Public Administration in the Age of Digital Intelligence: Challenges and Responses

Dazhao Ni

School of Government, Beijing Normal University; School of Business, Zhengzhou University of Aeronautics

Corresponding author. Email: 116488301@qq.com

Abstract. The advent of the digital intelligence era has significantly increased the ability and scope of individual citizens and social organizations to access information, and lowered the threshold of access to various types of information, while the use of new technologies is profoundly changing the way social resources are allocated and the operation mode of social organizations, reshaping the "state-society" relationship and the State power operation system. To cope with the challenges of the new technological revolution in the intelligent society to public administration practice, it is urgent to start from the public administrators themselves, to repair and restore the rational standard with the "quality of digital intelligence", so as to cope with the impact of the new technological revolution on the order and rational chaos brought by the intelligent society.

Keywords: Public Administration, the Age of Digital Intelligence, Digital Intelligence Literacy

1   Introduction

The new technological revolution labeled by BD (Big Data), AI (Artificial Intelligence), IoT (Internet of Things) and other technological innovations has brought the integration of physical space and cyberspace. "Digital governance" was seen as a multi-dimensional governance model based on information and communication technology (ICT) and big data. It optimizes management decisions and policies by integrating complex data analysis, data modeling, data optimization and data visualization in government operation and public administration. Nowadays, the individuation and intelligent application of data based on AI technology is setting off a brand-new revolution, and the integration of digital intelligence BD+AI (Big Data+Artificial Intelligence) has become a typical feature and development trend of the times. Meanwhile, public administration in Europe and the United States is showing a new situation from "digital governance" to "digital intelligence governance. In May 2014, the U.S. released the Open Data Action Plan, which created a platform to promote the openness and utilization of government data, making the application of government data in climate change, health, energy, education, economy and public safety more active and

efficient. Germany introduced the German Digital Platform 2014-2017 in the autumn of 2014, a deployment with policies, goals and strategies that aims to transform ICT (Information and Communication Technology) with industry, agriculture, healthcare, trade, and social civilization, through digital intelligence. The aim is to integrate ICT (Information and Communication Technology) with industry, agriculture, medicine, trade, social civilization, democratic management, and even the military, to achieve digital intelligence in all aspects of society, and ultimately to turn Germany into "a digital intelligence empire that leads the advanced digital intelligence process and creates the future". Since the "Digital China" strategy was proposed in 2015, China has been accelerating the digital transformation, and digital governance has become the development direction of social governance. 2021 saw the release of the "14th Five-Year Plan " and "2035 Visionary Goals Outline" and the "14th Five-Year Plan for Digital Economy Development", which established the goals of building a digital economy, digital society, digital government and digital ecology. Local governments are also fully aware that digitalization will redefine productivity and production relations, therefore, they need to insist on holistic transformation, all-round empowerment and revolutionary remodeling, with a view to forming a digital governance system with full coverage, grid-based, secure sharing, agility and efficiency. In this way, the intelligent transformation and replacement and upgrading of public administration in the era of digital intelligence has become an inevitable trend. In short, the new technological revolution represented by the wave of BD, AI, IoT and other technologies is profoundly reshaping personal and professional life, and the field of public administration is no exception.

2   The Impact of the New Technological Revolution on Public Administration Practice

ICT innovations in the age of digital intelligence have dramatically increased the ability and scope of individual citizens and social organizations to access information and lowered the threshold of access to all types of information. However, and   public administrators are not yet ready to meet the challenges which they have to face to effectively respond to this non gradual and exponential change. [1] ICT is being used to tame the professional power that   public administrators have been given in policy implementation, and with the further development of AI technology, technological advances may even transform public policy-making from an expertise to a technology-driven mass production. [2] Some scholars even believe that the use of new technologies will not only revolutionize production and management systems and disrupt all industries in almost all countries, but also profoundly change the allocation of social resources and the mode of operation of social organizations, and will have a significant impact on the current mode of government management and political operation, and new technologies will reshape the "state-society" relationship and the operation of state power, and new technology companies will even become the main body of governance. The powerful technological capabilities of the intelligent era will empower government governance, but a large number of new issues beyond the scope

and content of traditional governance will also bring new changes to the government's performance of its functions, and a balance of standards and procedures will be sought among multiple choices.

With the advent of the information revolution, the original industrial and commercial society is rapidly turning to a digital society, where the integration of the virtual and the real has broken down physical time and space, the integrated platform breaks through the geographical hierarchy, and data visibility transcends empirical rationality, thus forming a digital intelligence governance with information as the center, which achieves a huge functional leap and iterative upgrade. Digital intelligence governance brings many artificially created risks to the world of human existence through big data analysis and algorithmic decision-making. Therefore, it is necessary to respect the law of artificial intelligence development in the process of digital intelligence governance fully understand the potential and limitations of artificial intelligence, prevent the misuse and abuse of technology, strengthen risk early warning and tracking research, so as to establish a rapid and flexible, inclusive and balanced, joint participation, people-oriented dynamic response mechanism, so that the unexpected risks can be randomly responded to and immediately disposed of, forming the agility of digital intelligence governance. To sum up, at this important historical stage when China is fully promoting the modernization of its national governance system and governance capacity, it is important to promote public administration to adapt to social development and scientific and technological innovation, and to respond to the complexity and uncertainty faced in the field of practice with an intelligent and professional level of public administration.

3   Challenges for Public Administration in the Age of Digital Intelligence

As the field of public administration practice is moving from "digital governance" to "digital intelligence governance," the reliance on new technologies such as BD, AI, and IoT has increased, and the challenges faced by public administrators have become increasingly complex and varied. It can even be said that the advent of the era of digital intelligence calls for a reshaping of the values of public administration personnel training. It is foreseeable that "digital intelligence governance" will become the basic way of governance and the driving force of change for the Chinese government, and the future direction of development is to make comprehensive use of data resources held by various parties, to strengthen big data mining and analysis while doing a good job of information sharing and system linkage, to better perceive the cyber security situation, to do a good job of risk prevention, and to achieve digital intelligence governance in technology applications and information security in a win-win situation.

For public administrators, the challenges posed by IT and AI are in the areas of "technological challenge" and "technological empowerment". In terms of "technological challenges," information technology changes will gradually penetrate into bureaucratic organizations and bring opportunities and challenges to the organizational form, division of labor, and hierarchy of bureaucracy, and with the further develop-

ment of artificial intelligence and other technologies, uncertain governance risks will quickly spill over and become a universal policy challenge for all countries around the world. This is a universal policy challenge that all countries around the world need to face. At the same time, public administrators are not yet fully prepared to deal with the risks that technology poses to labor markets. In terms of "technological empowerment," information technology and artificial intelligence are driving the development of the information technology industry through deep penetration into production and life and government, while forming the basic environment and an important tool for national and social governance. Digital governance, e-governance and other "technology-enabled governance innovation" essentially means that through technology-enabled practices, the information flow system in the governance process is changed, thus optimizing the interaction between governance subjects and forming a new type of social governance mechanism, which may cause changes in the governance structure and even the governance system. In fact, in foreign developed countries, it has become the norm to actively respond to the challenges of government data governance in terms of information literacy enhancement on the competency requirements of public administration personnel, and in the UK the lack of information skills among civil servants is listed as one of the three key barriers to government digital transformation; [3]in the US based on a study of government data administrators at different levels, it was found that the data governance success depends largely on the ability of government agencies and their data managers to overcome legacy systems and implement new and modern technologies and processes . Therefore, the importance of information quality or data quality, or "digital intelligence quality," for public administrators, is self-evident.

4   Digital Intelligence Quality: The Key to Meeting the Challenges of Public Administration in the Digital Age

Agarwal, an American scholar, argues that public administrators cannot sit back and wait for technological change to change the external environment and put up barriers under the current challenges, but should proactively engage to meet such challenges. [4] Herbert Simon has also suggested that science progresses not by piling up and "exploding" information, but by organizing it and condensing it. He argues that the first and foremost task of science and technology is to design effective information processing systems that serve business and government decision-making, and that future advances more important than computer design will be the deeper insights gained in human information processing-human thinking, problem solving, and decision making. Public administrators can mend and restore standards of sanity through a deepening understanding of information processing technology. [5] Predictably, the quality and competence of public administrators in the digital age will determine the rationality and professionalism of their administrative actions in response to the exploitation of government data resources. In this sense, the "digital intelligence quality" of public officials (not only information technology personnel) in the digital intelligence era, such as data thinking, data mining and storage ability, correlation analysis ability,

activation ability, precision pushing ability and knowledge structure, has raised higher requirements, and the "digital intelligence quality" represented by data application, information processing and intelligent facilities application will be higher. The "digital intelligence quality" represented by data application, information processing and intelligent facilities application will become the core quality of public administrators. Due to the constraints of governance level and "digital intelligence quality" of public administrators, digital governance in Europe and the United States has fallen into the dilemma of valuing technology over governance, resulting in more and more advanced digital technology represented by ICT technology, more and more complete infrastructure, and more and more government investment, but the substantive effect of digital governance is not as good as people think. However, the substantive effect of digital governance is not as good as people think. Later on, driven by emerging technologies such as social networks, governance concepts and digital technologies began to converge, the "digital intelligence quality" of public administrators was significantly improved, and citizen participation and interaction between the government and the people made substantial progress, although the "core" of digital governance in Europe and the United States was still flawed at this stage. Although the "core" of digital governance in Europe and the United States is still flawed at this stage, it has begun to enter the track of returning to the value rationality of public administration, which is actually the track to the highest level of digital governance. It is the technical, complex and automatic nature of digital smart governance that strengthens its closedness and autonomy, which in effect limits and weakens citizen participation and social supervision. In order to better promote digital governance, it is necessary to base on the digital literacy of public administration and do the following: firstly, it is necessary to cultivate digital citizenship, form the awareness of digital rules, digital rights and obligations, digital participation and digital supervision, so as to urge digital governance not to be detached from the rule of law. Secondly, to shape digital participation capacity, the national "14th Five-Year Plan" and the "Outline of Vision 2035" clearly require "strengthening education and training on digital skills for all people, popularizing and enhancing citizens' digital literacy", especially to eliminate the digital divide and form In particular, it is necessary to eliminate the digital divide, develop the necessary digital literacy and digital mastery, be able to use digital methods and digital means to participate deeply in the process of digital governance, realize democratic supervision of the whole process of digital governance, and suppress digital governance paradoxes and alienation; third, cultivate digital action skills, in accordance with the national "14th Five-Year Plan" for the development of the digital economy and the Office of Information and Communications Technology "Enhancing Digital Literacy and Skills for All". In accordance with the requirements of the national "14th Five-Year Plan" for the development of the digital economy and the "Outline of Action to Enhance Digital Literacy and Skills for All People" of the Office of Information and Communications Technology, it is necessary to enhance digital literacy and skills for all people, so that "digital skills in the community" and "digital skills in the community" can enhance everyone's digital protection and the ability to carry out judicial remedies, and safeguard their own legitimate rights and interests in digital intelligence governance. Fourth, enhance the ability of digital negotiation, be good at digital ex-

pression and digital communication, avoid cyber violence and value tearing, and promote consensus and collaboration in digital intelligence governance; fifth, strengthen the ability of digital self-regulation, that is, everyone is not only a natural citizen, but also a digital citizen, and should form a good rational spirit and self-regulation in the process of virtualized, mobile and flat digital intelligence governance. In order to better participate in the process of digital intelligence governance, safeguard their legitimate rights and interests, and promote the digital rule of law order.[6]

At the same time, in the training of public administration professionals in universities, there is also a need to incorporate teaching contents and teaching concepts such as big data and artificial intelligence into the training of talents in a timely manner. Take the School of Government of Beijing Normal University, where I studied, as an example, the school is now actively exploring big data, artificial intelligence-assisted teaching and digital intelligence literacy: Firstly, with the advantage of information management, the professional curriculum of big data, government data assets and e-government has been incorporated into the training program as the basic knowledge module of "digital intelligence literacy" for public administration talents. First, with the advantage of information management, we have incorporated the basic knowledge module of big data, government data assets and e-government into the training program, established the "Big Data Research Center" and released the industry's first "Government Data Asset Operation White Paper", which comprehensively summarizes the current situation of government data asset operation from the dimensions of technology, business model and application scenario, demonstrates the cutting-edge practice of government data asset evaluation, management and operation, and judges the industry. The White Paper summarizes the current situation of government data asset operation, shows the cutting-edge practice of government data asset evaluation, management and operation, and judges the future development trend of the industry, so as to give full play to the information consultation and decision support role of big data for government and enterprises. The second is to incorporate information policy, information rights and information ethics into the training system of public administration personnel. With the opportunity of holding the 9th International Symposium on Information Capital, Property Rights and Ethics, the institute elaborated and demonstrated the concept of integrating information policy, information rights and information ethics into the training of public administration talents as "digital intelligence literacy". The seminar promoted the training of public administration talents to keep pace with the information technology revolution in the "Digital Intelligence Era".

5   Conclusion

In a sense, the era of digital intelligence created by the new technological revolution is changing human life and work at an incredible speed, and the application of new information technologies such as BD, AI, and IoT has brought enough convenience for public administration, but also brought new challenges for public administrators.

But no matter how technology changes, the most important thing is the ability of people to process information, which is the so-called "digital intelligence quality" in this paper. In the face of the many complex social chaos, public administrators can gain deeper insight into problem solving and decision making through the enhancement of "digital intelligence", which will help them gain a deeper understanding of information processing technology and repair and restore the chaos caused by the impact of the new technological revolution on human reasoning standards. This ability will help public administrators gain a deeper understanding of information processing technologies and, in so doing, repair and restore the disruptions caused by the impact of the new technological revolution on human reasoning standards. China's digital governance should absorb the lessons of digital governance in Europe and the United States, and in the practice of digital governance, the integration of digital technology and governance concepts should be realized through the reshaping of the "digital quality" of public administrators and the general public, otherwise it is difficult to substantially improve the quality of digital governance. At present, China's "people-centered" governance concept should be integrated into the blood of digital governance technologies such as big data, cloud computing, Internet of Things, blockchain and artificial intelligence, and only in this way can we enter the highest level of digital governance.

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