

Application and Prospect of Information Technology in National Governance

Hongwu Wang¹, Zheng Liu^{2,*}

¹School of Electronic Information and Electrical Engineering, Shanghai Jiao Tong University, Shanghai 200240, China

²School of Marxism, Shanghai Jiao Tong University, Shanghai 200240, China

Abstract

In recent years, the rapid development of information technologies such as the Internet, artificial intelligence, big data, and cloud computing has enhanced national governance capabilities, improved the national governance system, and brought potential risks. In terms of the application of information technology in national governance, information technology has promoted the construction of digital government, boosted the development of a smart society, and accelerated the evolution of market patterns; Looking forward to the future trend of national governance under the support of information technology, it is bound to be digital, networked, and intelligent. There are also potential risks such as technical power, privacy leakage, and algorithmic bias. Finally, from the construction of institutional mechanisms and laws and regulations, the improvement of infrastructure and the implementation of Put forward relevant strategies in terms of good technical prevention.

Keywords

Information Technology; National Governance; Potential Risks; Coping Strategies.

1. Introduction

In recent years, information technologies such as the Internet, artificial intelligence, big data, and cloud computing have been widely used in many fields such as transportation, medical care, economics and finance, and government services. However, the current application of information technology to support national governance has a relatively single angle and dimension and lacks macroscopic and systematic [1-5]. This article attempts to summarize the application of information technology in national governance from the three dimensions of government, society and market; With the prominent features of information technology, the country's governance is supported by digitization, networking and intelligence.; Further analyzing the potential risks of information technology to support national governance, and proposing relative strategies in terms of institutional mechanisms and laws and regulations, improving infrastructure, and doing technical defenses. This research solves problems exist in the the past one-sided summary of the application of information technology to support national governance, and helps to systematically study the future trends and potential risks of national governance through the use of information technology. It also takes effective measures in a timely manner. Safe and reliable applications in various fields have research and practical significance.

2. Typical Applications of Information Technology in National Governance

2.1. Information Technology Supports the Construction of Digital Government

Digital government refers to a new type of government operation mode that is supported by information technology and promotes the digitization and networking of government agencies' daily office, information collection and release, and public management [6]. For example, the United Kingdom launched the "Government as Platform" model [7]. Through the application of government service application, the efficiency of government departments has been greatly improved, and it has also facilitated the people's access to government services. The United States has built an online model of overall government and interactive government [8] to promote efficient collaboration between the federal government, state governments, and local governments, and conduct real-time evaluation of government departments and websites through digital analysis projects to promote openness and transparency of government services. South Korea's digital government construction adopts a government-led model [9], and began implementing the Government 3.0 plan in 2013, and the 2020 E-Government Master Plan has released in 2020 to initiate a new paradigm for digital government construction. China has always attached importance to the construction of digital government. Since the 1990s, China has successively implemented the Three Golden Projects, Government Internet Projects, and Internet + Government Services etc. [10]. In the future, China will use big data, artificial intelligence and other information technologies as the support to promote the construction of digital government, build a public platform for government services, and promote the efficient collaboration of government across departments, levels, regions, and systems, and data co-construction and sharing. Government scientific decision-making, precise policy implementation, efficient service and effective supervision, continuously improve the national governance system and enhance the modernization ability of governance.

2.2. Information Technology Boosts the Development of a Smart Society

Social governance is an important aspect of national governance. Smart society, as a more advanced social form after agricultural society and industrial society, has become a research hot spot in all walks of life. Information technology is the endogenous driving force for building a smart society. It is necessary to make full use of modern information technology to strengthen and innovate social governance models, promote the in-depth integration of modern technology and social governance, and promote scientific, intelligent, refined, and efficient social governance. Wang Yukai believes that a smart society is a highly perceived society, a highly interconnected society, a highly digitalized and accurately calculated society, a highly transparent society, and a highly intelligent society [11]. Jia Kai and others believe that the smart society is based on information technology, through institutional framework changes to stimulate the creativity of the entire society, gather development forces, and use knowledge production as the core to drive other areas of production to achieve innovation-driven development and build on this basis. The social form that solves the main contradictions of the society with unbalanced and insufficient development [12]. Wei Liqun believes that information technology has extensively and profoundly changed people's life, work, communication, and way of thinking, bringing new changes to social forms, social structures, and social activities, and at the same time providing new momentum and new opportunities for innovative social governance [13]. Currently, the construction of a smart society is in full swing internationally, and the United States and Japan are at the forefront of the construction of a smart society. In 2008, IBM of the United States put forward the Smart Earth, and then proposed to the federal government to build an intelligent information infrastructure. After more than ten years of construction, the US federal government's Smart City construction has begun to take shape [14]. In 2016, the Japanese cabinet proposed the construction of a Super-Intelligent Society 5.0, using

information and communication technology and artificial intelligence technology to create the interconnection between cyberspace and real space, in order to achieve productivity improvement and social and economic take-off.

2.3. Information Technology Accelerates the Evolution of Market Patterns

Every major technological advancement or industrial revolution in the world will promote productivity enhancement and profoundly change production factors, production methods and production relations. With the development and application of information technology such as the Internet, cloud computing, big data, and artificial intelligence, data has become a new type of production factor with the characteristics of the times, and the production and operation methods of enterprises have become more flexible, and economic development models and production methods have become more diverse. Taking e-commerce as an example, using the Internet as a tool to connect buyers and sellers, goods and markets to realize commodity transactions, and representative companies such as Amazon and Alibaba have emerged. Driven by information technology, information technology companies such as Ele.me, Didi, Airbnb, and Uber have sprung up. New models such as online shopping, online education, fresh direct delivery, and unmanned delivery are emerging one after another. With the rapid development of new economy such as digital economy, sharing economy, platform economy, and information technology, new business formats, new businesses, new models, and new economies continue to activate the market. In the future, with the support of the Internet, cloud computing, big data, artificial intelligence, block-chain and other information technologies, the market shape will evolve rapidly, productivity and production factors will become more diversified, production methods and production relations will become more diverse, and market supervision and governance will be more timely. Logistics and capital flow are faster, supply and demand are more direct, and the market economy is more flexible.

3. The Future Prospect of Information Technology Supporting National Governance

3.1. Information Technology Supports the Future Trend of National Governance

With the rapid development and widespread application of information technologies such as the Internet, big data, cloud computing, artificial intelligence, and block-chain, digitalization, networking, and intelligence will be the future trend of national governance under the support of information technology. As a production factor with the characteristics of the new era, the use of big data to improve the modernization of national governance has become the consensus of the whole people. In the future, it will change the traditional decision-making based on intuitive experience and replace it with scientific decision-making supported by data. Dialogue, use data for decision-making, use data for services, and use data for innovation national governance model. Data is a production factor with the characteristics of the new era. The use of big data to improve the modernization of national governance has become the consensus of the whole people. In the future, it will change the traditional decision-making based on intuitive experience and replace it with scientific decision-making supported by data, forming a national governance model of *using data for dialogue, decision-making, services and innovation*. Networking and internalization will become the new normal of people's future production and lifestyles. Systems and networks are connected smoothly, and governance objects and governance entities are networked together to build a multilevel, multidimensional, and multi-agent governance network, thereby realizing *ecological webs of technology and governance* are interconnected, and coordinated and efficient. Internalization is the final trend of national governance. Relying on the interconnection of everything, cloud computing, artificial

intelligence and other intelligent technologies, national governance will be transformed from an *open-loop system* to a *closed-loop system*, and from *lagging feedback* to *advanced prediction*. National governance system integration, high-efficiency implementation, dynamic monitoring, real-time optimization, and independent adjustment will enhance the intelligent level of modern national governance.

3.2. Potential Risks of Information Technology Supporting National Governance

The rapid development and wide application of information technologies such as the Internet, big data, cloud computing, artificial intelligence, and blockchain have made data, networking, and intelligence gradually become an important means to support future national governance. As a production factor with the characteristics of the new era, the use of big data to improve the modernization of national governance has become the consensus of the whole people. In the future, it will change the traditional decision-making based on intuitive experience and replace it with scientific decision-making supported by data. Dialogue, use data for decision-making, use data for services, and use data for innovation national governance model. Data is a production factor with the characteristics of the new era. The use of big data to improve the modernization of national governance has become the consensus of the whole people. In the future, it will change the traditional decision-making based on intuitive experience and replace it with scientific decision-making supported by data, forming a national governance model of *using data for dialogue, decision-making, services and innovation*. Networking and internalization will become the new normal of people's future production and lifestyles. Systems and networks are connected smoothly, and governance objects and governance entities are networked together to build a multilevel, multidimensional, and multi-agent governance network, thereby realizing *ecological webs of technology and governance* are interconnected, and coordinated and efficient. Internalization is the final trend of national governance. Relying on the interconnection of everything, cloud computing, artificial intelligence and other intelligent technologies, national governance will be transformed from an *open-loop system* to a *closed-loop system*, and from *lagging feedback* to *advanced prediction*. National governance system integration, high-efficiency implementation, dynamic monitoring, real-time optimization, and independent adjustment will enhance the intelligent level of modern national governance.

3.3. Information Technology Supports National Governance Risk Response

The first is to strengthen the construction of national governance systems and laws and regulations supported by information technology. Establishing a unified, orderly, clear division of labor, and collaborative and efficient governance mechanism for government, society, market, individuals and other governance objects and subjects, establishing and improving the legal system and system rules that support national governance by information technology, and reducing the risks and challenges that information technology brings to national governance. The second is to improve the infrastructure, take technical precautions, and ensure the safety of the technology itself. Improving the infrastructure construction of root servers, data centers, etc., strengthening technology research and development, using the advantages of technology to prevent technical risks, and realizing that technology itself can ensure the safety and reliability of technical support for national governance. The third is to build a responsible technology culture and avoid the negative effects of technology. Through the construction of a responsible scientific and technological culture, clarifying the division of powers and responsibilities of governance subjects and technological limitations, clarifying that the fundamental task of national governance is still to be implemented on people, not technology, and ultimately framing the technology of national governance on the track of people-oriented good governance in.

4. Conclusion

This article summarizes the application of information technology in national governance from the three dimensions of government, society and market; Combining the outstanding characteristics of information technology, looking forward to the future trend of information technology supporting national governance, analyzing the potential risks of information technology supporting national governance, and proposing countermeasures from various aspects such as institutional mechanisms, laws and regulations, infrastructure, technology prevention, and technology and culture.

References

- [1] Yu Yuxin, Zhang Yugui. Block-chain provides technical support for the modernization of national governance system and governance capabilities [J]. Shanghai Economic Research, 2020(01): 86-94.
- [2] Xue Zelin, Sun Rong. Artificial intelligence empowers refined governance of megacities: application logic, important issues and future breakthroughs[J]. Journal of Shanghai Administration Institute, 2020, 21(02): 55-62.
- [3] Zou Dongsheng. The support of science and technology empowers social governance in a new era[J]. National Governance, 2019(41): 23-27.
- [4] Ma Haiyun, Yang Jinghong. Public governance reform driven by big data: basic logic and action framework [J]. Chinese Administration, 2018(12): 42-46.
- [5] Chen Chaobing. The main methods and references of using the Internet and big data to promote government governance in developed countries [J]. Research on Socialism with Chinese Characteristics, 2017(06): 56-64.
- [6] Hu Shuigen, Yang Jingnan. Exploration and experience reference of digital government construction in developed countries [J]. Exploration, 2021(01):77-86.
- [7] O'Reilly T . Government as a Platform[J]. Innovations Technology Governance Globalization, 2011, 6 (1):13-40.
- [8] US Department of State. Digital government strategy [EB/OL].[2020-03-01]. <https://www.state.gov/digital-government-strategy/>.
- [9] Chen Choyong. The construction of Korean digital government and its enlightenment[J]. Information Construction, 2018(06): 30-34.
- [10] Li Junpeng. The construction strategy of digital government for basic modernization[J]. Reform, 2020 (12): 16-27.
- [11] Wang Yukai. Smart society and modernization of national governance [J]. Journal of the Party School of Tianjin Municipal Committee of the Communist Party of China, 2018, 20(02): 62-65.
- [12] Jia Kai, Zhang Huiping, Tang Zhiwei. Conceptual evolution, connotation construction and institutional framework innovation of a smart society[J]. Electronic Government Affairs, 2019(04): 2-8.
- [13] Wei Liqun. How to understand the modernization of social governance [J]. Frontline, 2020(01): 24-30.
- [14] Liu Hongqin, Tang Zhiwei, etc. China's foreign experience in building a smart society for reference[J]. Electronic Government Affairs, 2019(04): 9-17.