

Chapter 9

Big Data on E-Government

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ABSTRACT

All aspects of big data need to be thoroughly investigated, with emphasis on e-governance, needs, challenges and its framework. This chapters recognizes that e-governance needs big data to be reliable, fast and efficient. Another principle is that the trust of a citizen is the main concern. The extraction of meaningful data from large variety of data is a critical issue in big data hence new approaches must be developed. This chapter basically discusses the key concepts of veracity in big data on e-governance. Its main aim is to provide the comprehensive overview big data in e-governance. E-government is still struggling to move advanced level of development. Current e-government applications handle only structured data and sharing between the applications is also difficult.

INTRODUCTION

The concept of big data was firstly started by Google and yahoo. The aim of these companies is to make relevant information available for the user from the huge amount of data. According to the survey 53% (1217) of all the companies all over the world are using big data strategy. Due to the efficient result, speed and better delivery of services the public sector has also adopted big data in order to improve their services and interaction between the customers. Now a days in many fields of public sector big data plays an important role such as in development field, research field, medical field, banking etc.

In the first section of this chapter first of all the authors will discuss big data and in the other section we will give the overview of e-government then finally the role of big data in e-government. The chapter also discusses the objectives, challenges and the comparative study of both traditional and big data e-government.

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BIG DATA

Big data can be defined as data whose scale, volume and complexity is so high that it is difficult to handle data through conventional methods. To extract the value and hidden knowledge big data requires new architecture, algorithm and techniques. Big data is characterised by high volume, structured and unstructured data, uncertainty, incompleteness and high rate of changing (Rajagopalan, 2013).

Big data plays a major role in scientific computing as researchers and scientists produces huge amount of data in their experiment. Big data can be processed in many ways; every big data has different characteristics. When big data is processed and stored; data security, governance and policies plays an important role.

CHALLENGES OF BIG DATA

The problems of big data are complex to analyze and solve. The better option for this is to classify the problem according to the data format. It is really very difficult to handle big data in every field. These challenges requires the design of new advanced architecture, algorithms, visualization techniques etc. The main challenges to handle big data are:

- Requires high computation and storage power.
- Requires new advanced algorithms.
- Requires New architecture
- Reduction in data dimension
- Scalability (Scaling up and scaling down)
- Challenge to improve performance
- How data can be secure (data security)
- Challenge in workload diversity
- Continuous availability in services and to improve cost

CHARACTERISTICS OF BIG DATA

Big data can be categorized in terms of volume, velocity, variability and complexity.

- **Volume:** The amount of data generated is very important; this amount determines the potential of the data. Volume of data is indeed an important dimension that has influenced the data processing techniques. Telecom companies typically process from 100 million to half billion Call Details record per day. Providers also need to provide real time information to the consumer. Using traditional techniques it is indeed impossible to provide these services.
- **Variety:** This defines the different forms of data i.e. whether the data is structures unstructured or semi structured. IBM estimates that over 90% of the real time data is represented by unstructured data. Having new types of data arise new risks.

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