Big Data Analytics in E-Governance and Other Aspects of Society

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INTRODUCTION

The world is moving towards more digitized processes for everything, primarily due to the COVID-19 outbreak. This pandemic has compelled governments to invest in big data analytics technology to make the functioning of the public sector faster, scalable, and reliable. With technology speeding up, IT Services have been generating a large amount of big data, and it is harder to process using the traditional data processing technologies. With data growing at such a significant speed, developers need to analyze and make decisions based on big data for better results and recommendations (Tripathy and Deepthi, 2017), (Tripathy, 2017), (Divya and Tripathy, 2020). Having insight into this data will improve the system's overall efficiency (Srividya and Tripathy, 2021). Big Data's scalable nature can easily correlate data and enhance the overall results. All countries' central governments are pushing hard to get more and more citizens of their country online and further digitize the whole process. Governments are trying to make data readily available to people anywhere through digitization, thus saving their time and resources. Therefore data collected from different government schemes are getting added, and the size of this data is increasing exponentially day after day, there is a steep rise in data-driven projects across several countries. Therefore, Big data and E-governance is becoming a crucial aspect of a country's development.

Through E-governance, government facilities are provided to the citizens conveniently and transparently (Agnihotri and Sharma, 2015), (Salwan and Maan, 2020). E-Governance plays a significant role in uplifting the country's economy and making people use digitized apps and websites to reduce human error.

This paper focuses on the Role of Big Data analytics in E-Governance and Society, mainly describing and improving Government measures to manage such a large amount of data efficiently and securely.

Big Data

Big data refers to data sets that are large and complex derived from various sources. Usually, such data sets are too large to be processed using the database techniques and programming languages that make up the bulk of today's technologies. Big data can be structured, unstructured, or semi-structured. Most of the current methods only allow processing structured data and fail for the other two categories (Tripathy et al, 2017), (Seetha et al, 2017).

DOI: 10.4018/978-1-7998-9220-5.ch007

Big data can be collected from various sources such as information gathered from public apps and websites, public comments on social media sources, information on government schemes and policies, and many more. It is stored in complex, huge databases that can process this data, which is hard for the traditional databases.

Data stored is then processed and analyzed by Big data Analysts to derive insightful info patterns on how the data is being used and suggest changes in the existing system (Labrinidis and Hosagrahar, 2012), (Rajaraman, 2011). Big data has created many opportunities for all types of people. For example, increasing growth in customer data for a company makes them hire new sales representatives to meet the requirement and smooth functioning. This creates employment opportunities for skilled and semi-skilled youths. Small businesses see big data as an opportunity to expand their services in more regions and make their brand available to people.

Big data improves project operations, provides better services to the public by making data available to different government institutions, and helps make important decisions quickly and wisely. With the increase in data generation in various formats, i.e., text, audio, video, image, etc. It has not been easy to manage and analyze with the existing traditional tools, which only work for structured data (Chandarana et al, 2014).

Characteristics of Big Data

1. **Volume:** The name itself is related to size, which is massive. The value of data generated from different sources such as social media platforms, administrative data, etc., is dependent on the size of the data. Data is classified if it is big data or not on the volume of data.
2. **Variety:** It refers to the diverse source of data collected. Data can be structured, unstructured, and semi-structured. Nowadays, a variety of data is collected from sources such as e-mails, PDFs, images, and videos which is a lot more than in earlier times from databases and spreadsheets. This leads to the development of tools which process such a variety of data from nearly every sector in the country.
3. **Velocity:** Refers to the speed generation of the data. The real future of data is determined by how fast data is pre-processed to give the results in as short a time as possible. Big data velocity refers to how fast data flows from different sources such as mobile, social media platforms, etc., to meet the user requirement.

Advantages of Big Data

1. **Innovation:** Big data helps get insightful information for a company's government schemes that can be used to change it into actionable policies and increase performance. For example, it can analyze the customer satisfaction with the products and services, suggesting new reforms to be implemented to boost the company's performance in the market.
2. **Cost Optimization:** Big data tools such as Hadoop and Spark provide a less expensive solution to small businesses for storing this massive amount of data. It allows companies to reduce their production costs by estimating which products are likely to be sold more in this competitive market.
3. **Pricing:** Big data helps you get a clear picture of your business situation in the market, allowing you to price your product to meet customer needs and requirements. Moreover, it helps evaluate the company's financial position so that they get a clear idea of their finances.