristics. Moreover, the development of artificial intelligence technology is also a process of constant maturity and perfection. It is not advisable to overuse the power of capital and focus on 'storytelling' to promote artificial intelligence's technical capabilities and commercial value. Therefore, it is still necessary to properly handle the relationship between AI technology's long-term development and short-term application.

### **3.3. Focus on Craftsmanship and Technology: Emphasize the Human Experience**

The human experience is an important concept advocated in urban planning since the 1990s, the most famous is known as New Urbanism. New Urbanism advocates breaking down the inherent barriers between disciplines and elements such as transportation, aesthetics, and culture into urban planning and design through human experience integration. It breaks through the theoretical limitations of the past purely in urban planning or architectural planning (Al-Hindi & Falconer, 2001). Thus, it is instructive to urban governance in the context of today's artificial intelligence development. People formulate the values and standards in the process of urban governance. Therefore, from the 'human-machine co-intelligence' of artificial intelligence itself to the 'human-machine co-governance' of urban governance, it is inseparable from the core value and active will of man.

## **4. Conflict Risk between AI and Urban Governance**

### **4.1. Governance Conflict: The Risk of AI Breaking through the Governance Boundary**

Government, market, and people are considered the main content of urban governance and should play their matching roles in urban development. Intelligent applications also have certain risks in the field of urban governance. In the context of the business field, artificial intelligence is considered an omnipotent urban governance tool. To some extent, this is a general deification of the artificial intelligence Laplace Demon<sup>1</sup> (Cao & Chen, 2020). Large-scale digital economy companies rely on their strong R&D capabilities and market leadership positions, making it easier to participate in all governance aspects. AI companies deeply participate in various urban governance activities through the governance data platform, and they will accumulate a large amount of information and data. These data will play a particular role in restraining the company in the form of agreements. However, limited by the government's own data processing, application, and mining capabilities, it is inevitable to give more authorities and corresponding permissions to AI companies. In this process, the balance of government, the market, and the people may be broken, causing the shifting of governance boundary and bringing the governance risks.

<sup>1</sup>The Laplace Demon is a scientific hypothesis put forward by French mathematician Pierre-Simon Laplace in 1814. This "demon" knows each atom's exact position and momentum in the universe and can use Newton's laws to show the entire process of cosmic events.

#### **4.2. Ethical Conflict: The Risk of AI Subverting the Ethics of Science and Technology**

The 19<sup>th</sup> National Congress of the CPC and the relevant policy documents on the development of science and technology at the national level all proposed that attention should be paid to technological ethical issues. Artificial intelligence is a more important field in the ethics of science and technology. For decades, the propositions about the development of artificial intelligence and human conflicts have been inconclusive. Besides, information security issues brought about by digital technology have also become an essential part of the ethical risks of artificial intelligence technology. All kinds of mobile digital terminals collect personal information invisibly and analyze it through intelligent algorithms in the background, bringing substantial commercial value to AI companies. However, in this process, necessary personal information such as image, health, vocal, and geographic trajectory data are comprehensively collected and integrated into the back-end cloud. All kinds of government data and information are also collected. Once the data is leaked, the consequences are unimaginable.

#### **4.3. Industrial Conflict: The Risk of AI Industry Rush**

As artificial intelligence continues to be written into government documents, local governments have accordingly issued policies to encourage the AI industry development. Hundreds of cities in China have mentioned in their industrial plans and government reports to vigorously develop the artificial intelligence industry or carry out cutting-edge scientific research in AI-related fields. Correspondingly, many companies relating to artificial intelligence have emerged on the market. Of course, industry leaders truly rely on machine vision, intelligent algorithms, machine learning, and other technologies among these companies. However, it is undeniable that there are a large number of so-called pseudo-AI companies. These enterprises have many destructive behaviors, such as telling stories, cheating subsidies, and abnormal capital operation. It brings specific challenges to the government's industrial planning and investment policies. At the same time, there are certain risks to the capital market. The enterprise itself cannot be well developed in these ways.

#### **4.4. Employment Conflict: The Risk of Replacing Workforce with Machines**

The emergence of artificial intelligence provides a new opportunity to transform and upgrade traditional industries and nurture many new industries. In the manufacturing sector, machine substitution has become a new trend in the industries, which is conducive to forcing companies to improve their digital manufacturing and R&D levels and better use digital economy development opportunities to increase their total factor productivity. However, on the other hand, this brings severe challenges to traditional manpower-based enterprises. Practitioners will face the dilemma of unemployment and re-employment. It also raises new issues for urban management, industry supervision, and people's livelihood.



ood supervision.

#### **4.5. Experience Conflict: The Risk of Reducing Human Life Experience**

Human experience activities are an essential part of life. Artificial intelligence creates new application scenarios and brings new interactions between humans and machines. Meanwhile, to some extent, it will unavoidably reduce traditional interaction content between humans and nature. If things go on like this, a negative impact on human beings' natural attributes close to nature and social attributes connected to people will be brought out. This kind of impact is difficult to eliminate in the short term, mainly if artificial intelligence develops without restrictions, the contradictions will become increasingly prominent.

#### **4.6. Ideas Conflict: The Risk of Impacting the People-Oriented Principle**

The people-oriented development way is the core concept of urban development advocated by China's New Urbanization strategy for a long time. In addition to the challenges mentioned above of artificial intelligence to traditional employment, AI's emphasis on 'intelligence' invisibly poses challenges to people-oriented and sustainable human settlements. New urbanism advocates integrating people-oriented concepts into the practice of urban planning and design (Ding, 2006), emphasizing people-centered design ideas and paying attention to the urban living atmosphere of urban diversity, humanization, and a sense of community (Wang, 2002). However, before artificial intelligence has developed into a mature stage, the body of AI is still a 'cold' machine.

#### **4.7. Health Conflict: The Risk of AI "Machine Disease"**

The human body will get diseases as living organisms when a certain balance in the body is broken. As a complex organic giant system, cities also have 'urban diseases' (Mercer, 1986). In particular, from the late 1970s to the present, China's urbanization rate has reached about 60%, which Western countries have experienced nearly 100 years. Various 'urban diseases' such as environmental damage and traffic congestion have become more prominent during this period. As an emerging science that has developed rapidly in recent decades, artificial intelligence will inevitably have various diseases (let us call it 'machine disease') in the process of rapid development and application. Because artificial intelligence participates in urban governance, once it got 'sick,' it will bring immeasurable consequences to the urban operation.

#### **4.8. Innovation Conflict: The Risk of AI Technology Monopoly**

The openness of the Internet makes it easier for people to accept new knowledge and applications. Based on the technological strength and scale advantages, large AI companies are more likely to strengthen their stickiness to users through monopoly and even take specific measures to combat competitors and consoli-



date their leading position. It will lead to technological monopoly and makes innovation more difficult for those small-medium size companies. For example, sizeable artificial intelligence companies can choose to strengthen their position through acquisitions. They can also consolidate their advantages by quickly imitating the core technology of small start-ups. Besides, large-sized AI companies could take advantage of algorithms and user scales to implant and promote new applications and businesses more efficiently, thereby playing a leading role in the market. Simultaneously, under cover of high technology, inequality in the digital economy is more brutal to be seen and regulated.

## 5. Discussion and Conclusions

The 19<sup>th</sup> National Congress of the CPC pointed out that socialism with Chinese characteristics has entered a new era, and China's social contradiction has been mainly transformed into the people's growing need for a better life with unbalanced and inadequate development. It also emphasized that the development concept of 'people-centered' and 'urban construction depends on the people; urban construction for the people' must be adhered to. The New Urban Agenda mentioned that persistent poverty in many forms, increasing inequality, environmental degradation, social and economic exclusion, and spatial isolation remain the main obstacles (UN Habitat, 2016). Artificial intelligence plays a positive role in improving information acquisition fairness and building open cyberspace, eliminating spatial isolation and information communication barriers. However, there are still many dilemmas analyzed in this article within AI and urban governance. These dilemmas have brought challenges to the positioning and functioning of the government, enterprises, and the public, urging that the government and scholars pay attention to it.

Nevertheless, the opportunities outweigh the challenges, and the integration and contradiction of artificial intelligence and urban governance in the digital economy era bring many opportunities. Governments, enterprises, and the public should actively embrace AI development in the digital economy era and make scientific and reasonable strategic choices to avoid risks and conflicts with urban governance. Combining the characteristics mentioned above and conflicts between AI and urban governance, based on how to adapt to the tremendous development of AI in the digital economy era, this article proposes some strategic choices for government, business, and the public.

Firstly, to the government, for the risk conflicts mentioned above, the government's strategy is critical in governing the cities. On the one hand, the government must well play the 'visible hand' role, actively formulate relevant policies, guide the scientific development of the artificial intelligence industry, and avoid unhealthy industrial development methods such as rush up and capital runnings. On the other hand, in the process of actively adopting AI technology to promote the modernization of urban governance, the government should also pay attention to grasping the boundary issues and avoid companies or AI tech-

nology from excessively crossing the boundary, obtaining too much data and information from the government and the public, which may cause undesirable consequences. The government should also strengthen supervision and actively invite professional technicians and experts to become urban governance consultants to follow closely relevant public policies.

Secondly, as to the companies, the modern corporate governance system has formed a perfect governance mechanism to quickly adapt to market changes and formulate corresponding development strategies to achieve corporate profitability and development. In the process of artificial intelligence and urban governance, the role of related companies cannot be ignored, nor can the conflict risks brought about by them. Therefore, for corporate strategic choices, carrying forward the humanistic spirit and adhering to 'humanism' is also an idea that needs to be adhered to. It is recommended that companies should objectively observe the development of the AI industry and rationally adopt digital technology transformation to upgrade traditional business and technology paradigms. When participating in the government's urban governance process, pay attention to grasping the 'transaction boundary' and avoiding over participation or interfering governance. Also, enterprises should pay more attention to problem orientation, insist on serving the overall situation of urban governance, and drive a more efficient and scientific urban governance system through digital technology.

Thirdly, the individual is the most vital object in urban governance. As Aristotle once said, "People come to the city to live and stay in the city to live better." Modern cities are committed to achieving the goal of "better city, better life<sup>2</sup>." In the increasingly complex urban system, how to avoid issues such as information security, transitional marketing, and virtual space addiction brought by AI has become a big challenge for individuals. On the one hand, individuals should actively embrace the digital economy era and enhance the sense of gain through many conveniences brought about by digital reforms. On the other hand, they should use digital technology appropriately to minimize information security risks.

This paper studies artificial intelligence and urban governance in the digital economy era. It analyzes the value logic of artificial intelligence participating in urban governance from the characteristics of artificial intelligence technology itself. It proposes several risk conflicts and corresponding strategies for the government, enterprises, and the public. The paper has a specific reference value for those countries and urban governments that want to promote urban governance through AI technology to avoid the industry's risks and governance risks caused by excessive use and AI reliance. Meanwhile, it also inspires the government, enterprises, and the public to treat AI rationally. Besides, as AI participates in urban governance, urban complexity is the primary factor that needs to be considered. The human body is a complex giant system with hundreds of millions of variables. Qian (1985) believes that a city is also a complex giant system with innumerable variables. Currently, human technology has not yet given so many

<sup>2</sup>'Better City, Better Life' is the theme of the 2010 Shanghai World Expo in China.

variables to create highly human-like intelligent machines. The human brain's complexity determines that the evolution of brain-like intelligence still requires a long time of the process. It determines that the development of artificial intelligence and the promotion of urban governance will bring many uncertain risks from a complexity perspective. The power and conflict mechanism between artificial intelligence and urban governance is the content worthy of study. The following work will explore the internal mechanism of artificial intelligence and urban governance mutual promotion, and provide more empirical evidence for the healthy development of artificial intelligence science. Simultaneously, research on applying new technologies in urban governance will also help find the future trends and characteristics of AI development scientifically.

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### Conflicts of Interest

The author declares no conflicts of interest regarding the publication of this paper.

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