

## **IMPACT OF CLOUD COMPUTING ON MANAGING BIG DATA**

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## **Part 1: Review of literature**

### **1. Introduction**

Cloud computing is identified as the storage of big data which is easily accessible, low maintenance cost. Big data is a cluster of huge volumes of data and the growth is increasing exponentially. The study aims to emphasize on the literature review on the impact of cloud computing on managing big data. In this assignment applied methodology will be elaborated along with the review of literature. The database details that include Google scholar, ProQuest and Scopus will be elaborated in this assignment. The inclusion or exclusion criterion will be further explained. The assignment will further explain the limitations of cloud computing.

### **2. Background of the study**

Cloud computing stores a huge volume of data. It acts as a low cost database manager. The data that are stored here remains safe and the chance of getting misplaced is reduced. The big data is the high-speed data that cannot be stored in computers and is mainly stored in cloud computing. Cloud computing has been developed to store and process more data with the increasing demand (Varghese and Buyya, 2018). The data is referred to the digital data from various sources like mobiles, scanners, videos available on the internet, etc. The features of cloud computing are the five vs: volume, variety, velocity, veracity and value. This examination has wide down to earth suggestions since this exploration intends to fill the hole in the current writing identified with cloud computing selection driven by Big Data Technology. At the time of AI, IoT and other arising innovations, it is more basic than before to research, the amount of cloud computing reception is driven by Big Data innovation, straightforwardly or by implication. Regardless of realizing cloud computing advancements are being embraced in numerous ventures, and cloud computing advances are turning into the foundation of development and development; business heads need to comprehend what components drive others in the business to receive cloud computing.

### **3. Methodology**

The literature review refers to providing a summary or a detailed description after referring to different books, articles and other sources on a specific topic. This method scrutinizes various articles and provides a detailed review about the research (Noor *et al.* 2018). This method acts as the pillars on which the research is based on. To write a proper literature review only summarizing is not enough, analyzing and critically evaluating the topic is very necessary to provide a clear view of the condition of knowledge on the given topic (Erraissi *et al.*, 2017). The method involves 5 steps: Search the topic, evaluate various sources, identify the loopholes, prepare the outline and prepare the new literature review. To prepare the literature review a critical analysis is very important. While preparing any thesis a literature review is required to understand the existing knowledge about the topic. Deep research will have a good knowledge about the topic and will lead to a good output.

### **4. Review of literature**

#### ***Database-1: Google Scholar***

Number	Content research	Filter used	Outcomes	Keywords	Assessment
1	Cloud computing	Publication in between 2017- 2020	Approx. 1000 journals are available	Cloud computing and its appraisal	Rich data sources and Brief explanation of the overall topic
2	Mobile cloud computing	Publication year 2017	Approx. 5000 journals are	Impacts of cloud computing	Analytical explanation and a detailed understanding of

			available		cloud
3	Cloud computing security	Publication year 2017 - 2019	More than 6000 journal and articles are present	Security actions in Cloud computing	The information being available were not up to the mark and emphasized a minor understanding overall
4	Cloud computing	Publication year 2017- 2020	A total of 4000 plays articles and journals are available	Variables of cloud computing	A proper and comprehensive evaluation of the cloud computing techniques and determinants were acknowledged in the study
5	Appraisal of cloud computing techniques	Publication year 2017	Approx. 3000 journals are available	Aesthetics of cloud computing	Discussion related to varied actions and threats has been identified and discovered accordingly in the study
6	Disadvantages	Publication	Approx.	Limitations	The topic is not

	of cloud computing	in between 2017- 2020	1500 journals are available	of cloud computing	explained properly and is difficult to understand.
7	Risks of cloud computing	Publication year 2018-2019	More than 2000 journals and article are present	Risks of cloud computing	The topic was properly explained with details.
8	Benefits and advantages of cloud computing	Published in the year 2017-2020	Approx. 1500 journals are available	Advantages of cloud computing	Elaborately explained and informative.

#### ***Database-2: ProQuest***

Number	Content research	Filter used	Outcomes	Keywords	Assessment
1	Benefits and advantages of big data	Publication year 2019-2021	Total of 2000 journals are available	Big data advantages	Detailed explanation is present about the overall topic

2	Big data characteristics	Publication year 2017	Approx. 1000 journals are available	Big data characteristics	The information available could have been easier and explained elaborately
3	Big data analytics and its importance	Publication year 2019-2020	Approx. 5000 journals are available	Big data analytics	A detailed explanation is found. All the information is provided.
4	Big data security and privacy	Published year 2017-2019	More than 3000 journals are available	Big data security	A better explanation is needed. Information is not up to the standard.
5	Big data management and importance	Published in the year 2018-2021	Approx. 4000 articles and journals are present	Big data management	An elaborate description of the topic is present.
6	Drawbacks and	Publication	More than	Drawbacks of	A proper

	disadvantages of big data	year 2018-2021	1500 journals are present	big data	explanation is found and very easy to understand.
7	Big data analytics applications	Publication year 2017-2019	More than 1000 journals are available	Big data analytics applications	The information could have been more informative
8	Risks related with big data	Published year 2019-2020	Approx. 1500 articles and journals are available	Big data risks	The description was elaborate and was up to the mark.

### ***Database-3: Scopus***

Number	Content research	Filter used	Outcomes	Keywords	Assessment
1	Significance of cloud computing and big data	Published in the year 2017-2021	Approx. 2000 articles and journals are present	Cloud computing and big data significance	The explanation could have been more informative and concise.

2	Cloud computing and big data analytics	Publication year 2018-2021	More than 3000 journals are available	Cloud computing and big data analytics	Discussion related to various details have been identified and discovered accordingly in the study
3	Cloud computing and data security	Published in the year 2018-2021	Approx. 4000 journals are present	cloud computing and big data security	The explanations presented are very difficult to understand and limited. Detailed explanation should be provided.
4	Relation between cloud computing and big data storage	Published in the year 2015-2019	Approx. 1000 journals and articles are present	Cloud computing and big data storage	The proper evaluation is present with proper information.
5	Disadvantages of cloud computing and big data	Publication year 2017-2020	Total of 3000 journals are present	Disadvantages of cloud computing and big data	The details given are very informative and detailed

6	Risks of using big-data in cloud computing	Publication year 2017-2019	Approx. 3500 articles are present	Threats of using big-data in cloud computing	The threats are explained in a detailed matter
7	Limitations of cloud computing and big data	Publication year 2018-2021	A total of 2000 articles and journals are available	Cloud computing limitations	The details available could have been better and more explanation are required
8	Risks of mobile cloud computing	Published year 2017-2020	Approx. 5000 articles and journals are available	Mobile cloud computing risks	The details were informative and descriptive

## 5. Inclusion/Exclusion criterion

Number	Title of the research paper	Included/excluded	Reason
1	Data security in cloud computing	Included	The data found was relevant and informative.

2	Cloud computing risks	Included	Detailed information is present. The explanation is easy to understand.
3	Requirement of mobile cloud computing	Excluded	The information found is irrelevant and non-informative
4	Disadvantages of cloud computing	Included	An elaborate description is provided.
5	Cloud computing characteristics	Included	The information is relevant and concise. Moreover it is informative.
6	Big data analytics	Excluded	Enough information was not found to have a detailed knowledge.
7	Risks of cloud computing	Included	Detailed description is present.
8	Cloud computing architecture	Excluded	The information available was not informative and difficult to understand.

## **6. Critical evaluation of literature findings**

### ***6.1 Implications of Cloud computing and Big Data innovations***

Cloud computing and Big Data innovations can possibly upset ventures and organizations through prescient investigation, AI, and applications, bringing enormous upper hands for organizations. In this manner, when deHaan (2019) guaranteed that Big Data innovation was the driver of cloud computing selection in enormous business associations, scholastic examination was expected to acknowledge or dismiss that guarantee. To analyze proposal that cloud computing reception can be expanded by expanding value of the cloud computing through cloud-controlled business improving assistance contributions, for example, Big Data investigation and business insight, a prescient model for cloud computing selection, was made. This model incorporates Big Data technologyrelated factors with other cloud computing reception factors adjusted from the technology adoption model (TAM), and technology-organization-environment (TOE), and was tried with review information gathered from IT experts or directors by utilizing paired strategic relapse for information investigation.

The innovation business is encountering enormous development in cloud computing, Big Data, online media, cell phones, IoT gadgets, AI, and profound learning calculations. To comprehend the impact of Big Data on cloud computing appropriation, and the more extensive ramifications of Big Data innovation and cloud computing on social orders and associations, it was fundamental to examine the mechanical progression and changes in the current business scene. Elhoseny et al. (2018) expressed that for business associations to be applicable in Big Data time, they should make inventive arrangements at each level of their associations. Elzamly et al. (2017) noted down four past investigations zeroed in on IT experts' viewpoint of cloud computing selection, and they suggested extra examination including IT experts' point of view of cloud computing reception. While arising advances are explored, planned, and executed in storehouses, they offer progression in industry, field, or application.

In any case, to comprehend the all encompassing impacts of these advancements, it is important to go past the individual innovation appropriation speculations of TAM, dispersion of innovation (DOI) hypothesis and TOE structure. The exploration was expected to move from a solitary innovation selection model, hypothesis, or system to a more perplexing model with numerous

arising advancements included. Cloud computing specialist co-ops already have zeroed in on workers and capacity (Erraissi et al. 2017). Many specialist organizations were passing up on freedoms to expand cloud computing administration development by not zeroing in on expanding business capacity building items and administrations controlled by cloud computing. Elzamly et al. (2017) arranged fundamental components of cloud computing reception into three significant classifications: obstacles, helpers, and new imaginative items and administration offering. The factors that were recognized as obstacles were cost, security, and the requirement for preparing. These factors are practically identical to the expense adequacy, security viability, and saw convenience in the current model.

## ***6.2 Factors of inspiration for Cloud computing and Big Data innovations***

Three factors that were recognized as inspirations in the model introduced by Roth and von Unger (2018) were fast provisioning, decreased overhead, and administration varieties. These factors are practically identical to apparent handiness of cloud computing appropriation hypotheses. Big Data innovation coordinated cloud computing items and administrations as the inventive items and administration offering. This idea of Big Data innovation coordinated cloud computing items and administrations are tantamount to the variable seen convenience of cloud computing appropriation speculations adjusted from TAM. Factors from TAM and TOE were considered to give cloud computing appropriation related factors a hypothetical design. This investigation incorporated an assessment of six autonomous factors and one ward variable. The six free factors were, saw convenience, seen usability, security viability, the expense adequacy, aim to utilize Big Data innovation, and the requirement for Big Data innovation (Varghese and Buyya, 2018). The reliant variable, utilization of cloud computing.

deHaan (2019) uncovered that apparent usability, seen helpfulness, security, intricacy, compatibilities were the most generally estimated cloud computing appropriation factors for IT experts; and TAM, DOI, and TOE were the most regularly utilized innovation reception hypotheses and structures. Notwithstanding, there has not been any examination to test the legitimacy of cases that Big Data was driving cloud computing selection by expanding the apparent handiness of cloud computing. Another cloud computing appropriation model should be created to address cases, which incorporates factors from TAM, TOE, and Big Data innovation

factors to decide the effect of Big Data innovation on cloud computing reception. Elhoseny et al. (2018) note basic changes in the innovation scene, particularly in the space of Big Data investigation. Big data investigation is changing from understanding age from social information, recordings, and tweets to more perplexing situations, where information are produced by frameworks coordinated with human-created information. Keen frameworks are creating probably the greatest volume, quickest streaming and most complex Big Data.

These frameworks and the Internet of Things (IoT) gadgets circulate information through the cloud's foundation. Thus, the cloud is turning out to be not just the handling center of the Big Data, yet in addition the information sources, examination, and circulation foundation of Big Data. Therefore, in the 21st - century climate, to put together cloud computing reception with respect to standard innovation selection speculations and structure alone is lacking (Kim et al. 2017). Another investigation is expected to decide the elements that are driving cloud computing reception from the viewpoint of IT experts or supervisors. To accomplish that objective and to bring the Big Data innovation into cloud computing selection model, this investigation depended on the academic article composed by Varghese and Buyya (2018) analyse claims by building up another cloud computing selection model and testing that model on IT experts or directors to decide the effect of Big Data innovation on cloud computing appropriation.

## **7. Limitation and conclusion**

The prime limitation being acknowledged while preparing a literature review a vast research should be done to avoid the insufficiency of information in the content. Many times the literature review might not stand up to the mark. In detail it can be instigated that major researching options are anytime better in improving the quality of the literature review (Okour et al, 2019). The lack of detailed analysis will lead to not meeting the expectations. The required information might be present in the thesis but without proper elaboration it doesn't make a mark (Elzamly et al. 2017). Read all the journals and articles and evaluate every small detail before preparing the paper. Broaden the area of research to get a positive outcome. Organize all the details collected and try to develop the subtopics. Explore deep in the relevant articles to have a proper research about the topic. The sentences used should be logical and smooth from the very first sentence (Kacha et al. 2017). Preparing the literature review requires a thorough research which indulges

a lot of time. The changes made to the information in the literature review might help to attain high expectations (Kim et al. 2017). Review the paper and make modifications wherever required. It can be concluded that for a proper literature review research, organizing and reviewing is very important. Reviewing the content leads to realizing the faults and correcting them wherever possible.

## **Part 2: Poster**

### **1. Study Purpose (Research Questions)**

The different research questions applicable are:

- Define the working behind mobile cloud computing systems?
- What is the work of big data management in business?
- How does mobile cloud computing help in big data management?
- What are the probable options that can enhance mobile cloud usage for managing big data?

### **2. Study Background**

The purpose of this study is to research the potential behind the collaboration between mobile cloud computing and big data management. One of the advantages of mobile cloud computing is enhancement of the mobile and cloud services in terms of maximizing their capability and other advantages (Elhosenyet *al.* 2018). We can also help in managing unfavourable conditions such as power of CPU battery life and limited memory capacity. The advantage of extracting value from high volume varieties, high velocity and veracity data while simplifying the output for the users, can only be achieved by big data technology. All major corporations such as Amazon American express and Netflix are users of big data management systems. The only downside is that the cost structure is higher than the usual storage systems and also there is a violation of privacy.

### **3. Research Methodology**

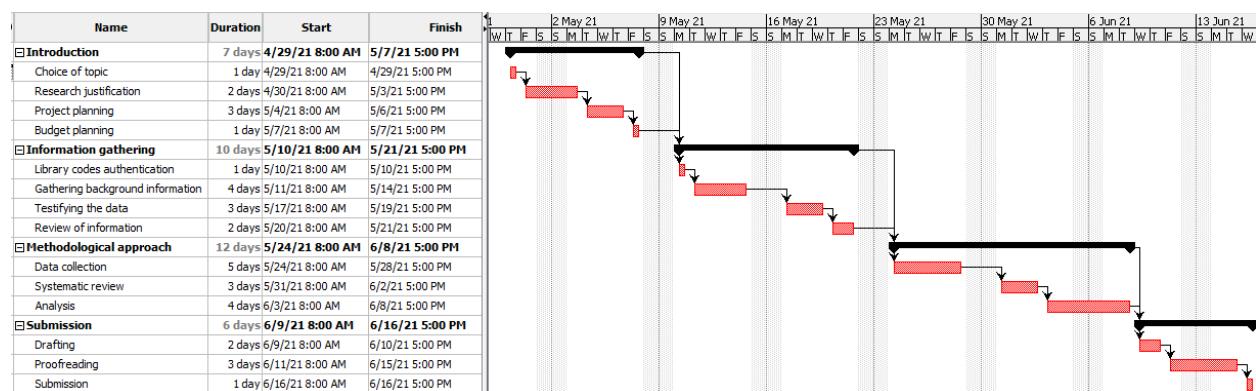
Research methodology is essential for analysing and identification of information required for the research of a topic. The general research methodology can be segmented into quantitative research, qualitative research and systematic research review. Literature review can help us in creating a systematic review method for the completion of the project (de Haan, 2019). A general overview of the people's perception about an event can be obtained by a qualitative research.

Quantitative research can be useful only when the objectives and goals of the study are confirmatory in nature.

#### 4. Methodological Evaluation

The methodology used for the completion of this project is literature review. This method can help in extracting the points required for generating a systematic review of the research topic. A systematic review is inclusive of a critical summary of the number of variables which can be reproduced again if required. The determination of the outcomes is done from the resources available. The literature review provides a concrete foundation upon which other implementations can be structured for enhancing the existing conditions. The systematic methodology has the capability of producing accurate diagnosis and can help in creating a proper conclusion along with substantial proof of analysis.

#### 5. Timelinewith ethics



**Figure 1: Timeline**

(Source: created by author)

The consideration of ethics is one of the essential components required for conducting a study or research (Roth *et al.* 2018). The literature review for the purpose of this project should be done with an unbiased and neutral mind set. The sourcing of the necessary data should be done from reputed sources and of high quality. Respect should be given while suggesting new implementation and changes. The privacy of individuals from whom data has been collected as to be ensured. No deception from the study aim should be tolerated. The entire research work is

exclusive of any misleading information or data or knowledge from any funded sources. The entire literature review adheres to the data protection act 1998.

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