

Smart Governance

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ABSTRACT

Smart governance is one dimension of smart cities. It is the process of utilizing modern technologies and ICT to create a collaborative, communication-based, transparent, and sustainable environment for the citizens and government. It may be regarded as a powerful political instrument to enhance the quality of public decision-making. It is a strong enabler for building smart cities and nations. With smart governance, democracies around the globe are set to improve their education, security, transport, resource management, and economic infrastructure. The ultimate goal of smart governance is to use technology to improve the efficiency and effectiveness of government operations. This approach takes into account various social, economic, political, and cultural factors. The concept of smart governance is gaining attention among researchers, policymakers, and practitioners around the world. This paper explores the development of smart governance in building smart cities and nations.

KEYWORDS: *smart technologies, smart governance, smart cities, smart nations.*

INTRODUCTION

The influence of modern technology can be felt in every aspect of our lives, even in the way our governments function. Technology is a tool that can be used to increase transparency and accountability in governance. It can help governments operate more efficiently and effectively, and better serve their citizens. It can help reduce corruption, make public services more efficient and effective, and engage citizens in the decision-making process. We have built our democracies on the principle of good governance, which is a great starting point to ensure public welfare and development of the state. Smart governance is leveraging modern technologies for various applications. It provides an overall management system that allows leaders to coordinate across smart systems, capturing and sharing the data generated and using it to inform new policies and city programs.

The concept of “smart governance” is widely recognized as one of the characteristics of a smart city. The six-dimensional components of smart cities as follows: smart economy, smart citizens, smart governance, smart mobility, smart environment, and

smart living. The presence of smart governance plays a pivotal role in facilitating and achieving the objectives of smart cities. Smart governance represents a novel and data-driven progressive approach, prioritizing intelligence in operations, upholding an exceptional standard of public administration, and contributing to the development of smart cities and nations. It encompasses digital platforms and innovation, enhancing public services [1].

CONCEPT OF SMART GOVERNANCE

Smart governance consists of good governance and good society. Smart governance seeks to enhance good governance to establish and protect democracy, facilitating communication and collaboration, enabled through digitalization. A good society is characterized by industrialization, urbanization, and centralized planning, devoid of poverty, corruption, and significant wealth disparities. This notion is reflected in the contemporary concept of “smart governance,” which seeks the pursuit of efficient governance and improved urban outcomes through technological

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innovation [2]. Figure 1 shows the key pillars of smart governance [3].

The concept of smart governance involves a comprehensive range of activities within the realm of state administration, which includes the advancement of technological solutions for the establishment and management of smart cities. This concept proposes the improvement of democratic processes and the transformation in the provision of public services. As shown in Figure 2, the requirements for smart governance include funds, infrastructure, and technology [4]. To adopt modern technologies for smart governance, governments must know how much funds they have in their treasury and calculate the budget that needs to be allocated for the project.

Smart governance has the following components [1]:

- *Smart Citizens:* The "Smart Citizens" entails nurturing individuals who are equipped with digital literacy, quality education, entrepreneurship skills, and a smart apps-based lifestyle, all of which improve quality of life.
- *Smart Government:* "Smart Government" initiatives aim to augment services through technological integration within governmental domains. It employs advanced information and communication technologies (ICT) to enhance governance at all levels, offering a unified platform for multiple solutions.
- *Smart Economy:* This involves developing a "Smart Economy" that underpins competitiveness and sustainability. The primary vision encompasses establishing a cashless economy, modernization of infrastructure, and advancements in financial technology. To achieve this economic objective, it is necessary to encourage innovation and adaptability in the job market, enhance the business environment, and support the community and economic stability through deliberate growth and the cultivation of a skilled workforce.
- *Smart society:* The development of a "Smart Society" centers around tackling urgent social challenges, such as poverty and gender inequality. Its objective is to promote inclusive development by providing shelter for every landless or homeless family. The smart society's vision is to utilize sophisticated digital technologies to merge data from various sectors and provide innovative resolutions to challenges such as urbanization, transportation, and public health, thus promoting inclusiveness and fairness.

Figure 3 shows some components of smart governance [1].

APPLICATIONS OF SMART GOVERNANCE

The concept of smart cities has gradually extended from initial ICT-based urban solutions to smart governance, sustainability, and adequate urbanization. Smart governance involves digital technologies with innovative practices to improve government service delivery and citizen inclusion in developing and implementing public policy. The conceptual development of smart governance has gradually moved from its initial focus on technology to human cooperation. Common application areas of smart governance include the following [1]:

- *Smart Cities:* A city is considered "smart" when it effectively uses ICT to enhance attractiveness, livability, sustainability, and competitiveness. Smart governance is employed to promote the development of smart cities. Progress in smart governance within smart cities and nations has shown promise in promoting sustainable development and improving societal outcomes in various domains. Smart governance in the smart city domain contributes to benefiting citizens through the promotion of social cohesion, improvement of quality of life, and stimulation of urban economies. A smart city represents a contemporary urban landscape where technologies are harnessed to improve public services, improve the living standards of residents, and promote sustainability. It uses advanced technology and innovation to augment urban life and efficiency to ensure sustainability and a smart nation extends these principles across regions. The smart city concept encompasses six key dimensions: smart living, smart mobility, smart environment, smart economy, smart governance, and smart people. Among these components, smart governance plays a key role in implementing and operating the smart city project. The cloud word for smart city is shown in Figure 4 [4].
- *Smart Nation:* A smart nation has an interconnected infrastructure optimized through communication and data collection from various entities to build a nation where citizens benefit from smart technology, improving lifestyles and achieving sustainability, faster and smart governance services, personal comfort, and security. Like a smart city, a smart nation seeks to maximize its utilization of technology and innovation to improve the well-being of its inhabitants and strengthen its competitiveness. It concentrates on governance supported by robust cybersecurity measures and transformative technology. The smart nation or country initiative embodies a comprehensive strategy encompassing

smart infrastructure development, technological innovation, e-participation, and administrative reforms to foster a more interconnected, efficient, prosperous, resilient, and sustainable nation. For example, the government of Bangladesh is spearheading a transformative agenda aimed at remolding the nation into a beacon of technological advancement by 2041. Bangladesh's vision to transform into "Smart Bangladesh," a smart nation, has made significant technological strides. Using its four pivotal pillars: smart citizen, smart government, smart economy, and smart society, Bangladesh has been transforming its cities and villages into smart cities and smart villages. The pillars of smart Bangladesh are depicted in Figure 5 [1].

- *Smart Policing:* Emulating practices in developed countries, where communication with the police in emergencies is streamlined, could offer cost-effective alternatives to expensive video-based surveillance systems. Such advancements are crucial for bolstering security and fostering a more efficient and trustworthy policing system. Implementing a smart policing system is a key element in a smart nation, enhancing security, safety, and transparency.
- *Smart Healthcare:* Smart healthcare deals with collecting patient data for remote diagnoses, remote treatment, online health records, and patient monitoring systems. Smart healthcare governance will transform many aspects of the healthcare system, shaping the impact of technological developments on the future state and administration. It stabilizes the management of complexity and administrative sophistication, bringing together prominent scholars to explore novel multilevel governance challenges posed by dynamic and complex social-ecological systems.
- *Open Government:* Open government is a key element of smart governance. Within the framework of smart governance, open government can provide citizen with the opportunity to access governmental information and documents. This enhances public participation in the processes and activities related to the administration of government. Open government in the smart city context ensures that data and information are readily available to all citizens who require it. All citizens can utilize that information for any purpose that might improve their quality of life. This implies that open government enables the public, private sector, and citizens to utilize governmental data through technological advancements.

BENEFITS

Smart governance is a crucial element within the framework of smart cities and smart nations. It is commonly acknowledged as the dimension that prioritizes the public's interests. With smart governance, citizens can have easy access to government data related to funds, expenditure, and investment. Smart governance is about fostering a culture of collaboration, participation, and transparency among various stakeholders, such as government agencies, private sector, civil society, and academia. It can provide several commercial opportunities. Other benefits include the following [4,5]:

- *Public Participation:* Smart governance has created a medium for interaction between the government and citizens. It has the potential to increase public participation in decision-making processes. Public participation in urban development can promote a more democratic and legitimate policy-making process by assisting citizens in becoming better informed about governmental and public affairs. Citizens can give feedback and suggestions for the latest government programs, policies, and schemes. Smart governance involves using technology to enhance citizen engagement in decision-making processes. It may help citizens become more knowledgeable about public and social services.
- *Partnership:* The concept of partnership is deeply connected with the concept of smart governance. With the help of ICTs, citizens can interact directly with the administration and express their opinions on local policies. The participation of citizens in the governance process enhances the government's ability to address the needs and concerns of the population. Government agencies have the potential to establish partnerships with other entities, such as the commercial sector, educational institutions, communities, and other relevant organizations. The establishment of partnerships facilitates the development of trust among agencies. Establishing partnerships with several agencies can effectively enhance the operational effectiveness of government agencies.
- *Communication:* Communication has been accepted as a crucial element in the domain of smart governance. Community communication has its role in fostering partnerships and cooperation between governments and citizens. The process of communication plays a vital part in promoting transparency within government administration, as it facilitates the dissemination of information and enhances public understanding

of the activities carried out by government agencies.

- *Accountability*: Accountability is crucial for contemporary public management as it involves aligning organizational goals and promoting cooperation. It has a fundamental connection to the degree of commitment exhibited by a governor in fulfilling their obligations to the public within the domain of governance. It is the state authorities who are accountable for the outcomes that arise as a result of their actions.
- *Transparency*: Transparency is one of the essential indicators of the government's effectiveness. It serves as a means of empowering citizens by enabling them to scrutinize government entities. It ensures better accountability from the government. The use of this approach has the potential to encourage government entities to transparently develop policies that are more responsive to the demands and requirements of the average citizen. Since people constitute the core focus of smart city governance, it is imperative that people are afforded the opportunity to actively participate in the inspection of government information and administration. The practice of transparency is widely recognized as essential for cultivating a democratic environment.
- *Data Governance*: This is the set of policies, standards, roles, and processes that ensure the quality, security, privacy, and ethical use of data in smart governance systems. Data governance is essential for building trust, transparency, and legitimacy among the stakeholders involved in data-driven decision making. It should leverage the potential of emerging technologies, such as cloud computing, artificial intelligence, blockchain, and Internet of things, to enable data integration, interoperability, analysis, and visualization. It should be adaptive and responsive to the changing needs and expectations of the data users and providers. Figure 6 shows data governance in smart city [3].
- *Effectiveness*: The effectiveness of smart city management covers the capacity to deal with challenges that arise from urban growth, including those related to densely populated communities, economic competitiveness, and environmental concerns. Assessing the effectiveness of government agencies may pose greater challenges compared to evaluating the performance of private-sector entities. In order for stakeholder engagement to achieve effectiveness, it is imperative that it adopts an inclusive

approach and takes into account the diverse needs of all members within the community. The effective implementation of strategies can be achieved through collaborative partnerships with local community organizations, with the aim of addressing various social and economic challenges.

- *Sustainable Future*: Smart governance promotes sustainable urban development and a culture of conscious decision-making. The analytics obtained with the help of modern technologies will help plan better policies that target the conservation of resources and environment, development of the community, security of citizens, better education and employment, and public welfare. Smart governance plays a crucial role in fostering sustainable development in both developed and developing countries. The economic, natural, and social sustainability of smart cities attract business investment.

Some benefits of smart governance are shown in Figure 7 [6].

CHALLENGES

Major challenges for smart governance include policy reform, budget, smart infrastructure, and data privacy and security. It is crucial to ensure the privacy and security of government data to protect individual privacy and prevent any infringements. Some government issues may not be of interest to everyone. Therefore, getting people to get involved can be a challenge. The "smart city" concept has been critiqued for favoring technological solutions and business interests over social inclusion and urban innovation. Addressing these challenges is vital for providing a roadmap for policymakers and enriching governance theory. Other challenges include the following [1,4,7]:

- *Digital Divide*: The so-called digital divide or the usability of smart governance applications can pose a problem for getting a segment of population involved without knowledge of or experience in digital environments. Smart governance involves e-governance systems, investment in digital infrastructure, promotion of computer literacy, and encouraging public participation through digital platforms. Bridging the digital divide and transforming people into smart citizens within the expected timeframe is challenging.
- *Data Privacy and Security*: The centralization of technology platforms increases vulnerability to cyber threats, emphasizing the need for robust cybersecurity measures to protect individual privacy and safety. In the realm of a smart nation,

it is imperative to understand cyber threats and implement strategies for mitigating attacks, protecting privacy, and enhancing security. The government must prioritize the safety and privacy of record management, especially in smart nation policies, to protect national and citizen records. The privacy and security of digital services require a strong legal framework to protect personal data and prevent hacking and data breaches.

- **Collaboration:** Collaboration is an achievable approach for addressing the challenges that arise in urban contexts. Collaborative efforts in smart governance aim to establish partnerships and alliances that utilize shared expertise to promote innovation and enhance service delivery. Smart governance requires cooperation among the government, industry, and individuals, facilitated by sophisticated infrastructure, open data policies, and the development of novel skills and administrative capabilities. A key aspect of the initiative is the open sharing of government data with the public to foster collaborative solution development. Citizen participation is essential, but it is often limited due to the digital divide, which marginalizes certain demographics, and a general lack of interest in civic engagement.
- **Trust:** People are losing their trust in the system due to the limitations of good governance like corruption, non-cooperation with the citizens, and unfair policies. Smart governance can improve the situation by creating a cooperative environment for citizens and businesses. Enhancing public understanding and building public trust in smart nation should be a top priority. Ensuring that smart city governments are accountable to residents, who are the primary beneficiaries of technological advancements, is of utmost importance. As the e-government infrastructure progresses to match the rapid advancements in mobile and digital technologies, it is crucial for citizens to gain a comprehensive understanding of smart governance.
- **Evaluation:** The various elements of smart cities, including economics, transportation, livelihoods, energy, and the environment, have a crucial role in enhancing the overall well-being of urban inhabitants and can be subjected to measurement and evaluation. Assessing and evaluating the effectiveness of smart governance, which is a critical component in the development of smart cities, remains a challenge.
- **Infrastructure:** Governments should create an appropriate infrastructure to facilitate the smooth

functioning of smart governance. For developing an institutional infrastructure, an eGovernance application can be used. eGovernance enables citizens and organizations to communicate with the government and exchange vital information using the Internet. To build physical infrastructure, initiatives such as smart energy management, smart water management, smart mobility, and many more should be undertaken. Smart education and smart healthcare are essential for developing the social infrastructure. The policymakers in developed and emerging economies should also improve the benefits of smart cities and prioritize smart infrastructure investments, such as efficient and smart transportation, smart energy grids, localized renewable energy, and digital connectivity.

- **Energy Poverty Reduction:** Governance is an important component that cannot be disregarded when talking about reducing energy poverty. As a significant driving force, energy is crucial in running the economy and society. It is an essential component of contemporary human existence. Energy plays a crucial role in civilization by facilitating uninterrupted manufacturing, efficient transportation, and maintaining a stable social structure. Despite the significance of digital technologies in transforming governance practices and urban lifestyles, the role of smart governance and smart urbanization has yet to be empirically tested in alleviating energy poverty.

CONCLUSION

Smart governance is an examination of the comprehensive public domain activities and services of a smart city. It focuses on the vision and actions required to build a smart city. The use of emerging technologies, such as artificial intelligence (AI) and Internet of things (IoT), is increasingly evident in the implementation of smart governance globally. Smart governance is a priority in building smart cities and nations. It plays a pivotal role in the transformation into a smart country. After understanding the benefits and the potential of smart governance, governments need a roadmap for successful adoption of smart governance. Government should educate the citizens about smart governance and train the local authorities.

In the era of digital transformation, governments face unprecedented challenges and opportunities to deliver public services that are efficient, effective, and equitable. Smart governance is an emerging paradigm that leverages data, technology, and innovation to enhance the decision-making process and improve the quality of life for citizens. Today's public landscape

is dynamic and complex. And smart governance to manage such a landscape is becoming all about designing resilient, interconnected systems that can adapt and scale. With the rise of modern technology, smart governance can build on the foundation laid by the principles of good governance. The future of smart governance is bright and lies in the hands of technology, but it will only be successful if government officials and citizens alike are willing to embrace change and use technology to their advantage [8]. More information on smart governance is available from the books in [9-15] and a related journal: *Smart Cities*.

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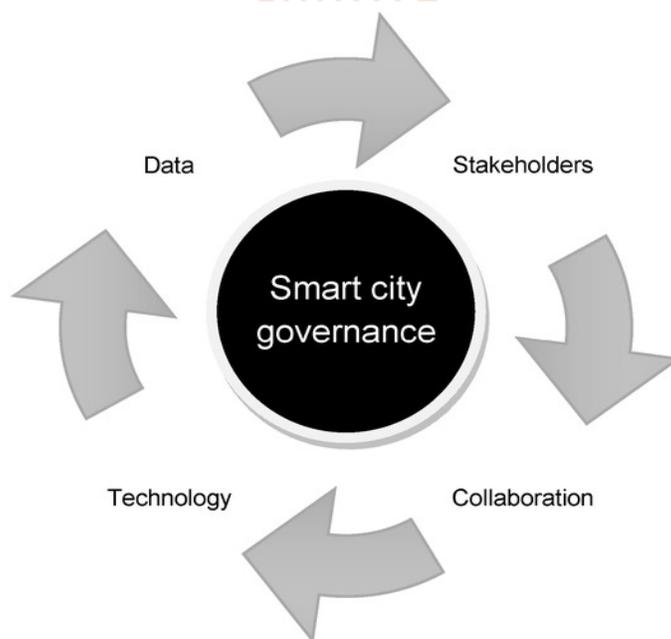


Figure 1 Key pillars of smart governance [3].

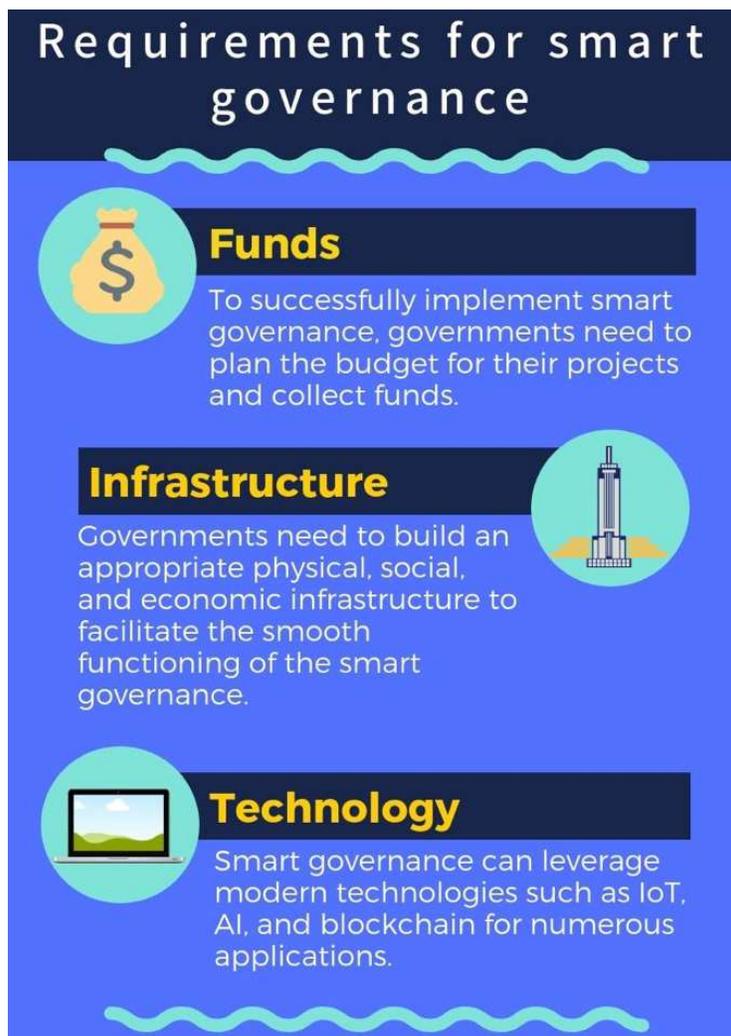


Figure 2 Requirements for smart governance [4].

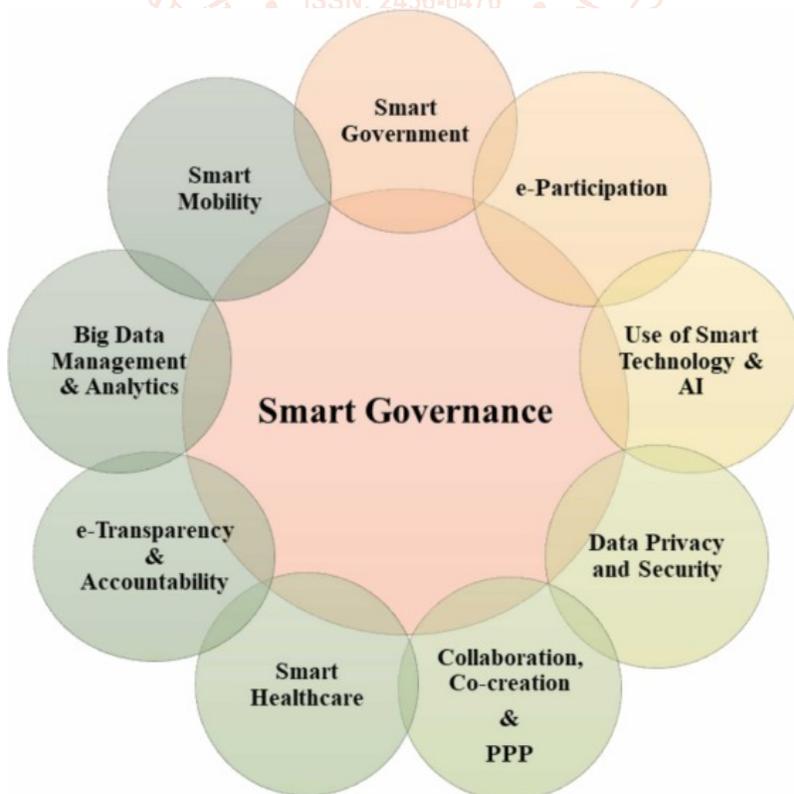


Figure 3 Some components of smart governance [1].



Figure 4 The cloud word for smart city [4].

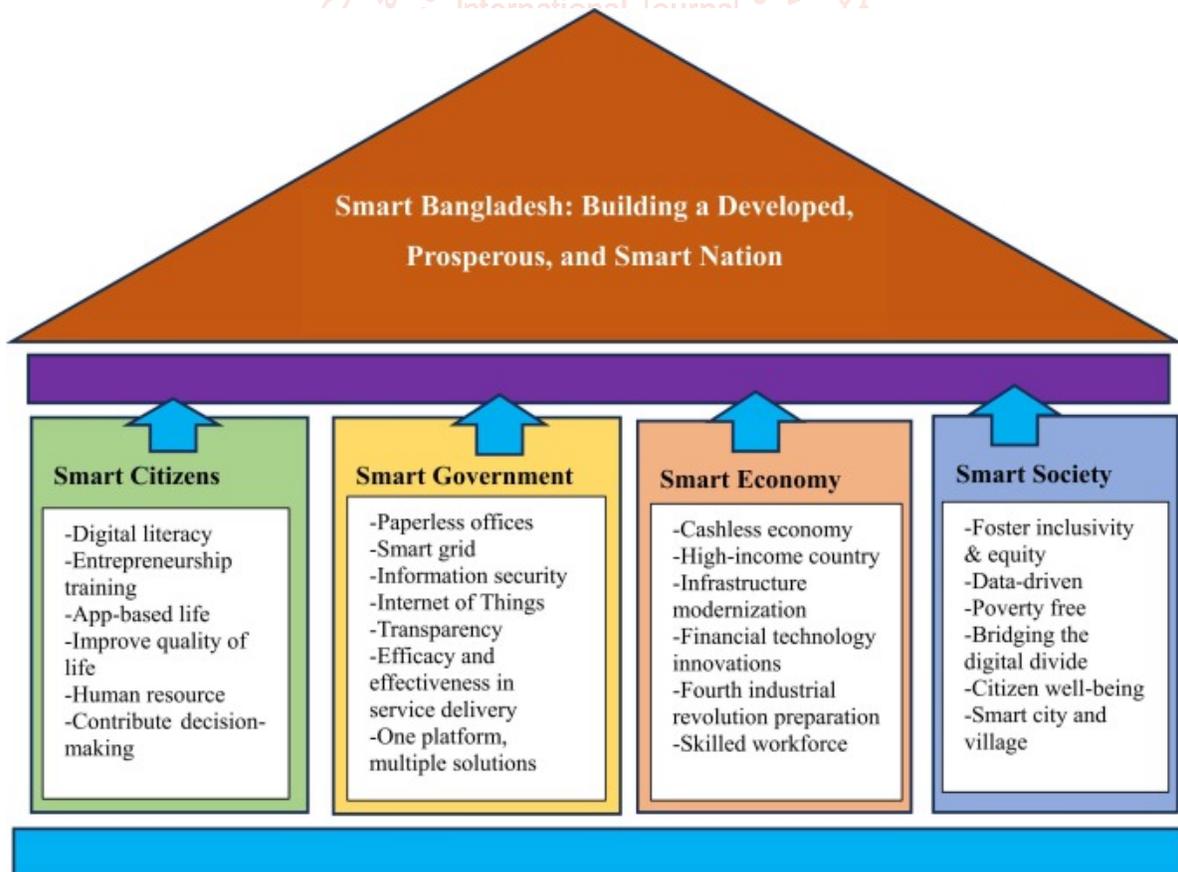


Figure 5 Four main pillars of vision Smart Bangladesh [1].

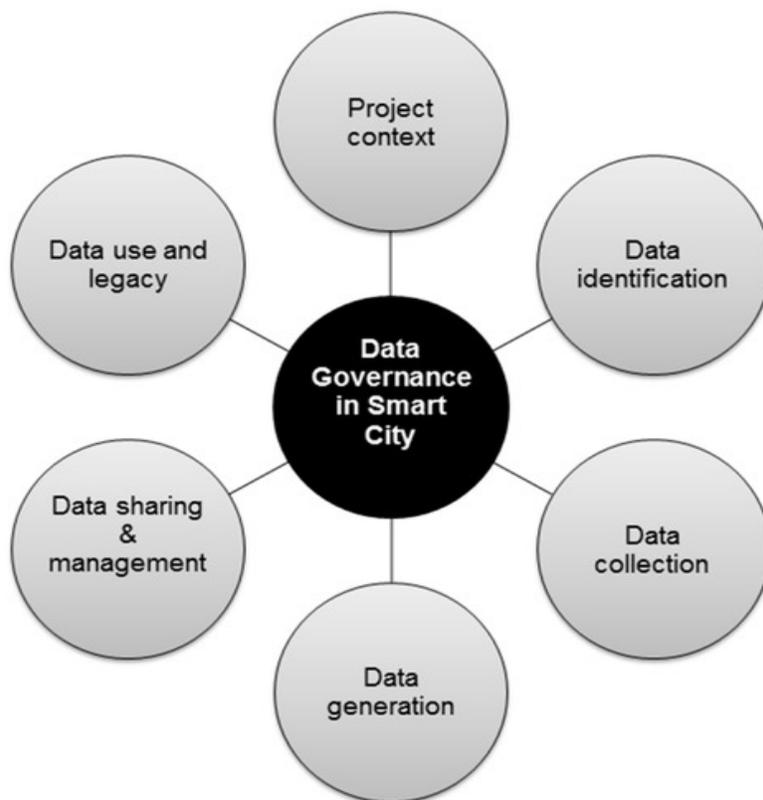


Figure 6 Data governance in smart city [3].

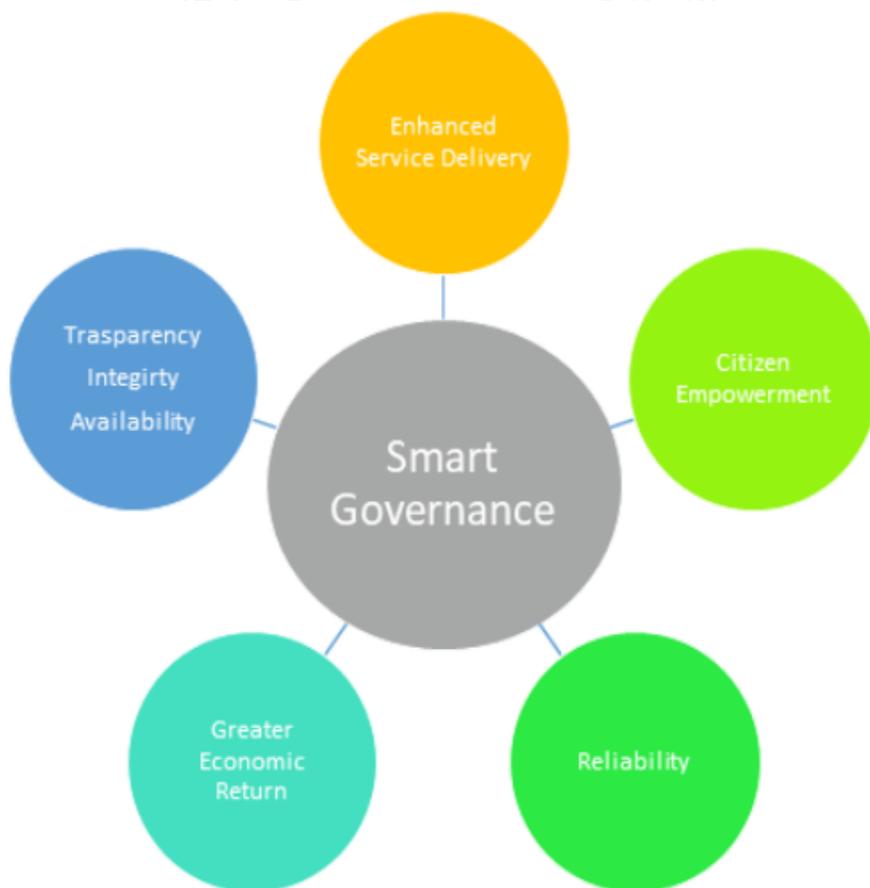


Figure 7 Some benefits of smart governance [6].