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Financial Internet Quarterly 2025, vol. 21 / no. 1, p. 67-75

10.2478/fiqf-2025-0005

Financial Internet Quarterly

DIGITAL GOVERNANCE ACROSS WHOLE-OF-THE-GOVERNMENT: OPPORTUNITIES AND CHALLENGES

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Abstract

Technology has become a major driver for business, society, and government in the present times. Businesses use technology to monitor their processes, improve their efficiency, and automate routine tasks along with other things while government may use the technology from a different perspective. The role of government is to facilitate, monitor, supervise, and regulate various policies, programs, schemes, etc. Digital governance is a step towards making the roles, responsibilities, and authority for decision-making create a digital presence for any organization. The present study focuses on the digital governance of the government in a country like India. The study highlights the opportunities and challenges of digital governance. The digital divide is one of the major challenges for digital governance. There are multiple challenges that technology poses for bringing digital governance into action and some of those are related to technology, leadership, literacy, etc. Digital governance can be successfully implemented if these issues are being addressed and taken care of. The paper concludes by giving the future direction of research.

JEL classification: G34, G38

Keywords: Digital Governance, Digital Divide, Artificial Intelligence, Digital Security, Opportunities, Challenges

Received: 31.07.2024 Accepted: 15.11.2024

Cite this:

Pande, S., Chandani, A. & Wagholikar, S. (2024). Digital governance across whole-of-the-government: opportunities and challenges. Financial Internet Quarterly 21(1), pp. 67-75.

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Introduction

A framework known as "digital governance" establishes roles, responsibilities, and authority for decision-making to create a digital presence for any organization. This includes all of its websites, mobile applications, social media channels, and any services or products that can be accessed via the internet or the web. Implementing a well-designed framework of digital governance decreases the number of strategic arguments on the structure and administration of that organization's digital presence, by establishing who on the digital team has decision-making power for these areas.

Toffler (1994) used the expression "information overload" to describe the transition from a lack of information to a profusion of information, evident in the volume of information available on social media platforms. To solve the information overload issue, governments use enormous data sets on several topics (Kim et al., 2014). The advent of new technologies facilitates the processing of data with vast volumes, types, and speeds which allows governments to design policies and satisfy the needs of their citizens (Chen & Hsieh, 2014).

The consequences of digital government on people can be both beneficial and disastrous (Hayek, 1989). Digitalization might give people more power to influence government policy directly, which might be a good thing. With almost no paperwork and far less red tape, digitalization may help business owners launch and run their enterprises smoothly. Digitalization also makes it simpler to customize services and increase transparency and governments can now make better judgments about public health, the environment, transportation, and other concerns. It can also be a burden because it provides government more room to watch people and meddle in their lives and critical decision-making, thereby influencing the free market system. Digitally supplied services by governments may still be unhelpful, and data security issues may be quite troublesome.

The term "whole-of-government approach" (WGA) describes the collaborative efforts undertaken by several ministries, and government departments to offer a shared solution to specific problems or concerns. These efforts often entail cross-border tasks and reformation (OECD, 2007). Nowadays, it is believed that the whole-of-government (WG) approach is necessary to provide the government with cohesive and unified policies, streamlined and connected services, and integrated administration of programs (Ojo et al., 2011). Three key aspects may be discovered while researching the government: firstly, "Not everyone fits the mold". Stated differently, not all circumstances may call upon the public sector as a whole to adopt lateral ways. Second, given single government initiatives frequently involve a "bottom-up" component, space must be allowed for this potential since it can enhance "joined-up-ness" Ultimately, establishing a culture of collaboration across the entire government is a long-term project. Change management takes time and most importantly entire administration has to "own it" (Christensen & Lægreid, 2006).

New kinds of organization have been made possible by the quick development of digital technology and the greater information and expertise sharing between people and businesses alike. Nonetheless, this presents significant additional difficulties in creating efficient governance frameworks (Tran et al., 2024). Research has primarily addressed the technical aspects of the digital governance challenge. The primary difficulty, though, is not technical but rather in developing governance frameworks that allow individuals to participate in decision-making while avoiding the awareness barrier (Jia & Chen, 2022) The shift from a technical structure to several processes operating at various levels is essential for an effective shift to digital governance across the whole of government, and each of these procedures has its constraints (Erkut, 2020).

This study emphasizes how important digital governance is to the facilitation of exchanging connections that are facilitated by digital technology. In light of the growing automation of governance, what kinds of regulations and methods should be created to safeguard network users? How may algorithms be created so that they abide by both national and international laws? With this backdrop, the present study aims to shed light on India's digital governance policy. It also focuses on opportunities and challenges that digital governance brings to the forefront. This begs an interesting issue of whether major digital leaders genuinely care about moral digital governance or if their main goal is to shift accountability.

The study presents a broad perspective of digital governance in India. The study contributes to the literature by highlighting the important aspects of national data governance framework policy and its impact on the various stakeholders. This work adds to the growing body of knowledge in managerial and organizational studies regarding the digital shift by reorienting its emphasis from corporate structures and corporate procedures to the governing effects of technological advancements. The study will provide useful insights to the academicians in the domain of digital governance. The results of the study will be useful to the government and policymakers to incorporate suggestions to mitigate the challenges of digital governance. This will also be useful to the public and citizens at large as they

are the end users of the various digital initiatives of the government and knowledge of digital governance will instill trust among the public.

The remainder of the paper is organized as follows: section two presents the literature review and section three outlines the research methodology adopted in the present study. Section four highlights the opportunities of digital governance and section five deals with the challenges along with suggestions to overcome those challenges. The last section gives the conclusion and future scope of work.

Literature review

The implication of the evolution of information coupled with communication technologies has long piqued the curiosity of economists. Dholakia et al. (2002) paralleled the evolution of the Internet with the expansion of the telephone systems, highways and railways, and electric grid, in their study, which focused on the implications of the Internet on markets. Researchers discovered that transaction and agency costs were significantly reduced by using the internet and producing network externalities. A co-evolution of frameworks, both at technological and institutional levels, has resulted from the development of newer technologies. Both these aspects reflect the expansion of human knowledge if we take into account not only these breakthroughs in infrastructure but also advancements that were made possible or triggered by them (Witt & Zellner, 2009). The essence of digital institutions, particularly quality, has been highlighted by several scholars, like Acemoglu and Robinson (2013) and Glaeser et al. (2004). Government institutions are categorized as either inclusive or extractive. In contrast to extractive economic institutions, which "are structured to extract incomes and riches from one subset of society to benefit a different subset," inclusive economic institutions "enable and encourage involvement by the great bulk of people in economic activities that make the most use of their abilities and skills" (Glaeser et al., 2004).

Despite the exponential growth of knowledge in the age of digitization, humans' capacity to create knowledge from information processing is still limited (Acemoglu & Robinson, 2013; Erkut et al., 2018). It doesn't matter if one views digitization as occurring at the level of the government or a specific market sector. Irrespective of the category of the market under investigation, Valenduc and Vendramin (2017) assert that digital transformation should be as valuable as economic capital, and different industrial revolutions happen at different rates and with different characteristics. Seoul was found to be the top city while Stockholm was ranked number twenty based on an assessment of websites of municipal governments across the world to identify the best practice of e-government performance (Manoharan et al., 2023).

The situation of uneven access to and use of the internet is what is meant by the term "digital divide," which does not have a single meaning (Stjernfelt & Lauritzen, 2020). The digital divide has an impact on consumers' digital capabilities, internet access, and socioeconomic standing about digital governance (Helsper & Van Deursen, 2015). Not all the people living in a geographic area may have the same access to the internet and this is what causes the digital divide. There exist gaps in the digital world in terms of social, economic, cultural, and political ties, according to recent studies on the digital divide from several perspectives (Stjernfelt & Lauritzen, 2020). Therefore, even while there might be some technological approaches to improve, they depend on things like breadth and popularity.

Government operations "rely on the presumption of the existence, ability to understand, and stability of an optimal outcome," in Kiesling's (2015) opinion, regardless of whether the circumstance involves an "analog" or digital government. Hanisch et al. (2023) proposed a difference between analog, augmented, and automated governance to offer a choice model and to reduce governance costs. This literature is mostly focused on organizational and technological opportunities and challenges, with little explicit treatment of the knowledge problem. The application of information and communication technology for governance objectives is progressing toward the digitalization of governance as a whole.

In the past, a significant amount of research has been conducted on the interactions between government, society, and technology (Algazo et al., 2021). The majority of studies and practical developments focus on specific areas of concern, like services and transparency to the citizens of the nation, administrative organization processes, collaboration amongst various departments, or privacy for individuals. Also, the hurdles of tomorrow are changing and are complicated, necessitating a more flexible and holistic approach. This includes thinking about the kind of infrastructure that is suitable for the ongoing evolution of administration and governance in the digital age (Dawes, 2009).

Future research should focus on e-government performance and citizen engagement which can be increased by addressing the challenges of digital governance (Manoharan et al., 2023). Our study is poised to fill this gap by undertaking the following objectives:

1. To review the concept of digital governance in India.
2. To evaluate the opportunities, present in the digital governance.
3. To analyze the challenges in digital governance.
4. To suggest ways to overcome the challenges of digital governance

Research method

The present study is exploratory which allows the authors to explore the phenomenon to give suggestions (Reynolds, 2015) concerning digital governance. The study uses the existing body of knowledge on the topic including research papers, reports, books, government websites, newspaper reports, etc.

Opportunities

Use of Artificial Intelligence (AI)

From the early 1990s, information technology was used extensively to transform business, with increased data, uses, computational power, etc. Artificial Intelligence (AI) has paved the way into businesses across globe (Canhoto & Clear, 2020). AI can behave like human intelligence based on machine systems and using the data collected from various interactions. AI can be considered the foundation of modern computers and technology that is equipped to carry out planning, learning, and problem-solving among other things. Supervised machine learning, neural networks, and deep learning are at the core with which AI interacts, learns, draws, and performs like human intelligence (Jarrahi, et al., 2023). The application of AI has been explored in various fields such as education, and medicine (Zhang et al. (2023) while Himeur et al. (2023) performed a literature review to explore the use of AI-Big data analytics in building automation and management systems.

AI Governance Initiatives in Canada were aimed at developing various programs, policies, and plans to implement technology and AI in industries, research, and public administration were reported by Attard-Frost et al. (2024) using a semi-systematic review. Similarly, in India renewable energy, infrastructure, health, and the creation of climate change-resistant cities are just a few businesses that could be significantly changed by the use of AI. Events such as RAISE 2020", the "Digital India Dialogue", and "AI Pe Charcha", which examine all aspects of evolving technology and its political repercussions, show that a much-needed conversation on "AI for good" has begun.

Dunleavy and Margetts (2023) suggested macro themes such as the large quantity of data, robotic devices, data science and AI, and administrative holism being brought in by the digital changes. The use of AI technology by government authorities is expanding for effective data compliance, tax monitoring, and other activities. In the context of AI deployment in the public sector, the necessity for government capacity building and sensitization cannot be overstated. Governments that execute digital transformation using AI may become more receptive to new trends and make the required response.

Knowledge and adoption

Though not all schools of thought have explicitly addressed this issue, some even ignore the fact that "the knowledge of the circumstances with which we must make use never exists in concentrated or integrated form but solely as the dispersed bits of incomplete and frequently contradictory knowledge which all the separate individuals possess" (Hayek & White, 2019). Any policy phrasing and proposals should emphasize creation based on knowledge to sustain the economy (Lundvall, 2016). Jarrahi, et al. (2023) mentioned that AI can be used in knowledge creation, storing, retrieving, sharing, and application.

Hayek and White (2019) asserted that rather than the allocation of existing resources, the main economic problem is the use of information that has not been adequately communicated to everyone and there exists a difference between knowledge and information. Complexity and contextuality (Giebel, 2013) are two properties of the knowledge problem that can be identified, according to Thomsen (2002). Contextuality is related to the knowledge needed to coordinate plans being either tacit, produced through the market process, or inarticulate, whereas complexity is related to the difficulties in coordinating plans because of the scattered and subjective nature of knowledge.

Bolaños and Pilerot (2023) analyzed the public policy of the government that articulates education in the statement while other governments have invested huge amounts in the development of formal education, but those statements do not acknowledge the technological developments and digital governance. From this aspect of knowledge, the shift from digital governance-a multilevel governance process combining democracy, business, and government structure-to digital government-a core electronic structure for digitizing government services-appears to be problematic. Whether freshly created or emerging technology can solve this fundamental but yet important knowledge barrier is up for debate.

Transparency, trust, and security

The future lies in the effective use of tech-enabled business solutions and digital governance. Given that they are now a "good" habit that makes people's lives simpler through "fair, accountable, and transparent" processes, such digital considerations will have an impact on governments. The government should invest in technical experts who can foil any hacking attempts by dishonest people.

The strategies and blockchain technologies are capable of enhancing digital security, thus building the trust of the users (De Filippi et al., 2020). Digital transformation helps in increasing transparency and ac-

accountability in governance (Shenkoya, 2023). Transparency and security help in building trust while digital governance is capable of being transparent and avoiding red tape in the transaction thereby increasing the trust of the stakeholders.

Governments across the globe have used technologies in various functions and are also mindful of the governance of those digital channels, platforms, initiatives policies, etc. Olaniyi (2024) mentioned that security is important for the democratic process while using technology in the electoral processes. If the government creates systems that foster transparency and trust in governance, it leads to the creation of public value. The digital governance that promotes transparency and accountability helps in creating an environment of trust among the stakeholders.

Challenges

The adoption of technology by the state is aimed at improving efficiency, service quality, transparency, trust, and security among other things. However, embracing the transformation has significant challenges, and the important ones are listed below:

Technological challenges

In an ever-increasing competitive world, achieving an advantage over competitors is possible only with knowledge, and utilization of information, and implementing digital technology for digital governance appears to be a promising solution. This is primarily why leadership in organizations is keen on executing automation through the adoption of digital governance. The post-pandemic scenario demands a rapid recovery of the market while restoring quality and performance. The complexity of digital technologies, access to a functional user interface, navigation from one process to another, and design of strategic initiatives are some pitfalls or challenges in implementing digital governance (Tiwari, 2022). It appears that there is a hesitation in accepting digital governance with an optimistic approach mainly because of undesirable and unexpected problems posed by technology and artificial intelligence -enabled applications (Lukings & Lashkari, 2022).

Leadership challenges

Digital governance is dependent on who is leading the initiatives, processes, and policies. A large emphasis lies on the strategy adopted by the leadership of an organization in executing digital governance with meticulous planning and designing a smooth transition for fostering the adoption of digital technology by providing impactful knowhow (Eom, & Lee, 2022; Manjunath et al., 2024). It is important to find a suitable authority who can lead the digital governance and it may play a major role in achieving political stability, public obedience, and regional disparity of lawful conduct (Hu & Zhang, 2024).

Data privacy and security

Data is at the core of digital governance and there are numerous concerns over data privacy and security. The government may use multiple ways and measures to ensure data privacy and security but hacker's activities have been rampant in this regard. As digital technologies show a rapid expansion, data privacy, adherence to rules and regulations of the organization, and addressing failures of digital technology pose a challenge. Regulations are being formed to put a check on public intervention and streamline private-public cooperation to resolve these issues at a global level. (De Gregorio & Radu, 2022).

Digital literacy

The challenges faced by countries such as India, Ukraine, the UK, and Estonia are presented in a recent report, revealing that India faces a major challenge attributed to its rigid caste system, digital divide, limited digital literacy, and access to internet facilities (Kud, 2023). To encourage and implement digital governance and handle challenges in India, the government has initiated Digital India. The primary goal of Digital India is to deal with challenges related to the digital empowerment of citizens, mitigation of the digital gap, enhancement of digital literacy, and thereby ensuring each benefit of technology (Rani & Sachar, 2022).

Digital divide

In the modern world, technology has a significant role in influencing government, industry, and society. Despite the government incorporating technology from the administrative point of view, organizations use it to evaluate their operations, increase productivity, and automate repetitive jobs, while taking care of many other processes. Numerous policies, programs, projects, etc. are facilitated, overseen, monitored, and regulated by the government. Creating the positions, duties, and decision-making authority necessary to provide any business with a digital presence is an initial move toward digital governance. A significant obstacle to digital governance is the digital divide. (Jejeniwa et al., 2024).

Conclusion and future research

Keeping the straightforward concept of facilitating government services online, the complex process of digital governance encompasses issues with digital democracy, digital business concerns, and digital government design and use. It aims to alter both how businesses are started and run, as well as how people are demographically represented. However, this approach has its limitations. Technology enables the execution of transparent, efficient governance. Digital governance

can bring about holistic and continuous change to overcome challenges at sectoral, national, and global levels (Bhattacharjee, 2024).

With the intention of holistic development, the Indian government started Digital India, e-seva, e-Kranti, and more such projects. Digital governance execution faces challenges such as cultural and technical limitations, socioeconomic issues, and problems related to security and privacy (Hoque et al., 2024).

Although governments may have the best of intentions, the amalgamation of the previously well-defined physical and digital segments of knowledge creates new challenges and obstructions for digital governance. The limited knowledge is a harsh reality, and new technical improvements are limited by the logical status of the program language or coding, which again is limited by human knowledge's finite capacity. On the other hand, understanding the challenges imposed by digital governance could assist policymakers in effectively modifying their strategies.

E-governance initiatives began to spread throughout India in the middle of the 1990s, primarily focusing on large-scale horizontal applications that catered to the needs of citizens. Developing significant systems, and computerizing railroads, land records, and other relevant information systems were some of the ICT endeavors (IBEF, 2024) Subsequently, the goal of many governments' electronic government initiatives was to provide residents with digital public services. Many e-governance projects have restricted features, which makes it difficult for them to achieve their intended effects regardless of their citizen-centric orientation. The effective rollout of e-governance across governance areas was delayed by the substantial gaps that were highlighted by the isolated and marginally interactive platforms. These demonstrated the critical need for more thorough design and execution, including accessibility concerns and equipment prerequisites, to create a more linked government.

This study summarizes digital governance, the opportunities and challenges along with highlighting the role of governance. India, being a developing nation, faces a lot of challenges in the implementation of digital governance in the present times. The government should focus on those challenges and bring additional resources to solve those issues to make digital governance across-whole-of-the-government.

Future research might therefore concentrate on how technology can be of use to any direct democracy by taking into account the difficulties of digital government and recognizing the unique elements that people find unacceptable when considering a move toward digital democracy. Another potential area of research could be how companies and startups benefit from digital governance and whether this helps in the development of the economy or not. There could be another area of research that could focus on the ways and means to safeguard the digital world from hackers, and how cyber security can be strengthened.

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