SMART GOVERNANCE THROUGH BIGDATA: DIGITAL TRANSFORMATION OF PUBLIC AGENCIES

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Abstract:

Big data has the ability to shift governance from traditional to smart. Academics, academics, and policymakers have long debated and discussed how to use big data to convert traditional public administration into one that is modern and smart. According to this study, big data can be used to increase the efficiency and effectiveness of government organisations. A systematic review of literature and meta-analysis employs a variety of scales and indicators. An in-depth examination of how big data can be utilised to improve public service has been done, but there is still need for further research. According to an article in this edition of Public Administration Review, public sector agencies may become more effective, transparent, and hassle-free by utilising big data for smart governance. Data-driven smart governance can have a significant impact on timely, error-free service delivery to citizens that contributes to a country's long-term economic growth based on this article. For ease of use and accountability as well as transparency, they conclude that every government agency needs smart governance, which they believe should be fully supported through the use of big data technologies.

I. introduction:

Smart governance is a vital component of a 21st-century smart government, which is a pressing need. Smart governance relies heavily on technology. Keeping up with the times is a constant challenge for public administration reform. "Smart governance" has become an essential part of modern political life, and no one can deny its value. E-government is possible because of the implementation of electronic processes in the political and administrative systems. Advanced e-government is known as "smart government." Since the previous few years, the governance system has made extensive use of technology. The majority of developed countries rely on contemporary technology to run their public administrations smoothly. Technology in public administration is increasingly being used by politicians, academics, researchers, and practitioners alike. Many changes have already taken place as a result of technological adoption. Every government sector can be improved through the right use of a significant amount of data in today's big data. For example, it can be used in the private sector, as well. The increased usage of data and information can lead to the development of a new model. To describe anything as "smart" in technological, environmental, and digital development contexts has become commonplace. It's a new term for e-government and open government that's basically a synonym for smart, cute, and witty. In governance, it refers to the system's intelligent networking component. As long as they have an internet connection, users can access and control the system from wherever they are. Using intelligent networking, virtual items are connected to each other through a distributed network. It's not artificial intelligence because it can't make its own decisions. It merely connects people to the information they need to make decisions and plan for the future based on their daily experiences. Artificial intelligence on the other hand mimics human intelligence. Every day, new digital applications and gadgets are used to perform everyday tasks, resulting in a massive amount of data being generated. Diverse government and private websites,

business software, everyday household gadgets, and other smart devices are the main sources of big data used by researchers and policymakers from various industries. The use of big data technologies benefits a wide range of enterprises. Amazon, Walmart, Sears, and Morgan Stanley are just a few of the huge businesses and financial institutions that currently use big data technologies to study customers' purchasing habits and provide services based on research findings. Facebook, Google, Twitter, and eBay are leveraging big data analytics to create a revenue model based on the visitor's behaviour, interests, and product requests. ' Government agencies have a lot of opportunity to improve their efficiency and effectiveness through the use of big data technologies. It also facilitates policy-making in a timely and error-free manner through the use of information support systems. However, some study still has reservations about the long-term viability of these technologies, which can be used as a tool for government reform. Using big data for public sector organisations has been questioned by several academics because of the difficulties and dangers it poses. Smart governance is already a reality in several wealthy countries. Public administration in most nations, however, has yet to fully embrace big data technologies. A large expenditure is needed to deploy the new technology, especially for training administrators and frequent data production, collecting, and analysis. Premature use of big data in the public sector might lead to issues and hazards. An open, participatory and intelligent government can be established by leveraging big data technologies. Today, governments around the world are dealing with a wide range of issues that limit their capacity, efficiency, and production. These problems, difficulties, and threats may be solved by big data-driven technologies. However, academics, politicians, and academicians are divided on whether or not big data technology should be used for smart governance. When it comes to using big data, what are the components of smart governance and how do they work? (a) The purpose of this research is to add to this debate. How can traditional public agencies make use of big data to become more efficient and effective? There is a review of previous studies on the smart government's use of big data in the second half of the paper. What is big data? What are its uses? And what are the most significant factors in its success are explained in parts three and four, respectively. Finally, the final section focuses on smart governance's primary drivers and dimensions, as well as problems and opportunities. The concluding section of the paper offers some advice.

A marvellous, massive, and complex system is the world we live in. As a system, it consists of various components working together to accomplish a goal. Some of these interactions may be difficult to model using analytical models, making it more difficult to understand the system as a whole. To put it another way, it is massive because it encompasses a wide range of other subsystems (such as health, business, education, transportation, political, and so on), each of which may have its own subsystems. Simulating a wide range of systems is possible because simulation modelling techniques may be applied to any system that can be simulated. Using simulation in information systems (IS) is not an exception. Some of their work revealed how simulation models and their software implementations could be used in sophisticated information systems and decision assistance tools.

In today's global economy, a proper simulation can help improve a process's performance quality by reducing time consumption, cutting expenses, and reducing time-to-market fundamentals. In today's world, information systems have become an integral part of everyday life. If, for example, a bank information system goes down or fails, the implications can be devastating. This is the case for many people today. Increasingly, researchers and simulationists are focusing on how a system can fail, and how to identify its impact consequences, in order to better understand that system. Vulnerability theory can be highly helpful in this scenario, as it can identify the

sensitive sections of a system, where even a small amount of damage can have disproportionate effects. System dependability is improved by identifying the system's weaknesses. There are several benefits that can be gained by applying the theory of vulnerability in the context of information systems. A brief introduction to the notion of vulnerability is provided in section three, followed by a discussion of certain significant simulation concepts. Bangladesh has a population of over one billion people, a low per capita income, a long-term trade deficit, and an economy heavily reliant on agricultural exports. The theory of vulnerability can be used in simulations to help researchers better understand the country's vulnerabilities. Bangladesh's Cabinet is the country's highest-ranking administrative body. Under the Office of the Prime Minister, the Cabinet is a collective decision-making body that includes the Prime Minister, 31 Cabinet Ministers, 17 State Ministers, and 2 Deputy Ministers. As the head of a ministry, a minister is often referred to as the "political head" of the ministry. At a minimum, every ministry has one division. The "administrative head" of the ministry is a secretary or, in his absence, an assistant secretary. Operations, staffing, and organisational processes are all overseen by him/her in a division's day-to-day operations. In addition, he or she serves as the minister's go-to person for questions related to policy and administration. Wings can be added to a division. Each wing has a joint secretary, who is in charge of bringing cases before the minister for a decision.

Public management must be digitalized in order to properly modernise. In recent years, AI, the Internet of Things (IoT), sensor systems, and large-scale data analytics have all become more important. There are a wide range of digital initiatives that use these technologies in the public sector to establish new service delivery models that merge physical, digital, public and private contexts. "Smart government" refers to these efforts" (Gil-Garcia, 2012; Scholl & Scholl, 2014). While past digitization attempts looked at how new technology may redefine the connection between public administration and its constituents, these strategies take a different approach (Bright & Margetts, 2016).

88% of Fortune 500 giants have gone out of business during the 1950s. The business strategy studies of companies like Polaroid, Blockbuster, Kodak, and Xerox have been harsh ever since. Just a few examples of recent company failures that have been related to newer industries like taxi and hotel disintermediation and new marketplaces include Nokia, BlackBerry, and Yahoo. Today's true movers and shakers, most of whom operate on digital platforms or employ creative business strategies, have surpassed the majority of traditional businesses. Since these unorthodox companies have been able to retain their operational efficiency by inventive use of technology and actively generating new products and services that appeal to the increasingly tech-savvy global consumer base, they have attained unusually high market value. When it comes to competing in today's digital economy, it is a major challenge for all businesses to use and incorporate new digital technology. Even in developed countries, where digital transformation has been talked about for some time, nearly 90% of business leaders believe that these high-priority investments will make a major strategic impact to their total firm in the future (Bonnet, Ferraris, Westerman and McAfee, 2012). Firms are increasingly relying on digital technology in the face of increased geopolitical, economic, and environmental uncertainty. Most mature organisations today rely on digital technologies such as social, mobile, analytics, and cloud to solve specific business challenges or change the way their businesses work (2015 Digital Business Global Executive Study and Research Project, MIT Sloan Management Review and Deloitte). New entrants who use the 3rd Platform (social, mobile, analytics, and cloud) to create completely new business models that challenge incumbent companies at their own game will significantly disrupt one third of the top twenty

market share leaders in most industries by 2018, according to International Data Corporation (IDC). These disturbances may alter the velocity and degree of change at the individual, societal, and organisational levels. This could be considered the first instance of digital transformation in Malaysia when the Multimedia Development Corporation (MDeC) was established in 1996 to oversee the implementation of MSC-Malaysia as well as to provide advice to the Malaysian government on legislation, policies, and standards related to multimedia operations. As part of KBUD (Knowledge-Based Urban Development), MSC Malaysia is an on-going project that intends to help Malaysia catch up to its developed-nation peers in terms of capitalising more on knowledge and technology (Yigitcanlar, Lonnqvist and Salonius, 2014). Other growing economies, such as Brazil, China, Turkey, Dubai and Mexico, have adopted KBUD since Kuala Lumpur's inception (Zhao, 2010). When it comes to the utilisation of information and communication technology, MSC Malaysia has played an important role. A wide range of public and private sector IT projects in Malaysia are underway, with the public sector providing multiple e-government services, while the private sector is implementing a wide range of IT projects such as cybersecurity and ERP. There has been little to show for the investments made by Malaysian businesses over the past two years in this wide range of digital technology (IDC, 2015). The number of people who haven't yet taken this journey is mind-boggling. Developing countries face a wide range of challenges and issues when it comes to implementing digital transformation, including technical infrastructure, financial, vision and strategy, security and privacy, good coordination, leadership, skills, and change management (Bharadwaj, El Sawy, Pavlou and Venkatraman, 2013; Matt, Hess and Benlian, 2015). Problems with legislation, human resources, a dearth of political will, management style, and cultural norms in the workplace should all be factored in (Almarabeh and AbuAli, 2010; Banerjee and Chau, 2004; Jorgensen and Cable, 2002).

II. REVIEW OF LITERATURE:

The public sector can soon rise to the top thanks to big data technology. It is possible to manage complex socio-political issues in government agencies by lowering risks, dangers, and challenges and enhancing productivity, efficiency and transparency through the use of big data. Organizational Information System (IS) business skills are positively linked to competitive advantages, while IT infrastructure flexibility does not have a substantial impact on this relationship. the components of a city's information system of governance had a close connection to the urbanised information system of governance (applications, software systems layers, components, etc.). Data-based integration, process data-based integration, and service-based data-based integration all have a direct impact on government information system management. For instance, Silva et al. noted that a slight harm to the system's operation can have disproportionate consequences, which can cause disproportioned economic and societal costs. Because of advances in technology, user applications, and strategic use of information systems, an organisation will be more successful if its information system resources are used more effectively. More formal means of information flow and distribution are severely restricted in Bangladesh. According to the experts, low literacy rates make it more difficult for non-personal sources and channels to get information. The public sector can benefit from the use of big data technology to strengthen governance and increase efficiency. Electronic governance has the potential to reduce corruption and enhance trust between government and public, according to Pathak et alresearch. .'s Big data technology, according to Singh et al., can assist public organisations in areas such as health care, infrastructure, social security, and other related sectors in improving their service offerings. According to these writers, e-governance efforts can have a substantial impact on improving public services. E-readiness can be hindered by factors such as technological change, a lack of understanding, and lack

of opportunities for e-participation and consultation. Electronic governance initiatives in East and Southeast Asia vary widely, Holliday claims, highlighting national strengths and weaknesses rather than regional policy potential.. However, Malaysian governments are adopting ICT to improve their services, especially in terms of customer satisfaction.... Egovernance can improve government operations, link citizens (e-citizens and e-services), and build external relationships, according to Heeks' research on countries including the Philippines, Honduras, Chile and South Korea. According to Bertot et al., e-government services, openness and transparency are the keys to big data's potential. Electronic governance has been discussed in a variety of ways, but there is still a lack of systematic research into how big data may be used for smart governance and how it can be used efficiently.

Pedro Sá Silva1 , Jorge Pinto2 , João Varajão2,3, António Trigo Ribeiro1 , Maria Manuela Cruz-Cunha4, 7 , Isabel Bentes2 , Humberto Varum5 , Jitendra Agarwal6" Simulation in Information Systems: Potential of the vulnerability theory"

A multitude of fields, particularly information systems, have relied on systems modelling extensively in the previous few decades. As compared to traditional methods, using simulation models to analyse information systems is both more cost-effective and less destructive for the actual system itself. If our information systems go down, it can have a big impact. In the theory of vulnerability, a small bit of damage can have a big impact on the system's performance. The concept of vulnerability can be used to improve information system simulation.

Md. Nazirul Islam Sarker1* , Yan Bingxin2 , Arifin Sultana3 , AZM Shafiullah Prodhan4" Problems and challenges of public administration in Bangladesh: pathway to sustainable development"

Bangladesh's public administration and its path to sustainable development will be the focus of this research project. However, Bangladesh's Public Administration is still plagued by rampant corruption and violence as well as a considerable politicisation of all government agencies, including the courts. As a result of a thorough review of the literature as well as secondary sources, the research is descriptive in nature. In order to combat corruption, non-accountability, non-transparency, and inefficiency, the administration and political leadership must be well-educated. A strong moral basis based on the rule of law is essential for effective administration and long-term growth. The outcomes of this study will have a significant impact on the establishment of future sustainable development policies and programmes.

Sehl Melloulia,*, Luis F. Luna-Reyesb and Jing Zhangc" Smart government, citizen participation and open data"

The use of information technology in government has improved the effectiveness, democracy, and transparency of government-to-government (G2G) contacts, business-to-business (B2B), and inter-agency (G2G) links (or e-government). These connections have also been impacted by two main trends in recent years. Governments around the world have embraced open data with open licences and formats that are easy to use. To better understand complex societal issues and improve the government's ties with individuals, private groups, non-governmental organisations (NGOs), and other countries, this has resulted in a growth in data output. Smart government or intelligent governance is a term coined to describe the combination of these two technologies. As a government theme for the next 10–15 years, "smart governance" is an essential one. Using information and communication technologies, local governments and towns may better interact with their citizens and take advantage of all available data in order to address crucial issues in their communities.

Kuno Schedler, Ali Asker Guenduez⁎ and Ruth Frischknecht" How smart can government be? Exploring barriers to the adoption of smart government"

Various smart government initiatives are suggesting the beginning of a new wave of digitization in the public sector thanks to smart information and communication technologies (ICTs). New models for providing public services are being developed, although they are still in their infancy. When dealing with the issues of the public sector's technological improvements, it is critical to know the impediments to overcome. Early in the process, we look at the perceived barriers to smart government adoption. People who participated in smart government programmes gave us 32 interviews, and we analysed the challenges they faced. As a result of using a cluster analysis technique, we discovered six main hurdles to progress: lacking legitimacy, inconsistency in policies, inability to analyse costs and benefits, and inability to think outside the box. Organizational vs. institutional limits are highlighted as potential roadblocks to practise and future research.

III. Methodology:

Using a comprehensive literature review, this research is qualitative in character. Large-scale deployment of big data for smart governance in the public sector presents many obstacles, but it also presents several opportunities.

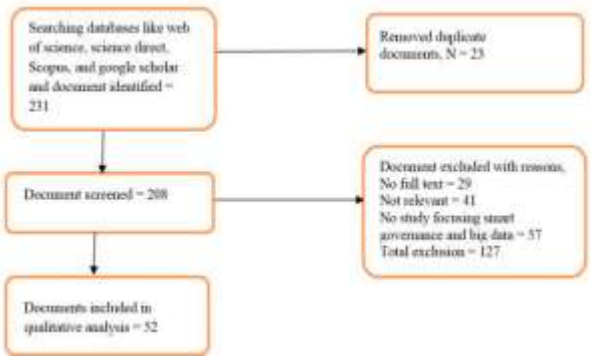


Figure 1. Flow diagram of study selection.

In order to complete this study, a review of the literature was undertaken according to the goals set out in the study's objectives (figure 1). According to Rother, this approach to research is unique because it is both thorough and systematic. According to the report, big data may be used for smart governance in public organisations, as well as in the private sector. Searches on Science Direct and Google Scholar as well as terms like "big data" and "information" were able to lead researchers to the most recent paper on the issue.. Fifty-two journal articles, working papers, and books were analysed in order to determine the potential of big data for smart governance.From February to March of this year, researchers gathered and analysed data for this study. A wide range of dimensions and indicators are taken into account in the analysis of data collected through the use of big data technologies for smart government. A conceptual model for smart governance in the public sector has been built using big data (Figure 2).

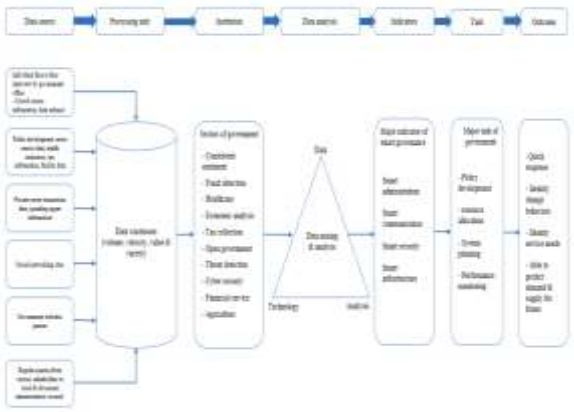


Figure 2. A conceptual model for implementation of big data for smart-governance

IV. DIMENSIONS, OPPORTUNITY AND A KEY DRIVER OF BIG DATA FOR SMART GOVERNANCE:

A. The Concept of Big Data:

As a result, big data is typically cost-effective and inventive when it comes to improving insight, making better decisions, and maximising productivity. An

umbrella phrase for a variety of data-related approaches has been coined.

TABLE I. THE CONCEPT OF BIG DATA ACROSS THE DISCIPLINE

Discipline	The concept of big data	Researcher
Management	*"Big data is generated from an increasing plurality of sources, including Internet clicks, mobile transactions, user-generated content, and social media as well as purposefully generated content through sensor networks and business transactions such as sales queries and purchase transactions"*	(George, Haas, & Pentland, 2014) [19]
Public policy	*"New formats, quality, and availability of administrative data."*	(Pirog, 2014) [20]
Political science	*"Technological innovations such as machine learning have allowed researchers to gather either new types of data, such as social media data, or vast quantities of traditional data with less expense"*	(Clark & Golder, 2014) [21]
Information and technology management	• *BOLD—Big and Open Linked Data.*	(Janssen et al., 2017) [24]
Computational social sciences	*"Second-by-second picture of interactions over extended periods of time, providing information about both the structure and content of relationships"*	(Lazer et al., 2009) [22]

New insights can be gained by bringing together a wide range of people and organisations from many sectors of society and business to create new data sets that can be used for analysis.

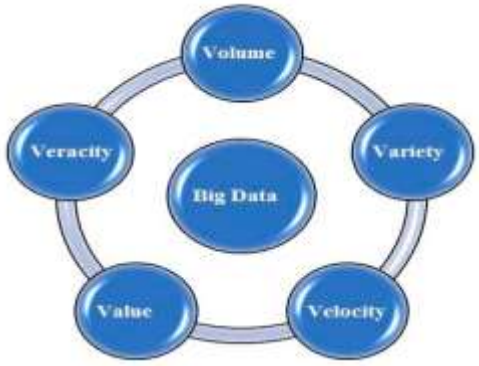


Figure 3. Major characteristics of big data technology.

Big data is defined by the following:

This type of data is typically generated by an individual, as well as by numerous private and public entities. Various public groups can benefit from its utilisation.

Continuous data generation from many sources, such as government entities, social networking sites, and private companies, can be described by the term velocity.

x Variety: There are many different sorts of data, including text, numeric, audio, and video. These are the most popular data formats that may be found on the web.

All data isn't created equal, thus it's crucial to know how much data is being generated on a daily basis. For the sake of public safety, some information may be lifesaving. Big data addresses a variety of issues and offers a correct method of decision-making that reduces the dangers and difficulties faced by individuals, society, and government.

Trust and quality of data processing are referred to as veracity. The quality and trustworthiness of data that can assist the public administrator in making an informed decision should be maintained by big data technologies.

V. DIMENSIONS, AND KEY CHARACTERISTICS OF SMART GOVERNANCE:

B. The Smart Governance Model

The third-generation concept of government based on information and communication technologies is referred to as "smart governance" (ICT). Smart governance, in Melhem's view, can be summarised as SMART, where SM is an acronym for "Social," "Mobile," "Analytics," "Radical Openness," and "Trust."

Smart government services adapted to the requirements of individual citizens can be created by citizens and civil society working together with the government.

Mobile technologies, such as SMS, APPs, social media, cloud computing, and mobile networks, are all used by a smart government to supply public services and conduct daily operations. It is x Mobile.

Decisions and actions can be based on big data analytics as early as possible.

Transparency, accountability, and citizen-friendly services are all made possible by a government that is open to the public and encourages participation from its citizens. x A spirit of radical candour.

Providing secure, reliable, and privacy-compliant services is a top priority for the Smart government.

Figure 4. Key drivers of smart governance.

A Although wise public governance is a valid theory, it has yet to be shown in practise. Academics, researchers, and policymakers should pay attention to the prospective policy implications of this research. There is little doubt that technology has a significant impact on the public sector. It is a governance system that is open and participatory, offering demand-based, value-based, high-quality services with competence and professionalism that is capable of taking strategic decisions, according to Lithuania's 2030 strategy. "Smart governance." It's a four-word phrase that means "openness, responsibility, innovation, and competency.". At least in part, according to iugdinien, gaul &rauleckas the global bank's notion of good governance is based on that of smart governance. Social system goals are achieved through interfacing with decision-making environments in an intelligent social system. In order to operate effectively in a rapidly changing and socially complex environment, a system and its components must be able to use both internal and external resources to make pragmatic decisions and achieve social goals.

B. Smart Governance Dimensions in the Public Sector:

According to current research, "smart governance" refers to the use of information and communication technology (ICT) in the public sector. Smart systems, smart cities, and smart regions are the primary sources of inspiration for this notion. There are four elements of smart governance, according to the research of iugdinien et al.: strategic, networking, inter-institutional, and empowered citizen.

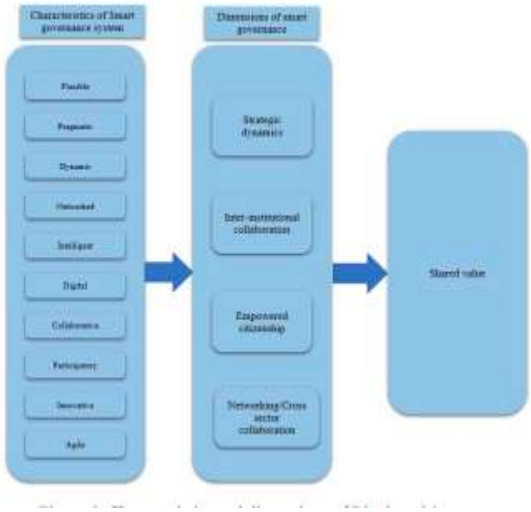


Figure 5. Characteristics and dimensions of Big data-driven smart governance

1) The dimensions of strategy There are two primary strategic aspects that focus on a company's ability to anticipate and manage complicated political situations. In the strategic dimension, strategic sensitivity and resource flexibility are two of the most important traits. The administration's ability to accept any risk and respond to it is based on its strategic sensitivity. There should be a thorough

assessment of the possible risks, difficulties, and threats and appropriate action taken by the public sector. This selection, of course, should be based on the most accurate information. However, resource flexibility is a government agency's ability to move fast and assign all essential resources. The distribution of resources must be done in accordance with government priorities and goals. For the government's aims and objectives to be met, resources must be flexible. In order to attain strategic sensitivity, it is important to keep an eye on the environment and measure risks and obstacles in a timely manner. However, resources flexibility is judged on the basis of adaptive systems, government autonomy, and human resource management systems. Secondly, there is the issue of networking. There are many institutions and sectors within a network that can work together to make decisions based on public policy and accurate information in order to accomplish a desired outcome for the network as a whole. To some extent, power sharing is a product of the many elements of networking. Networking dimensions include facilitative leadership, collaboration platforms, and shared accountability. In networking, facilitative leadership serves as a bridge between the many stakeholders, facilitating their communication. It is the responsibility of government entities to coordinate and collaborate with one another. Advanced government management makes it possible for everyone involved in the system to work cooperatively. Stakeholders from all walks of life are involved in developing trust and dispersing responsibilities as part of smart governance. A leader's ability to demonstrate facilitative leadership can be demonstrated by collaborating with stakeholders and involving them in the process. A strategic policy based on consensus, trust, information exchange, and stakeholder participation can activate a collaboration platform. By creating confidence, commitment, and understanding, we may attain shared responsibility for wise governance. Inter-institutional cooperation is also required. It is becoming increasingly common for the traditional public administration to be reshaped by the use of ICT. However, the degree of interdependence between agencies is on the rise. It highlights inter-institutional collaboration that deals with the coordination and cooperation between the various internal departments and in certain cases non-hierarchical organisations. Using big data technology, it is possible to deal with the coordination and collaboration across multiple institutions early on. According to iugdinien et al., inter-institutional cooperation has two characteristics: platforms for interaction and collaboration and coordinating competencies. One definition of an interactivity platform is: a place where many government stakeholders can work together to achieve common goals using an appropriate mechanism. It is also possible to strengthen civil service cooperation through smart governance's cooperation and collaboration competencies. Both of these attributes can only be maintained with effective leadership. A long-term strategy, institutional cooperation across sectors, and adaptable institutions are necessary to maintain an action platform. As an alternative, collaborative competences can be obtained by encouraging cooperation, leadership, and interoperability of the organization's governance. Dimensions of "empowered citizenship" People's participation, openness, and skill in the decision-making process are all crucial aspects of smart

governance, which is an interaction between a government agency and the public. With government agencies, a citizen can actually gain power. To put it another way, the "empowered citizen" dimension is comprised of two characteristics: platform feedback and involvement. Citizens in the traditional government system are only entitled to vote in elections. Smart governance systems, on the other hand, take into account the views of citizens by allowing them to participate in government decisions. People can express their views on the government's actions by providing feedback. Participating in public meetings, hearings, and other forums allows citizens to provide feedback on any policy that is under consideration. Giving the right conditions for participation and taking into account a person's ability to participate actively can provide participation opportunities. Maintaining public trust in public agencies and establishing accountability and transparency in government can help assure trust and feedback.

VI. Results:

In this paper, the author recommends that the government use Big Data technology to transform all of its current public applications into smart applications. Many applications, such as online social networking, health care, traffic statistics, banking, and so on, now acquire data on the internet via mobile or IOT (the Internet of Things). It is possible that typical applications, which use a single thread of execution, will not be able to handle the massive amounts of data involved. We can leverage Big Data technologies like HADOOP and its parallel processing technique called MAPREDUCE or apache SPARK to solve this problem.

Large-scale data processing, such as looking through a hospital's medical records database or locating old friends through an online social network, requires the usage of several simultaneous threads.

Traditional processing should be replaced with Bigdata in order to improve any application's overall efficiency, according to the author of this research. Veracity (Provide support for user data privacy and trust), Volume (can manage or process any amount of data), and Variety (can accept input from multiple sources, such as social networking data, healthcare data, etc.) are all characteristics of Bigdata. It accepts data in a variety of formats, including text, audio, and video) (Bigdata support to process data which coming continuously as streams).

The following functionalities can be added to any application by using a smart application.

1) Social: Smart governance enables citizens and civil society to collaborate with the government in order to improve the quality of life for all citizens.

For public services and daily concerns, the smart government leverages mobile technologies such as SMS and APPs as well as cloud computing and mobile network.

Big data analytics can be used at an early stage to make policy decisions and take action.

For the sake of accountability, transparency, and citizen-friendly services, a smart government application makes it easy for citizens to obtain information and participate in government processes.

It is the Smart government application's goal to provide excellent cyber security for robust, available, and privacy-based services.

We are using the Public Information Dataset to implement this research, which includes information about people's education, employment class, occupation, and more. Government or the general public can use this data to determine how many individuals are educated or how many people are employed in a particular class. We are utilising the HADOOP MAPREDUCE Framework to seek information from 30000 records because a typical application would take a long time to process or search such a large amount of data. The following are some of the dataset's specifics.

age,workclass,fnlwgt,education,education-num,marital-status,occupation,relationship,race,gender,capital-gain,capital-loss,hours-per-week,native-country,salary

This man is 47 years old and is a local government official in the United States. He is a white male who is married to a civi-spouse.

In the 9th district of the 141483, 9th, Divorced, Other-service, White, Female, 0, 0, 40, United States, =50,000.

Some-college, 10, Divorced, Executive, Unmarried, White, Female, 0, 0, 40, United States

At 20, she is private and 170800, some-college, 10, never-married, farming-fishing, own-child, white, female, zero, forty-five, United States.

The average age of a white male in the United States is between the ages of 26 and 55, with a bachelor's degree from a four-year college or university and no ties to family ties.

The dataset column names are bolded in the example above, and the dataset values are listed beneath them.

It's important to hide sensitive information like race from other users since no one wants to deal with racism issues, especially in a world where people are constantly bombarded with messages about their ethnicity. In this case, we are transforming the data to an asterisk sign to ensure its secrecy.

Snapshots

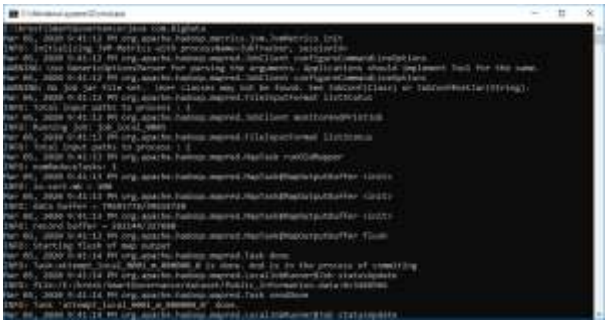
In order to get to this screen, double-click the 'run.bat' file.

To upload public data, click the 'Upload Public Information Dataset' button in the above screen.

The 'PublicInformation.data' file is now being uploaded in the above screen, and once it has been completed, the screen below will appear.

In the second option, I've selected "Private," which indicates that I'm looking for people who work in the "Private Work Class." The search results are shown below. After making your choices, click the 'Search Public Information Using BigData Hadoop MapReduce with Privacy' button to begin the search.

The race characteristic is marked with a * sign on the above page to protect user data privacy, and we can view all the details of those who work in the private sector. Other attributes can be selected and searched for in the same way. MapReduce is used to process this data as shown in the next screenshot.



Click on the 'Data Visualization Graph' button to receive the graph shown below if you'd like to see this data represented graphically.

How many individuals work in each sector is evident from the graph shown above. Do not know how many people fall into the? category in this graph. For the most accurate count or percentage, hover your cursor over the graph section you're interested in.

When I place my cursor on the above screen, the application displays the overall number of persons working in that class, as well as their percentage.

VII. Conclusion:

This study aims to examine if big data technologies can be used to implement smart governance in public sector organisations. In the public sector, the gap between the theoretical assumption of big data application and its subsequent implementation for smart governance is mostly driven by the lack of research in this area. As a result of the findings presented here, we have developed a conceptual model that outlines the steps involved in gathering data from multiple sources and analysing it according to a set standard. In addition, it explains the final result of a set of steps. Even though big data is still in its infancy, it has a lot of potential for smart governance in the public sector, according to this study. Big data analytics can help government agencies enhance

their public service delivery, day-to-day operations, policy-making decisions, and other value-added services to the citizens. In order to reduce the dangers, hazards, and obstacles faced by citizens, rigorous and prioritised privacy policies must be implemented. Public sector institutions aren't ready to implement this technology because of data scarcity, unpredictability, and a lack of efficiency among administrators and policymakers. According to the report, every government agency should use big data technologies in order to reduce corruption, threat or problems, and to increase the level of accountability and openness.

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