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The Relationship between Information Technology and the Modernization of the National Governance System

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Abstract: ***Currently, a new wave of technological revolution and industrial transformation is emerging. New-generation information and communication technologies, such as big data and artificial intelligence, evolve rapidly and profoundly impact economic and social development. They provide strong momentum for the modernization of national governance systems and capabilities. As an emerging governance resource, big data holds vast potential for promoting the modernization of national governance systems. It can enhance the decision-making level of governance, awareness of data openness and sharing, capabilities in public service, and risk management. Artificial intelligence presents opportunities for building a modern national governance system, facilitating precision, intelligence, and efficiency. National governance should seize the development opportunities of information technology, increasing its contribution to building a modern governance system.***

Keywords: Modernization, Information technology, Big data, Artificial intelligence.

1. Introduction

The national governance system refers to the institutional framework managing the country under the Party's leadership. It encompasses various fields such as economy, politics, culture, ecological civilization, and Party development. This system comprises interconnected and coordinated national institutions. The Fourth Plenary Session of the 19th Central Committee comprehensively elucidated the overall requirements, goals, and key tasks for adhering to and improving the socialist system with Chinese characteristics in the new era while promoting the modernization of the national governance system and governance capacity. The Fifth Plenary Session proposed strengthening the construction of a digital society and digital government. The "14th Five-Year Plan for National Economic and Social Development and the Vision 2035 Goals" emphasizes transforming the production, lifestyle, and governance methods through digital transformation. This lays a clear direction for advancing national governance modernization in the digital economy era. A society's contextual characteristics profoundly influence its governance system. The "modernization of the national governance system and governance capacity" is rooted within a specific historical context, era foundations, and technological backgrounds. Achieving modernization in governance necessitates the premise of a new information society form, supported by modern information technology. How national governance capability and system modernization advance in practice involves both theoretical and practical issues. Currently, we face a new technological backdrop characterized by information technologies, particularly artificial intelligence and big data, which are exerting substantial and far-reaching impacts on human society. Modern information technology is a combination of various innovative, developmental, and epochal technologies. Therefore, by examining big data and artificial intelligence, we can discuss the relationship between information technology and the modernization of the national governance system.

2. Concept Definition

To clarify the relationship between information technology and the modernization of the national governance system, we must first grasp the scientific connotations of "national governance system" and "modernization." First, we need to define what a national governance system is. Renowned scholars, represented by Professor Yu Keping, argue that the national governance system is an organic system where governing entities, based on their functions, promote the state to achieve stability and developmental goals. It intrinsically includes multiple objectives: the consolidation of the Party's leadership, the strengthening of people's democratic dictatorship, and the standardization of the national governance process. The core lies in the organic unity of the Party's leadership, people's sovereignty, and rule of law. Another perspective is the narrower institutional system theory. Advocates like Professor Mo Jihong from the Chinese Academy of Social Sciences view the national governance system as the institutional framework through which the ruling party manages the state. This framework specifically includes arrangements for institutions and regulations across various fields: economic, political, cultural, social, ecological, and Party-building. These institutional systems are inter-coordinated and closely linked, collectively constituting key elements of the national governance process. Secondly, we must define what "modernization" entails. Regarding "modernization," most scholars approach it from a systems perspective, analyzing the modernization of the national governance system and governance capacity through various aspects such as institutions, participation, and efficiency. For instance, Professor Yu Keping summarizes the modernization of the national governance system into five standards: normalization of public power operation, democratization, adherence to the rule of law, efficiency enhancement, and coordination between central and local governance. In contrast, Professor Jiang Bixin, President of the Supreme People's Court, categorizes it into four standards: institutionalization, scientificity, standardization, and procedurality.

3. The Relationship between Big Data and the National Governance System is Significant.

Marx noted that hand-driven mills produced societies led by feudal lords, while steam mills brought forth societies led by industrial capitalists. Each new technological revolution inevitably transforms social structure and forms. Big data, as a disruptive information revolution, is quietly reshaping the governance ecology of our country. The Third Plenary Session of the 18th Central Committee emphasized the modernization of the national governance system and governance capabilities. Big data, as an emerging governance resource, has vast potential in enhancing national governance modernization. It can improve governance decision-making, promote data openness and sharing, enrich public service capabilities, and strengthen risk governance.

3.1 Utilizing Big Data Enhances the Decision-making Capabilities of National Governance.

Currently, humanity has entered the era of data and information. Data plays a crucial role in decision-making, especially in China, which has a strong tradition of "human rule." Speaking with data and incorporating data analysis as a critical factor in decisions has become increasingly urgent. As a new concept, technology, and method, the application and promotion of big data technology can effectively gather information from various sectors. This provides necessary data support and reference for decision-making bodies, thus advancing the level of national decision-making. The ability of big data to improve governance is closely linked to its inherent characteristics. Big data significantly overcomes the drawbacks of traditional governance where data acquisition is often incomplete. For decision-making bodies, analyzing the governmental environment, market conditions, and social issues cannot be achieved without accurate information, which requires substantial data support. In the era of small data, due to technological limitations, the data acquired by decision-making bodies lacked a comprehensive perspective. Consequently, analysis often relied on qualitative, quantitative, or a mix of both approaches. However, qualitative analysis is subjective, and quantitative analysis can be arbitrary, leading to decisions that do not fully reflect the complexity of scenarios or meet the needs of the majority. In the big data era, the advancement of data collection and analysis techniques allows for easier resolution of these issues. The information obtained by decision-making bodies becomes more comprehensive and accurate, leading to decisions that align better with societal needs and effectively address real-world problems.

3.2 Enhancing National Governance Awareness of Data Openness and Sharing Through Big Data

In the era of big data, openness and sharing of data provides intellectual support for all stakeholders involved in national governance, particularly the public. This enables more proactive and effective participation in the entire process of governance. The realization of big data's value relies on the foundation of data openness and sharing. A platform for open and shared big data must be established so that society can harness this data to engage in governance. This approach effectively mobilizes public enthusiasm for participation and truly promotes a diversified governance model. Clearly, encouraging greater data openness constitutes an important influence of big data on national governance concepts. Currently, nations worldwide are increasingly valuing data openness and sharing; “openness and sharing” has become a prominent feature of the big data era. Any government that fails to prioritize data openness and sharing, or lacks relevant awareness, cannot adapt to the governance demands of the big data age, resulting in a disadvantage in national competition. Many governments in China have recognized the importance of data openness and sharing and are taking active steps. Advanced provinces and cities, such as Shanghai, Zhejiang, Jiangsu, and Guizhou, with strong foundations in big data, have varying degrees of success in promoting the openness and sharing of government data. For example, in Foshan, Guangdong Province, the data openness and sharing initiatives are quite mature, having established a government cloud service platform that fosters effective interaction between the government and the public in participating in national governance.

3.3 Utilizing Big Data Enhances the Capacity of a Nation's Public Service Delivery.

First, big data promotes a scientific social organization system. A harmonious society necessitates the establishment of a modern organizational framework that is scientific, rational, and efficient while effectively managing the social domain. In recent years, information technology, represented by big data, has played a significant role in this area. Various communities within cities have implemented collaborative prevention and control measures, monitoring implementation and alarm mechanisms through technological grid management. This not only ensures citizens' basic life and property safety but also cultivates the awareness of citizen participation in social governance. Grassroots autonomous organizations, such as neighborhood committees and homeowners' associations, have achieved impressive results through collaboration on internal matters via platforms like WeChat groups and QQ groups. Thus, big data provides not only technical support but also brings about technological transformation, further enhancing social governance capabilities. The ability to govern society does not function in isolation; it closely relates to other sectors. Major national strategies, such as new urbanization, rely heavily on governance capacity. Big data can rationally utilize data across various fields to achieve precise governance, consequently improving the governance levels of all levels of government. Secondly, big data makes public services more convenient and equitable. Currently, sectors impacting national economy and people's livelihoods, such as education, healthcare, transportation, tourism, and social security, have gradually integrated with big data. Citizens can enjoy increasingly convenient and diverse services. Examples include online appointments, ride-hailing, bike-sharing, and online registration for primary and secondary school enrollment. These practices exemplify how big data boosts citizens' sense of well-being and highlight the characteristics of fairness and convenience in social governance.

3.4 Utilizing Big Data Enhances a Country's Risk Governance Capabilities.

Currently, China faces unprecedented changes in a century and is in the historical process of modernization. The pursuit of modernity brings about heightened material prosperity but also casts a shadow. This shadow refers to the myriad complex and uncertain risks posed to the modern world. Today, our nation contends with various risks and challenges.

Firstly, in addressing traditional environmental disaster risks such as disease outbreaks, earthquakes, and tsunamis, big data offers unique advantages. By monitoring ecological factors like soil and ocean conditions and leveraging historical data from information repositories like geographic and meteorological records, we can build a national comprehensive disaster reduction and risk management information platform. This platform allows for rapid emergency response and thorough assessments of environmental quality and risks, facilitating precise warnings for such events.

Secondly, big data effectively prevents and resolves non-traditional risks such as online collective incidents and terrorist attacks. On one hand, it can detect social sentiments hidden within networks and enable timely response measures to mitigate these risks at their nascent stage. On the other hand, big data helps identify that the deep-rooted causes of these incidents stem from inadequate public services and serious shortcomings in social development, leading to social injustice. A fundamental solution lies in empowering the public to achieve self-governance through democratic participation. Thus, the nation should establish open data platforms that engage individuals or organizations in policy formulation and oversight, thereby aiding in intelligent governance and fundamentally addressing the root causes of such incidents.

4. The Relationship between Artificial Intelligence and National Governance Systems

Artificial intelligence (AI) drives the modernization of national governance systems. Viewed through the lens of human historical development, productivity serves as the ultimate force behind societal advancement. Scientific and technological innovation acts as the primary productive force, influencing both economic foundations and superstructures. As a superstructure, the national system inevitably faces the sway of science and technology. In practical terms, AI technology currently displays unique advantages across a variety of industries, presenting opportunities for the modernization of national governance systems.

4.1 AI Facilitates the Precision of National Governance Systems

Since the 18th National Congress of the Communist Party, China has entered a critical phase of building a moderately prosperous society and deepening reforms. Social development has accelerated. The primary contradiction now manifests as the need for the people to enjoy a better quality of life, juxtaposed against uneven and insufficient development, which faces the rising personalized demands of the populace. Relying on a traditional, extensive national governance model struggles to meet individual needs and enhance governance effectiveness. The widespread application of AI technology significantly reduces the difficulty and cost of data collection and aggregation. This fosters rapid, convenient, and accurate identification of individual needs, allowing for precise matching of those needs. Each citizen can receive a personalized "menu," increasing overall satisfaction and making the goal of precision in national governance systems a tangible reality.

4.2 Artificial Intelligence Facilitates the Enhancement of Smart Governance Systems.

The modernization of the governance system and capacity primarily occurs through government actions. In this respect, artificial intelligence can leverage big data, robust computing power, and advanced algorithms to elevate the intelligence level of governance systems. By utilizing its advanced data collection and analysis capabilities, and integrating relevant theories of governance, it can effectively gather data on societal operations. This process improves the state's ability to address various social risks and enhances the intelligence of the governance framework. Furthermore, artificial intelligence can influence economic and political decision-making as well as control and simulation systems, thereby promoting the transition from traditional governance to intelligent governance.

4.3 Artificial Intelligence Contributes to Enhancing the Efficiency of National Governance Systems.

Efficiency plays a crucial role in modernizing these systems. All levels of government are implementing administrative reforms focused on "delegating powers, improving efficiency, and optimizing services." The essence of efficiency lies in continuous improvement of performance indices. Only by translating efficiency into performance indices and enhancing governance quality while ensuring these indices improve can we claim that national governance systems and capacities have achieved true modernization. In this context, artificial intelligence serves as a catalyst. For instance, in administrative processes, AI can gather public needs, timings, and issues during service transactions. Moreover, it can analyze operational data across various departments. This dual approach optimizes service workflows, allowing citizens to accomplish more in less time and alleviating the workload among administrative departments, thereby significantly increasing the efficiency of international governance systems. Additionally, AI utilizes facial and fingerprint recognition to swiftly identify groups and individuals that threaten social stability. This capability enables timely resolution of social unrest and political threats.

5. Conclusion

Information technology has rapidly advanced in recent years. The era of big data has fully commenced, while the era of artificial intelligence has quietly arrived. This development undoubtedly reflects the gradual enhancement of human knowledge innovation levels and the remarkable progress in technological innovation capabilities. National governance should seize the opportunity presented by information technology advancements. It must maximize the utilization of various positive factors. Given the current socio-historical

conditions of the nation, efforts should promote the modernization of the national governance system. Enhancing the contribution of information technology to this modernization is crucial.

In this context, it is imperative to establish a framework that effectively integrates information technology into governance structures. This integration should not only focus on improving efficiency but also on fostering transparency and accountability within governmental operations. By leveraging data analytics, decision-makers can access real-time insights that inform policy-making, ultimately leading to more responsive and citizen-oriented governance. Furthermore, the development of digital platforms can facilitate greater public engagement and participation in the political process, bridging the gap between government and citizens. It is essential to invest in cybersecurity measures to protect sensitive data and maintain public trust in digital systems. As such, a comprehensive strategy that includes training and education for civil servants on new technologies will be vital in overcoming potential challenges. Finally, collaboration between the public sector, private enterprises, and academic institutions should be encouraged to promote innovative solutions that address the unique challenges faced by national governance. Emphasizing a culture of continuous learning and adaptation will ensure that the benefits of information technology are fully realized and that governance systems remain resilient in a rapidly evolving technological landscape.

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