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Smart Governance through Big data: Digital Transformation of Public Agencies

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ABSTRACT: Bigdata is a potential instrument to transform traditional governance into smart governance. There are a long debate and discussion on the application of big data for the transformation of traditional public administration to modern and smart public administration in the academician, researchers, and policymakers. This study aims to explore the suitability and applicability of big data for smart governance of public agencies. A systematic review of literature and meta-analysis method is employed with various levels of scales and indicators. Literature survey shows that a number of models have been developed to explain smart governance but systematic research on the suitability and applicability of big data for smart governance of public agencies is still lacking. This article argues that the application of big data for smart governance in the public sector can increase the efficiency of the public agencies fastest public service delivery, enhancing transparency, reducing public hassle and helping to the become a smart agency.This paper further argues that implementation of big data for smart governance has a significant role in timely, error-free, appropriate and cost-effective service delivery to citizens which leads to the sustainable economic development of a country. The findings suggest that every public-sector agency should be brought under smart governance which should be a fully promoted under big data technologies for easy access, transparent and accountable, and hassle-free public agencies

KEYWORDS: Governance; public administration; Big Data; Digital; Smart Governance

I. INTRODUCTION

Smart governance is an important tool for a smart government which is a timely demand in the 21st century. Technology is the key pillar of smart governance.Public administration reform is a continuous process to update itself with timely, modern and updated technology. Nowadays nobody can deny the importance of smart governance which is the new version of the political process, governance and public administration. The adoption of the electronic process in the political system and administrative system enable e-government. Smart government is the advanced version of e-government. The governance system uses technology for its affairs from last few years. Most of the developed countries are using modern technology for smooth running their public administration. There is a big trend among the politicians, academicians, researchers, and practitioners to use the modern technology for governance system in public administration. Several reforms already have been done gradually with technology adoption. Nowadays big data gives an opportunity to develop every sector of government up to mark through proper using a large amount of data. It is not only applicable to public administration but also other sectors. The trend of using data and information transform traditional concept which provides an opportunity to develop a new model. The word “smart” is now well adopted in the field of technology, environment and digital development. It is actually a synonym of brilliant, cute and clever and new denomination of e-government and open government. In the field of governance, it means an intelligent networking component of the system. It is related to the internet which connects people to information and enables people to communicate directly to the system even from accessing and steering from remote places. The intelligent networking connects real virtual objects through a distributed network for better communication to each other [4]. But it is not artificial intelligence because it is not able to take a decision by itself. It just connects people to the information gathered from daily affairs for taking decision and plan for future. On the other hand, artificial intelligence behaves intelligently like a human being. Nowadays, a lot of data is produced every sector in every day due to use new digital application and devices for daily affairs. The researchers and policy makers of various sectors are using the source of big data which usually generated from mobile phone users, social networking sites, various government and private websites, business software, daily household appliances and other smart devices. Various types of organizations are getting benefits by using big data technologies. Some big business and a financial institution like Amazon, Walmart, Sears and Morgan Stanley already adopted big data technologies and analyzes the purchasing behavior of customers and providing services according to research findings. Some networking sites like Facebook, Google, Twitter, eBay are using big data analytics and develop a business model by assessing the visitor’s behavior, preferences and product request. Big data technologies are very much potential for public agencies for increasing their effectiveness, expertise, efficiency, transparency, and accountability. It also enables the fastest and error free policy-making through

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information support system. It can be acted as a potential tool for solving complex societal tool for government reform but some research still has doubts about the future of the technologies. Some scholar raised the doubt to the challenges and threats of using big data for public sector organizations [5]. Some developed countries already adopted big data technologies for smart governance partially. But still, public administration of most of the countries are not ready to use big data technologies in a full fledge.Because it requires a big investment for implementing the technologies especially for giving orientation to the administrators and regular data production, collection, and processing. Sometimes, premature implementation of big data may invite challenges and threats in the public sectors. Smart governance gives a provision to establish open, participatory, and smart government by using big data technologies. Nowadays governments across the globe are facing so many challenges which reduce the capacity, efficiency, and productivity in their governance system. Big data-driven technology may be a great solution for these problems, challenges, and threats [6]. Though there are two opposite groups of researchers, policymakers, and academician who shows their positive and negative opinions about the adoption of big data technologies for smart governance. For contributing to this debate, this piece of study is undertaken to address the research questions: (a) what are the elements of smart governance and how does it adopt big data technologies? And (b) how do the traditional public agencies get benefitted from big data technologies and transform into smart public agencies? The article describes the context of the application of big data technologies for the smart government as literature review in its second section. Next, it provides the methodology and dimension, opportunity and key drivers of big data in its third and fourth section respectively. The fifth section describes the key drivers, dimensions, challenges and opportunities of smart governance under big data technologies. The final section concludes the article with some recommendations.

II.REVIEW OF LITERATURE

The public sector can boost up easily by adopting big data technology in its day to day operations. Desouza and Jacob reported that big data has big potential to solve complex socio-political problems of government agencies by reducing risks, threats, and challenges and enhancing productivity, infrastructure and competitive advantages. Gasova & Stofkova [8] mentioned that there was a strong relationship between an urbanized information system of governance and its components (applications, software systems layers, components, etc.). He also focused three categories of information systems integration like data-based integration, process-based integration, and service-based integration which directly related to government's information system management. Silva et al. [9] focused on the vulnerability theory of Information Systems (IS) and pointed out that failure in which small damage can have disproportionate impact consequences in terms of the functionality of the whole system which can lead to disproportioned economic and social damages. There are some key driving forces like developments in IS technology, end-user applications, and the strategic use of information systems can lead a better way to use and manage the information system resources of an organization. There are very limited sources of Information flow and access from more formal sources in Bangladesh. They also identified low literacy rates created major barriers to use of non-interpersonal sources and channels. Public administration can use the big data technologies for smart governance and utilize the resources properly [10]. Pathak et al. [11] suggested that e-governance can help not only in wiping out corruption but also in establishing a strong relationship between government and citizen. Singh et al. [12] mentioned that public agencies can improve their services especially in the health, infrastructure, social security and other related sectors by adopting big data technologies. They also suggest that e-governance initiatives can make important contributions to improving public services. The citizens' e-readiness is resistance to due to change, the absence of opportunities for e-participation and e-consultation, and lack of awareness. Holliday [13] mentions that e-governance activity is highly diverse in East and Southeast Asia, dazzling national strengths and weaknesses rather than regional capacity for policy change. Similarly, the ICT is being used by the public sectors in Malaysia for improvement of the quality of governance especially providing quality customer services and customer satisfaction. Heeks [14] outlines three key contributions of egovernance: improving government process (eadministration), connecting citizens (e-citizens and eservices), and building external interactions by analyzing case studies from countries such as the Philippines, Honduras, Chile, and South Korea. According to Bertot et al. [15], the potential of big data is to increase more interaction among government, citizens, and other agencies through egovernment services, transparency, accountability, and openness. Literature survey shows that a number of models have been developed to explain e-governance but systematic research on implementation of big data for smart governance and suitability of big data in the process of smart governance is still lacking.

III OBJECTIVES

The government agencies can easily improve its public service delivery, day to day operators, policy-making decision, and other value-added services to the citizen by holding a large amount of data with applying big data **.**Smart governance gives a provision to establish open, participatory, and smart government by using big data technologies. Nowadays governments across the globe are facing so many challenges which reduce the capacity, efficiency, in their governance system. Big data-driven technology may be a great solution for these problems, challenges, and threats. The article describes the context of the application of big data technologies for the smart government as literature review in

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its second section. It provides the methodology and dimension, opportunity and key drivers of big data in its third and fourth section respectively. The fifth section describes the key drivers, dimensions, challenges and opportunities of smart governance under big data technologies.

2 Problem Statement

Systematic research on the suitability and applicability of big data for smart governance of public agencies is still lacking.The application of big data for smart governance in the public sector can less efficiency of the public agencies poor public service delivery, enhancing transparency, increasing public hassle and helping to the become a smart agency.Some scholar raised the doubt to the challenges and threats of using big data for public sector organizations.

3 EXISTING SYSTEM

A systematic review of literature and meta-analysis method is employed with various levels of scales and indicators. Literature survey shows that a number of models have been developed to explain smart governance but systematic research on the suitability and applicability of big data for smart governance of public agencies is still lacking.big data has big potential to solve complex socio-political problems of government agencies by reducing risks, threats, and challenges and enhancing productivity, efficiency, and transparency. There was a positive significant relationship between the learning intensity of organization's Information System (IS) business skills with competitive advantages but has no significant effect on the relationship between the flexibility of IT infrastructure and competitive advantages. The vulnerability theory of Information Systems (IS) and pointed out that failure in which small damage can have disproportionate impact consequences in terms of the functionality of the whole system which can lead to disproportioned economic and social damages.

5 Disadvantages

Systematic research on the suitability and applicability of big data for smart governance of public agencies is still lacking.The application of big data for smart governance in the public sector can less efficiency of the public agencies poor public service delivery.This study also explores that the public sectors agencies are not fully ready to adopt this technology due to the scarcity of the data, uncertainty, and lack of efficiency of the administrators and policymakers.Lackage of maintaining privacy of citizen.Less performance
Disproportioned economic and social damages More risks and threats.

6 Proposed System

The application of big data for smart governance in the public sector can increase the efficiency of the public agencies fastest public service delivery, enhancing transparency, reducing public hassle and helping to them become a smart agency. Information System (IS) business skills with competitive advantages but has no significant effect on the relationship between the flexibility of IT infrastructure and competitive advantages. the vulnerability theory of Information Systems (IS) and pointed out that failure in which small damage can have disproportionate impact consequences in terms of the functionality of the whole system which can lead to disproportioned economic and social damages.This paper further argues that implementation of big data for smart governance ha a significant role in timely, error-free, appropriate and cost effective service delivery to citizens which leads to the sustainable economic development of a country. The findings suggest that every public-sector agency should be brought under smart governance which should be a fully promoted under big data technologies for easy access, transparent and accountable, and hassle-free public agencies.

Advantages:

More Performance error-free, appropriate and cost effective service. easy access, transparent and accountable, and hassle-free public agencies.

IV METHODOLOGY

- Data Preparation
- Upload to Hadoop (hdfs)
- MapReduce Algorithm

5.1 Modules

- Cloud server module

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- Cloudlet module
- Sign in and register module
- Get vehicle and Environment info module

Cloud server module a cloud server is a virtual server (rather than a physical server) running in a cloud computing environment. It is built, hosted and delivered via a cloud computing platform via the internet, and can be accessed remotely. They are also known as virtual servers. Cloud servers have all the software they require to run and can function as independent units.Management software called a hypervisor is installed on physical servers to connect and virtualize them: abstracting their combined resources and pooling them together to create virtual servers. These virtual resources can then be automated and delivered over the cloud for shared use in a single organization or across multiple organizations. Save all vehicles information Give response to user.

Cloudlet module it is inter mediate module between Cloud server and user. It helps to search vehicle details and Environment details. A cloudlet is a mobility-enhanced small-scale cloud datacenter that is located at the edge of the Internet. The main purpose of the cloudlet is supporting resource-intensive and interactive mobile applications by providing powerful computing resources to mobile devices with lower latency.

5.1.3 Sign in and register module

This module helps get vehicle and Environment Information. It will get information from hdfs directory.

5.1.4 Get vehicle and Environment information module

This module helps to get the information of particular input data related to RTO and Environment.

5.2 System architecture

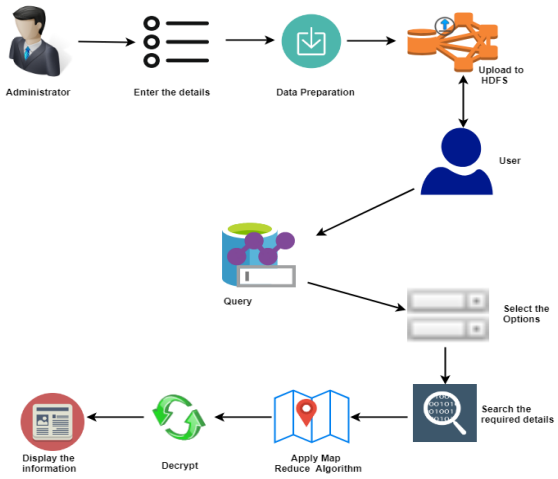

Fig 5.1 architecture

The trend of using data and information transform traditional concept which provides an opportunity to develop a new model. The word “smart” is now well adopted in the field of technology, environment and digital development. It is actually a synonym of brilliant, cute and clever and new denomination of e-government and open government. In the field of governance, it means an intelligent networking component of the system. It is related to the internet which connects people to information and enables people to communicate directly to the system even from accessing and steering from remote places. The intelligent networking connects real virtual objects through a distributed network for better communication to each other. But it is not artificial intelligence because it is not able to take a decision by itself. It just connects people to the information gathered from daily affairs for taking decision and plan for future. On the other hand, artificial intelligence behaves intelligently like a human being. Nowadays, a lot of data is produced every sector in every day due to use new digital application and devices for daily affairs. The researchers and policy makers of various sectors are using the source of big data which usually generated. Some networking sites like Facebook, Google, Twitter, eBay are using big data analytics and develop a business model by assessing the visitor’s behavior, preferences and product request. Big data technologies are very much potential for public agencies for increasing their effectiveness, expertise,efficiency,transparency,and accountability. It also enables the fastest and error free policy-

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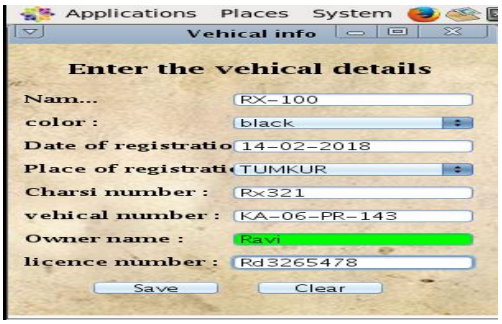
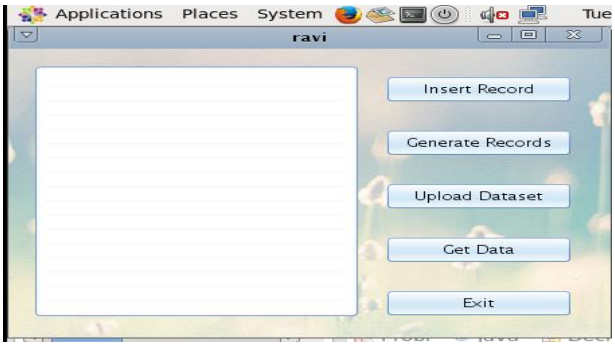
V SYSTEM DESIGN

System design is the process of defining the architecture, components, modules, interfaces and data for a system to satisf, systems architecture and systems engineering. If the broader topic of product development "blends the perspective of marketing, design, and manufacturing into a single approach to product development," then design is the act of taking the marketing information and creating the design of the product to be manufactured. Systems design is therefore the process of defining and developing systems to satisfy specified require y specified requirements. One could see it as the application of systems theory to product development. There is some overlap with the disciplines of systems analysisments of the user.





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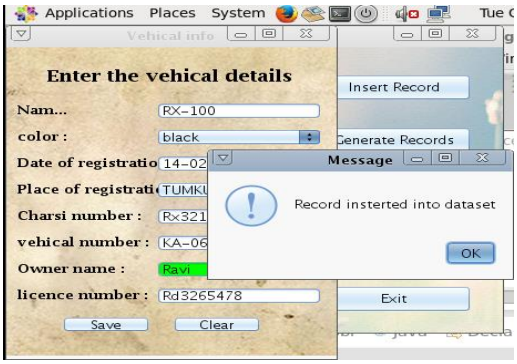

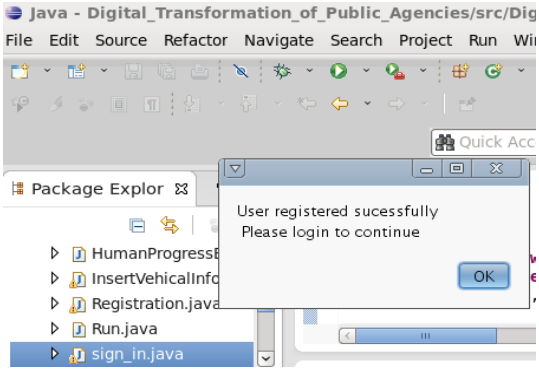

VI CONCLUSION

This study attempts to explore the suitability of big data technologies for smart governance in the public agencies. It is basically driven by the research gap between the theoretical assumption of big data application and subsequently its implementation for smart governance in the public sector. This study suggests a conceptual model which explain how data will be collected from various sources and followed a series of the procedure by maintaining a certain indicator that explains the measurement of the standard of the system. It also explains the outcome after following a series of procedures. This study reveals that big data has actually big potential for smart governance in the public sector even though it is still in its initial stage. The government agencies can easily improve its public service delivery, day to day operators, policy-making decision, and other value-added services to the citizen by holding a large amount of data with applying big data analytics. But the privacy of the citizen should be maintained strictly and priority based to minimize the risks, threats, and challenges. This study also explores that the public sectors agencies are not fully ready to adopt this technology due to the scarcity of the data, uncertainty, and lack of efficiency of the administrators and policymakers. we applied ECC algorithm for security purpose when we getting the Result to secure the information. It suggests that every government agency should adopt the big data technology for reducing corruption, threat and challenges and increasing efficiency, accountability and transparency which will help to become themselves transparent, accountable and hassle free public agencies.

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