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SMART GOVERNANCE IN THE DIGITAL AGE: BENEFITS, CHALLENGES AND FUTURE DIRECTIONS

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Abstract: *Smart governance – one of the key pillars of smart city, improves public administration, transparency, and citizen involvement by combining digital technologies, data-driven decision-making, and participatory frameworks. In addition to discussing important issues including data privacy, cybersecurity threats and the digital divide, this study looks at the possible advantages of smart governance (such as increased effectiveness, accountability, and service delivery) as well as challenges that the urban planners and concerned authorities have to encounter before adopting smart governance. Hence, the main objective of this paper is to investigate the benefits, challenges and future directions of smart governance. In order to evaluate how governments throughout the world are putting smart governance techniques into practice and their effects on social inclusion and policy success, this paper uses a literature review methodology to examine previous research and case studies. The results highlight how technology may revolutionize governance while highlighting the necessity of ethical and well-balanced regulatory frameworks.*

Keywords: *Digitalization, Governance, Smart City, Smart Governance.*

Introduction

By 2050, 68% of the world's population is expected to live in cities (United Nations, 2018), exerting further pressure on them to promote sustainability, inclusivity, and efficiency. Modern digital solutions must be adopted since traditional governance models frequently fail to handle the increasing complexity of urban administration.

To improve public administration, increase citizen involvement, and promote transparent governance, smart governance is a modern approach that uses digital technology, data-driven decision-making, and participatory platforms. Smart governance is essential to ensuring that technical innovations are used to build more responsive, effective, and people-centred government systems as cities enter the digital age (Kaur, 2023).

This study analyses the body of research on smart governance using a literature review methodology, emphasizing both the obstacles to its effective application and its transformational potential. The paper investigates how smart governance can be successfully incorporated into smart cities while addressing ethical, legal, and technological concerns by examining a variety of research papers, case studies and credible studies. Policymakers, urban planners, and researchers pursuing more sustainable and citizen-centred governance models

can use the analysis's insights into best practices and future orientations. Even while previous research has looked at many facets of smart governance, there is still a lack of thorough studies that look at its benefits, challenges and potential future paths through one lens. By delivering a comprehensive analysis that links these aspects, this study seeks to close that gap and present a nuanced viewpoint on how smart governance might be maximized for safe and inclusive urban growth.

Following research questions are addressed in order to direct the current study:

1. What are the potential benefits of smart governance?
2. What are the main obstacles to putting smart governance into practice, specifically with regard to data security, privacy, and the digital divide?
3. What tactics and industry best practices can be used to guarantee inclusive and successful smart governance in resolving urban issues?

By answering the above research questions, the current study seeks to present a thorough grasp of smart governance in the digital era, shedding light on its advantages, disadvantages, and prospective applications for sustainable urban growth.

1. Literature review

1.1 Smart governance – a pillar of smart cities

According to Kaur et al. (2024), the smart growth movement and the idea of smart governance first appeared in the latter half of the 20th century. Along the lines of digitalization, the transformation of traditional production plants also took place. This led to the evolution of the old factories into smart factories, where the flow of materials primarily depends on operational data that is analysed with the help of digital tools. Since the amount of data that needs to be managed has increased, there is a growing demand for data governance. Such controls help the organizations to avoid any type of future errors. Following the path of private sector, city administration also recognized its significance and started incorporating digital technologies for improving public services (Tufano, 2023).

Additionally, the rapid increase in urban population also put a pressure on the authorities to adopt a new strategy for addressing the growing urban issues such as traffic congestions, pollution and public safety (Shin et al., 2021). Although urban governance is already a well-established academic field, it is increasingly being linked to fields that emphasize innovation and technology. In order to create strategies that can make cities smarter, innovation and electronic government are being linked to urban governance (Meijer & Bolívar, 2016).

Due to the increased productivity and profitability brought forth by automation, data analytics and networked systems, digitalization became strategically necessary. However, adoption of advanced technological tools is not as easy in public sector. Because of budgetary restraints, regulatory restrictions, and the requirement for inclusive, long-term planning, cities—being intricate, bureaucratic entities—face slower acceptance. For instant benefits, commercial sectors could quickly test and implement digital tools, but cities had to deal with issues like data security and privacy. But once cities adopted digitalization, they used it in more

extensive and revolutionary ways, like data-driven urban planning, e-governance, and smart infrastructure, which ultimately improved public services and citizen participation.

Since many cities are increasing their attempts to become smarter, the idea of a "smart city" has been gaining attention from scholars (Pereira et al., 2018) and urban planners. Smart city is a relatively new concept that emerged as a result of ever-increasing urban problems in the rise of technology (Zeng et al., 2023). Meijer and Bolívar (2016) claim that over half of the world's population resides in urban areas, and city governments must address a variety of issues, including sustainability, health, in addition to unemployment. Cities should be safer, greener, and culturally dynamic and because these benefits are associated with smart cities, the idea should be further promoted to facilitate resource management and increased efficiency.

Pereira et al. (2018) define smart cities the clever application of ICTs (Information and Communication Technologies) to improve city services and address the above-mentioned escalating urban issues brought on by growing urbanization without the appropriate implementation of well-being-focused policies. Improving the city's quality of life is one of the primary goals of smart cities. According to earlier research, in order to efficiently handle the changing dynamics of smart cities, an updated governance model and close local government coordination are required to assist the management of intricate cooperation procedures with a range of stakeholders, especially people.

A previous scholar (Lopes, 2017) identifies a smart city with factors such as *e-participation* and *e-services*. These characteristics are usually found in *e-governance*. Hence, one may conclude that by interacting with technologies, cities can be facilitated to become smart. In other words, *smart governance* is found at the center of all smart city programs. Similarly, Kaur et al. (2024) claim that smart governance, which encompasses the other pillars - smart economy, smart environment, smart mobility, smart people and smart living, is the foundation of a functional smart city. This implies that smart cities were developed with people's interests and quality of life in mind.

Over the past 10 years, scholars (Pereira et al., 2018) from a wide range of application and research domains have given the still-developing words "smart government" and "electronic government" (e-government) a lot of attention. Many viewpoints exist about smartness and smart governments, which mostly reflect the idea of broad governance or the application of emerging ICTs. Similarly, according to Hanisch et al. (2023), the term “smart governance” may sometimes also be confused with “digital governance” as they are closely related but have different meanings. While smart governance is the usage and/or application of smart technologies to boost efficiency of governance processes, digital governance majorly focuses on digitalization of services and incorporation of advanced technologies in administrative function.

A study (Pereira et al., 2018) also shows agreement with the idea proposed by Kaur et al. (2024) and adds that, *“although there are numerous definitions and viewpoints in the field of smart cities, governance plays a significant role in the majority of them, particularly by facilitating citizen-government initiatives and maintaining transparency in the decision-making process.”* The paper further adds that smart governance can be referred as the ability

to use electronic tools and smart activities in information processing and decision-making. Similarly, Tomor et al. (2019) describe it as *"a government-citizen cooperation facilitated by ICT to promote urban sustainability."* However, it is not an easy task for a wide range of stakeholders to collaborate and be in consensus, which is why it is essential to avoid conflicts and maintain public trust.

In context of a city, the cooperation of private citizens, corporations, developers, local government, and public institutions may define cities as a whole. While each of them has distinct objectives when seen separately, smart governance views them as a single entity and harmonizes their objectives so that they can benefit from one other's efforts (Kaur et al., 2024). With the main objective of societal welfare and better government services, it is used to resolve economic, social and environmental issues (Zeng et al., 2023).

Zhao and Zou (2024) describe good governance as the process of governing that maximizes the public value and seeks protection of public interest. Giuliodori et al. (2023) claim that smart governance, which has its origins in past notions of "good governance," has developed beyond efficiency and technology to encompass a multifaceted framework that prioritizes innovation, proactive management, transparency, stakeholder engagement, and citizen-centric problem-solving.

Kaur et al. (2024) assert that *smart governance* is one of the six pillars (or dimensions) of smart cities and produces the social and environmental outcomes that citizens desire because of its guiding principles of participatory governance, transparency, and accountability. With the aid of technology, smart governance refers to changes, reforms, or adjustments made to traditional governance. Similarly, Pereira et al. (2018) defines the concept as "*investing in emerging technologies coupled with innovative strategies to achieve more agile and resilient government structures and governance infrastructures"*

The growing interest in smart governance is caused by technological advancements. Lately, it has been incorporated in different domains, like emergency management, transportation planning, public surveillance. Moreover, in the past few years, several cities pursued smart governance by investing in smart city programs. It may also be described as a governance strategy with the objective of improving the quality of people's life (Zhao and Zou, 2024). Similarly, Kaur et al. (2024) claim that smart governance is a prime example of a contemporary governance strategy that can boost economic growth by raising the caliber and effectiveness of public sector services. Giuliodori et al. (2023) also affirm this by stating that there is a favorable correlation between economic welfare and smart governance, which encompasses components like transparency, inclusion, and innovation. Hence, it is imperative to incorporate smart governance as it acts as a backbone of cities by displaying efficiency and increasing the quality of living for the citizens.

1.2. Potential benefits of adopting smart governance

Previous researchers (da Silva & Fernandes, 2020; Kaur et al., 2024) believe that in addition to the typical ecological and socioeconomic problems, smart governance plays a key role in the enhancement of public services and the decision-making process of government

representatives. According to Pereira et al. (2018), one strategy to enhance decision-making and raise the standard of public service delivery is to develop smart governance frameworks for urban policies. This is because smart governance promotes citizen participation in the decision-taking process, thereby improving the relationship of government with citizens. Furthermore, this adds value by fostering trust among general public for the government. In this context, Pereira et al., (2018) adds that participatory government is a concept that is closely linked to the new governance model (as a method) in fostering interaction, communication, collaboration, participation in decision-making, and direct democracy. Similarly, collaborative government is a significant component of smart city governance as it promises transformation in the relationship between citizens and the government.

Based on the above arguments, the concept of "smart governance" is proposed by Giuliodori et al. (2023) as a critical, transversal mechanism that can positively influence all three pillars of sustainability—economic welfare, social equality, and environmental quality. Originating from earlier ideas of "good governance," smart governance has evolved beyond technology and efficiency to include a multi-dimensional framework emphasizing transparency, stakeholder collaboration, proactive management, innovation, and citizen-centric problem-solving.

Since smart governance involves a wide range of participants, including public institutions, private sector organizations, government representatives, investors, people, communities, and so on, it is thought to be one of the most difficult aspects of creating a successful smart city. All of these actors have personal interests, which may be conflicting or complementary to one another. To carry out various operations successfully, they all cooperate and work in tandem with one another (da Silva & Fernandes, 2020; Kaur et al., 2024). For more than ten years, researchers (Pereira et al., 2018) have been examining how ICT techniques might enhance and progress the relationships between citizens, corporations, and the government. A successful e-government can electronically connect residents, businesses, and all tiers of government in a country, opening up new avenues for public participation in governance. There is still a need for citizens to participate more in public life, which adds to the demand from many stakeholders to make the government more transparent and open.

Governance provides a supportive setting that makes it possible for the government to respond to the requirements of its constituents by requiring sufficient legal frameworks and effective procedures. The interaction and cooperation of various stakeholders in the process of making decisions is another definition of governance. The idea is frequently used to explain the process or approach of running a state, an organization, or any group of people (Oprea et al., 2023). This demonstrates how governance and government are connected but distinct ideas. According to Pereira et al. (2018),"*the ability to employ intelligent and adaptable activities when looking after and taking decisions regarding something*" could be one way of defining smart governance. Previous scholars (Pereira et al., 2018; Kaur et al., 2024) assert that smart governance serves as the foundation for intelligent, transparent, accountable as well as participatory government.

It is anticipated by some scholars (Pereira et al., 2018) that a smart government will foster cooperation between the government and other outside groups as well as between residents. Better measuring procedures, agency information sharing, increased resource utilization, and performance evaluation are anticipated to emerge as part of this expectation and more collaborative environments, thereby promoting public involvement in monitoring and decision-making.

Governments may innovate social governance by comprehending contemporary technology. These days, smart governance uses modern technologies like big data, artificial intelligence (AI), and the internet of things (IoT) to create future regulations that are best for the people. They provide a helping hand to government in reaching for a long-time good governance initiative (Liu & Qi, 2022; Kaur et al., 2024). Previous scholars (Mandić & Kennell, 2021; Kaur et al., 2024) claim that governments are starting to adopt digital technologies at the same rate as towns and organizations. Some governments have started using tools and cutting-edge technologies in recent years to facilitate communication with businesses and citizens. The decision-making and monitoring processes can be made simpler and better by implementing clever and flexible governance techniques. Better information technologies supported by collaborative governance are necessary for this aim.

Participation in consultative and democratic society processes can be mediated, expanded, and transformed via ICT-based instruments. But the opposite is also true, "*e-participation and citizen engagement are greatly influenced by the institutional setting."* In other words, the institutional environment—which comprises the technological, political, and legal frameworks set up by governing bodies—largely determines to what degree are e-participation and public involvement effective. Institutions that place a high value on open governance, transparency, and digital accessibility foster an atmosphere in which citizens can actively engage in the decision-making process. User-friendly digital platforms, data security, and freedom of speech policies all support more inclusive and meaningful interaction. Conversely, citizens may find it difficult to participate in decision-making due to bureaucratic inefficiency, a lack of digital infrastructure, and prohibitive legislation.

Amsterdam Smart City is an example of how urban governance is currently focusing on making the city smarter. Developing the Amsterdam Metropolitan Area into a smart city with an emphasis on living, working, mobility, public services, and open data is the aim of this "*unique partnership between businesses, authorities, research institutions, and the people of Amsterdam*." The city markets itself as an "*urban living lab*" where companies may test and showcase new goods and services. In addition to producing tangible projects centered on sustainable energy, creative health solutions, improved transportation, and increased (digital) public participation, this cooperation establishes a framework for knowledge sharing and learning amongst all of these actors (Meijer & Bolívar, 2016).

Previous researchers (Giuliodori et al.,2023) claim that addressing complicated urban issues like inequality, climate change, pollution and homelessness also requires smart government. Its inclusive strategy encourages cooperation between sectors and jurisdictions while empowering cities to embrace long-term, participatory solutions. To counteract climate

change, for example, creative and adaptable governance frameworks that can handle its multilevel and multi-actor dynamics are required.

Likewise, addressing societal challenges such as racial discrimination necessitate the exchange of knowledge and the inclusion of human capital. As SDG 16 emphasizes the significance of inclusive and accountable government, these initiatives depend on robust political institutions and efficient policymaking. Accordingly, it is hypothesized that smart governance—both at the national and municipal levels—is crucial to advancing social equality, economic welfare, and environmental quality in urban settings. Giuliodori et al. (2023) also promote smart governance as a cross-cutting tool to successfully handle these issues.

1.3.Potential challanges of adopting smart governance

According to Zhao and Zou (2024), it is essential to highlight that smart governance doesn't always lead to good governance. This is because implementing smart city initiatives is a complex process and can pose several challenges. Similarly, Hanisch et al., (2023) express that although digital advancement in the last years provided us with several opportunities to expand our horizon of knowledge, it also posed several challenges for governance. Zhao and Zou (2024) also agree with the aforementioned statement and claim that even though smart governance is considered beneficial, one must not forget about its potential negative impacts on society. They further exemplify this statement in their research by mentioning how controlling large amounts of data may raise privacy-related concerns and even data security risks.

Unfortunately, while applying technology-driven solutions in a city, contradictions may arise. For instance, smart governance encourages transparency and access to data. Nevertheless, facilitating large amounts of data tends to compromise individual privacy. Therefore, in order to achieve good governance within a smart city, one must keep into consideration the paradox theory, which emphasizes the need for continuous tradeoffs. In other words, good governance requires the resolution of opposing interests and the creation of public benefit, which can be accomplished by striking a balance between the paradoxes inherent in smart governance (Zhao and Zou, 2024). Conflicting interests between different stakeholders, such as governments, corporations, and citizens, must be balanced and resolved as part of smart governance. Different groups frequently have conflicting interests in a democratic society, such as national security versus individual privacy or economic growth versus environmental sustainability. Data-driven decision-making, online public consultation platforms, and open policies to resolve these disputes are all necessary for effective smart government.

Smart governance, for instance, can assist in resolving disputes in urban planning between locals who support green spaces and real estate developers who want to maximize profits. To discover an appropriate solution, a city may employ digital tools like geographic information systems (GIS), online public forums, and AI-powered policy simulations. Local governments may adopt laws that promote sustainable development while taking economic interests into account by examining data on the effects on the environment, the advantages to the economy, and the preferences of the populace. This strategy exemplifies how inclusive

decision-making and technology are used by smart governance to address and balance conflicting interests. Therefore, researchers (Zhao and Zou, 2024) suggest that in order to maximize the benefits of smart governance, one must address these concerns.

Meijer and Bolívar (2016) assert that developing a smart city necessitates a political knowledge of technology, a procedural approach to managing the developing smart city, and an emphasis on both financial benefits and other public objectives. City managers should understand that technology alone can't make a city smarter as it also requires a collaborative approach involving different government agencies, citizens as well as private sector companies. For instance, if there are serious conflicts between citizens and government, this may result in resistance from the residents. Sidewalk Labs smart city project is a classic example of how public backlash over privacy-related concerns can scrap any smart city initiative. Therefore, it is crucial to consider citizen consultation and public opinion before implementing such large-scale projects.

According to Zhao and Zou (2024), digital technologies proved immense capacity in smart governance for affordable housing but at the same time bring forth a number of negative externalities that have to be balanced. For instance, adopting smart governance in a given city requires bottom-up participation, which means actors in the society (besides government agencies) should be able to actively participate in the decision-making processes. However, excessive control of data may unintentionally encourage "technocratic governance", which means that the data can be easily manipulated or controlled by certain residents. In this case, the social actors responsible for controlling digital platforms may succeed to monopolize the decision-making power. Furthermore, it is crucial to note that certain residents may feel threatened due to privacy-related concerns. If this would be the case, subsequent residents might avoid active participation due to privacy fears. Therefore, government agencies and the concerned authorities should establish clear privacy protection laws so as to protect the residents from such threats.

Government-citizen collaboration to jointly shape public issues is rarely facilitated by ICT. This is because both the government and the general public lack the skills and will to truly participate in wise governance for urban sustainability. Routines, traditions, and structures from the past still predominate. It is clear that the presence of technology infrastructure alone does not ensure a significant shift in public administration as well as the civil society's mindset toward the growth of co-creative collaboration to build more sustainable cities (Tomor et al., 2019).

Secondly, despite efforts by governments worldwide to use smart city tools while working with citizens and businesses in different sectors, some citizens still appear to disagree with the adoption of new technologies, expressing their dissatisfaction. Depending on how they choose to express it, citizens' dissatisfaction may be either active or passive. Based on a study (van Twist et al., 2023; Kaur et al., 2024), two possible responses of the government in such an instance may be *"overcoming or embracing resistance".*

Overcoming resistance is a response that concentrates on resolving the doubts of citizens through incentives, persuasion and education. On the other hand, embracing resistance

is an optimistic approach as it considers that any form of resistance is valuable since it signifies citizen engagement and represents an opportunity for further improvement. The biggest advantage of embracing resistance is that it builds trust for government and authorities among public. Therefore, there are benefits to both embracing and overcoming resistance. A more effortless shift to smart governance may result from a balanced strategy in which governments address citizens' genuine concerns while simultaneously educating the public and providing incentives for adoption. While governments that embrace resistance may create more inclusive and successful smart governance systems, those that reject it escalate the risk of dissatisfaction among citizens. Therefore, governments are using advanced technologies to gain the trust of general public by increasing inclusivity and engagement in decision making processes.

Another aspect that one should consider while adopting smart governance is that it may enhance management efficiency but leads to challenges like *dataveillance*, which means that people's lives will be excessively monitored. Therefore, one may argue that the incorporation of digital technologies in governance processes comes at the cost of people's restricted freedom (Zhao and Zou, 2024).

Besides, restricted freedom, privacy and data security risk, there are other serious social challenges that need to be addressed. Adoption of advanced digital technologies often marginalizes older generations who are not accustomed with such facilities. This clearly reveals that smart governance can potentially cause "digital divide". Digital divide is described by Zhao and Zou (2024) as a gap that prevails between the people who are not accustomed with technologies and the ones who are capable of utilizing smart facilities. According to Shin et al. (2021), the digital divide poses a serious threat to smart cities, especially in the age of 5G technology. Besides, smart cities mostly depend on sophisticated digital infrastructure, necessitating a certain degree of technological competence from their residents. This presumption, however, ignores underprivileged populations that might not have the requisite digital knowledge and abilities, therefore denying them access to smart city advantages.

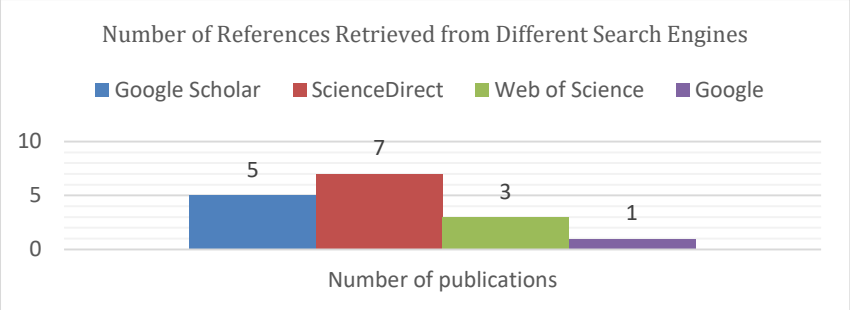
Additionally, with growing differences resulting from socio-demographic characteristics including age, education, and geography, the digital divide is a challenge that has the potential to cause social exclusion. If a significant percentage of the population is unable to use digital technology efficiently, smart governance—which depends on citizen engagement—may be undermined. As a result, the active participation of people, which was to be used as a solution to fight unfairness or exclusion, is actually promoting the same challenges in the form of digital divide (Zhao and Zou, 2024). Hence, one may conclude that the policymakers as well as the urban planners should take into account these risks and address them to ensure the effectiveness of smart governance. This can be done with the help of a human-centric approach for accomplishing long-term city objectives.

Risks of adopting smart governance models are not only limited to public sector. In fact, digitalization of organizational processes, in general, also contributes to cybersecurity risks. This is why huge technology companies show serious concerns about cybersecurity becoming a strategic challenge, which not only demands prevention from malicious attacks but also serious actions to avoid reputational damage (Hanisch et al., 2023).

2. Selection and analysis of relevant literature

To study smart governance as a fundamental component of smart cities and its function in improving public administration of a city, this study uses literature review methodology. The paper analyzes the advantages as well as concerns or risks of implementing smart governance by synthesizing the body of existing academic literature, policy reports, and case studies. Figure 1 presents the number of references retreived from search engines / scholarly databases.

Figure 1. *Number of References Retrieved from Different Search Engines/Scholarly Databases*



Secondary sources, such as conference papers, peer-reviewed journal articles, and credible institutional publications, provided the data for this study. Digital academic databases like Google Scholar, Web of Science, and ScienceDirect are used to choose sources, guaranteeing their reliability, relevancy, and applicability to the objectives of this paper.

Due to the rapid pace of digitalization, it is imperative to reply on recent research. The range of publication year for the cited sources is between 2016-2025 (see Figure 2), which signifies that the selected studies are relatively recent and capture the new progress, best practices and trends of smart governance, to ensure an updated analysis of the topic.

Figure 2. *Number of cited publications by year*

Findings from the literature are categorized and interpreted using a thematic analysis technique, which focuses on important themes including definitions of smart governance, its potential benefits as well as challenges. A strict selection procedure is used, with a focus on peer-reviewed and very influential sources, to guarantee the validity and dependability of the results. Triangulation is often used to verify consistency in findings by comparing insights from several sources. Although the literature review methodology offers a comprehensive understanding of smart governance, it has some drawbacks, such as a reliance on secondary data, possible gaps because smart governance is a rapidly evolving field, and issues in generalizing the results across distinct smart city models.

3. Role of smart governance in public administration

Governments everywhere are facing challenges to operate in a connected environment, include stakeholders in resolving social issues, and become more innovative while cutting expenses. In this regard, ICT use in government has evolved into a tactic supporting administrative reforms at all governmental levels. Therefore, e-governance, also known as digital governance, can be viewed as a transformative endeavor that uses ICT in government organizations to accomplish a number of goals, such as enhancing the effectiveness of public sector operations and service delivery; changing government operations, internal structure, and practices using a citizen-centric approach; boosting transparency; encouraging openness, and lowering the corruption rates.

As a result, governments are implementing e-government tactics to enhance ICT utilization. Three "generators" of additional value—administrative productivity and interoperability, service improvement, and citizen centricity—are at the core of these new tactics (Pereira et al., 2018).

Administrative efficiency exploits the automation effects of ICT in various levels of government, in values such as efficiency, effectiveness, productivity, performance of administrative functions, relations and information sharing between different departments of the public administration.

The improvement of public knowledge and services delivery through organizational procedures and technological advancements that make information more widely available and accessible among all government agencies is what defines e-government. Residents can profit from such investments in a variety of ways, in addition to the higher standard of public services provided by e-government.

As per existing literature, advantages of using e-government include: lowering the cost of registering and submitting forms (such as those pertaining to permits), lowering errors and improving data accuracy as human error is decreased, enhancing direct and speedy communication with institutions, saving time from lengthy in-person meetings, offering citizens (local) government services around-the-clock, every day of the week and delivering government services from any location and accessible from any device. In this regard, mobile applications and technologies play a critical role in enhancing the effectiveness of e-government service delivery. In order to enhance the efficacy of user-to-government communication and fortify the bond between the government and its constituents, mobile e-government services are currently integrated.

On one hand side, it is believed (Giuliodori et al., 2023) that smart governance affects environmental quality at the local level and social equality at the national level. On the other hand, it is claimed (Kaur et al., 2024) that even though the primary goal of smart governance was to build a sustainable city where residents could readily access high-quality public services (Kaur et al., 2024), there is little and conflicting evidence which supports that smart governance plays any role in promoting sustainability (Tomor et al., 2019).

The transition from traditional government structures to smart governance models that incorporate cutting-edge technologies like AI, machine learning, data analytics, blockchain,

and the IoT is made possible by ICTs, which are essential to modern administration. These technologies aid governments in effectively processing vast volumes of data, which enhances citizen services and decision-making. In addition to increasing operational effectiveness, smart governance fosters the growth of transparent, responsive, and well-equipped smart cities and nations that can better serve the demands of their citizens.

ICT integration for administrative efficiency, meeting public demands, and advancing technology-enabled governance practices are all essential elements of smart governance. In addition to increasing operational effectiveness, smart governance fosters the growth of transparent, responsive, and well-equipped smart cities and nations that can better serve the demands of their citizens. Furthermore, it highlights the significance of normative, legal, and ethical criteria including transparency, inclusion, and public participation.

Conclusions

Smart governance represents a key pillar of smart cities, which uses digital technologies to improve policymaking, citizen engagement and administrative efficiency. This research has examined various facets of smart governance through a thorough literature analysis, highlighting its potential to promote social inclusion, transparency, and participatory decision-making. Governments may enhance public services, build confidence, and develop a more responsive governance structure that meets the changing demands of urban populations by incorporating digital platforms. The results emphasize that promoting an inclusive, citizen-centric approach to government is just as important as adopting new technologies.

Despite its many advantages, there are a number of obstacles to smart governance implementation, such as data security problems, privacy threats, and the digital divide, which can result in social exclusion. According to the literature, digital transformation increases government efficiency, but it also brings up issues with accessibility inequities and ethical data management (Bulău et al., 2024). Strong legal frameworks, cybersecurity safeguards, and digital literacy initiatives are needed to address these issues and guarantee inclusive and equitable smart governance. To minimize risks and optimize the advantages of smart governance efforts, policymakers must give equal weight to technology innovations and human-centered approaches.

A balanced strategy that incorporates technological innovation with moral, legal, and social issues is what smart governance will look like in the future. The next stage of smart governance will be shaped in large part by enforcing universal digital access, strengthening data privacy rules, and encouraging cooperation between the public, private, and civil society sectors. An inclusive and secure smart governance framework is considered essential for achieving long-term objectives of sustainable and human-centric smart cities.

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