

## Awareness of Cloud Computing Technology at Mumbai Suburban College Libraries

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### ABSTRACT

*The purpose of this paper is to investigate the awareness of cloud computing technology at Mumbai suburban college libraries and the main aim of this study is to identify the challenges faced by the college librarians to implement cloud computing technology found a lack of funds is a challenge faced by college libraries. in this digital era users, students and researchers want more information, Knowledge of digital media and cloud technology is the solution for users, students, and researchers, This paper is more research to be carried out to further investigate the adoption barriers, challenges and the adoption process. Numerous researchers are exploring various technical aspects of cloud computing in great detail. However, there is a need for further investigation into the legal framework surrounding cloud adoption in academic libraries.*

**KEYWORDS:** Cloud Computing, Software, Hardware, SAAS, PAAS, IAAS.

### INTRODUCTION

The rapid advancement in information technology has facilitated the emergence of network-based services, such as cloud computing. This technology offers significant benefits for storing, accessing, and sharing data, as well as for utilizing applications and computing resources over the web. Cloud computing represents a new phase in the evolution of library services and resource sharing within the digital realm. It simplifies operations by eliminating the need for physical presence on campus and reduces concerns related to hardware malfunctions, software installation, and updates.

In India, the adoption of cloud computing technologies in libraries is still in its early stages compared to more developed nations like the USA, UK, and Russia. However, there is a growing trend among various types of libraries in India including research, public, university, and special libraries to embrace these technologies.

In contemporary libraries, the adoption of cloud computing has become increasingly popular due to its numerous benefits. Libraries today often rely on automation, supported by various software applications that streamline their operations. Traditionally, these software applications require costly licenses, which can be prohibitively expensive when needing to equip numerous computers within a library.

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Cloud computing addresses this challenge by providing a cost-effective solution. By hosting software on remote servers, libraries can access and manage their applications without the need for extensive on-site hardware. This setup not only reduces the cost associated with purchasing individual licenses but also mitigates the risk of data loss due to hardware failures.

Moreover, cloud services offer robust support for essential library functions, including acquisitions, cataloging, and digital content management. They also facilitate the integration of advanced technologies and compliance with various standards relevant to library and information science, such as MARC21, XML, Z39.50, and Unicode. This approach enhances the efficiency and effectiveness of library operations while ensuring that they remain current with technological advancements.

### **Definition of Cloud Computing**

According to NIST ( National Institute of Standards and Technology 2011) “ Cloud Computing is Model for Enabling convenient on demand network access to a shared pool of configurable computing resources that can be rapidly provisioned and released with minimal management effort or service provider interaction

### **Service Models**

#### **1. SAAS**

Software as a Service (SaaS) delivers software applications via the cloud, allowing users to access the software and its functionalities remotely. Instead of purchasing and installing software on local devices, users can use the software over the internet, with the provider managing and hosting the application software Example: Google, Twitter, Facebook , etc.

#### **2. PAAS**

Platform-as-a-Service (PaaS) refers to a cloud computing model that provides a platform allowing developers to build, deploy, and manage web applications quickly and efficiently. With PaaS, users do not need to purchase or maintain the underlying software and network infrastructure, as these resources are provided and managed over the Internet.

#### **3. IAAS**

Infrastructure as a Service (IaaS) is a cloud computing model where servers, storage, networking and operating systems are provided as on-demand services. This approach allows users to access and manage these resources over the internet without the need for physical hardware or infrastructure management.

### **Types of Cloud Storage**

#### **1. Public Cloud Storage**

Everyone can have access to the cloud. They were the first clouds that were developed and offered to the users.

#### **2. Hybrid Cloud Storage**

The public and private clouds are combined and there was recognized a private cloud

#### **3. Private Cloud Storage**

This kind of cloud was developed inside an institute and only the employees of that institute have access to the cloud.

#### **4. Community cloud**

All these types that were presented above are helping to create a community cloud and it was specially designed for a particular industry need. The infrastructure for a particular industry need.

#### **OBJECTIVE**

- ✓ To find out awareness of cloud computing technology of librarian in college libraries.
- ✓ To determine the application of cloud computing in college libraries.
- ✓ To identify the challenges faced by the librarian to implement the cloud computing technology.

#### **Scope and Limitation**

This study aimed at studying the awareness of cloud computing technology at college libraries. The study is limited to the find awareness the cloud computing in libraries and the regional scope of the study is limited to Mumbai suburban of Maharashtra It covers only Mumbai suburban college libraries Arts, Commerce, and Science only the sample is restricted only to college libraries.

#### **Research Methodology of Present Study**

The Selection of the methodology of the study depends upon the aim of the study. The present research aim is To identify the awareness of cloud computing technology at Mumbai suburban college libraries Librarian In Keeping with the aim of the study the researcher was carried out in the survey method and interview method.

#### **LITERATURE REVIEW**

**Adrina, Mijuskovic & Mexhid, Ferati (2016)** describes that in this paper The study investigated the awareness of Macedonian and Dutch users regarding the security and privacy vulnerabilities associated with cloud-based services. The findings suggest that while users are generally conscious of privacy and security concerns, they often lack detailed knowledge about specific issues and the available solutions.

**Ahmed, AliZanyar & Ghareb, IsmaalMazen & Jaffar, Ako Abubakar (2018)** states that cloud computing is a new method for developing a significant option for the institution. In cloud computing technology The information is stored on a system or server, allowing clients to access it as needed.

**Bansode, S.Y. & Pujar,S.M.(2012)** states that libraries are using computers for running services it involves investment in hardware, software and for the up gradation. But now Cloud computing represents a new class of services delivered over the Internet, revolutionizing how people utilize computing power it is very low-cost and may help libraries to undertake modern ICT activities.

**Bonde, Suresh Hemlata (2015)** States that nowadays Cloud computing has emerged as a highly popular virtual technology for delivering services efficiently. It aims to maximize the effectiveness of shared resources, enabling enterprises to run their applications more quickly, effectively, and with reduced maintenance.

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**Bhardwaj, Pankaj (2018)** states that this modern era, libraries are moving to in advanced level called cloud computing libraries. It should be adopted as a new It technology. In today's scenario, to deliver library services-based cloud computing technology has become an impressive way of providing services.

**Chopra,Manoj & Mungi Jai &chopra, kubushna (2013)** describes that Cloud computing technology has evolved into a flexible platform for both delivering and consuming services in the realm of service-based computing. In organization this is a new technology and various sectors using traditional infrastructure a cloud will enable users to consume.

**Janakairman, A. & Subramaian, N. (2015)** examined the impact of computing technology in libraries, present digital era many libraries use the cloud computing technology has co-operative sharing of hardware service and data that resulted in the resulted in the total cost of managing library services. It is benefit to use the cloud computing technology in libraries.

**Ragevendra R. & Indrani, V. & Narayana, Poornima (2016)** states that libraries resources have partially moved to E-World In recent years. The impact of cloud computing technology has been tremendous on the library and information centers and the developments are for all to witness adoption is for all adoption of cloud computing is not an easy task for libraries the advantages and disadvantage features and its implications have to be seriously considered before planning data on the cloud.

### **Shaw, Amit Kumar (2013)**

States that cloud computing is among the most popular recently developed concept. It is useful for library automation and digital library resources to improve information sharing capabilities, improve resource utilization and user can receive data from anywhere thus libraries are trying to improve their services in today's information society and cloud computing is one of the efficient ways to negotiate change into the future.

## **DATA ANALYSIS**

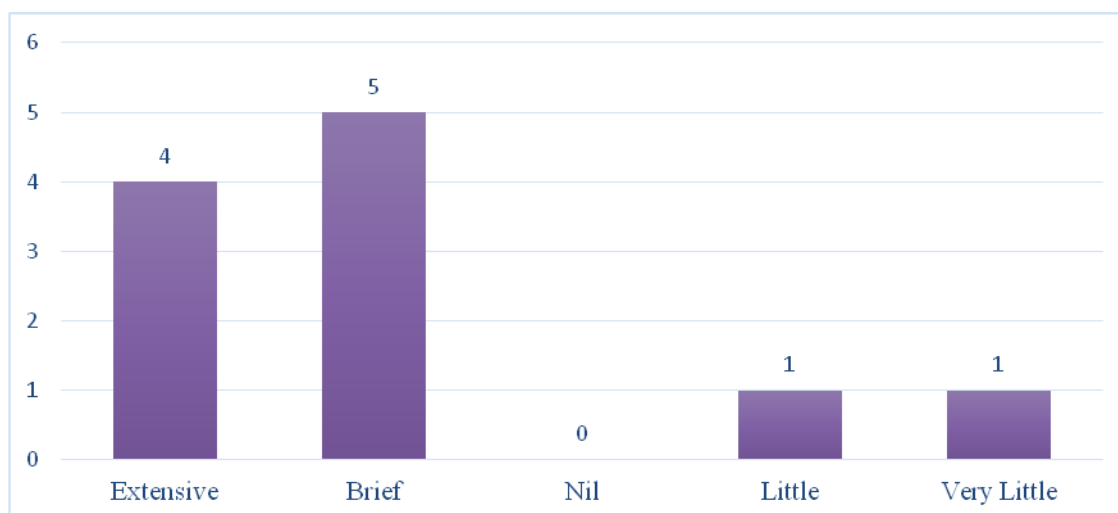
Data analysis involves examining, cleaning, transforming, and modelling data to uncover valuable insights, draw meaningful conclusions, and aid in decision-making. In this study the 3 question is important and explains this study objective, What are the conditions present in Mumbai libraries? This process not only helps in summarizing large volumes of information but also provides insights that inform decision-making and contribute to knowledge advancement in a particular field.

### **1. Are you aware about cloud computing concept?**

**Table 1.1.** Awareness about of cloud Computing Concept

<b>Option</b>	<b>Response</b>	<b>Percentage</b>
Extensive	4	36%
Brief	5	46%

Nil	0	0%
Little	1	9%
Very Little	1	9%
Total	11	100%



**Figure: 1.1** Awareness about cloud computing concept

Table 1.1 and Figure 1.1 show that awareness about cloud computing 36% of librarians say and respond they are Extensive awareness of the cloud computing concept. Extensive means having a large amount of information about cloud computing concepts.

46% of librarians are briefly aware of the cloud computing concept. Brief awareness means a short amount of information about cloud computing concepts.

0% of respondents are Nil aware of the cloud computing concept. Nil means information about the cloud computing concept.

9% of respondents are little aware of the cloud computing concept. Little information about the cloud computing concept.

9% of respondents are very little aware of the cloud computing concept. Very little information about cloud computing concept.

Minimum librarians are aware of the cloud computing need in this digital era librarians should update their knowledge.

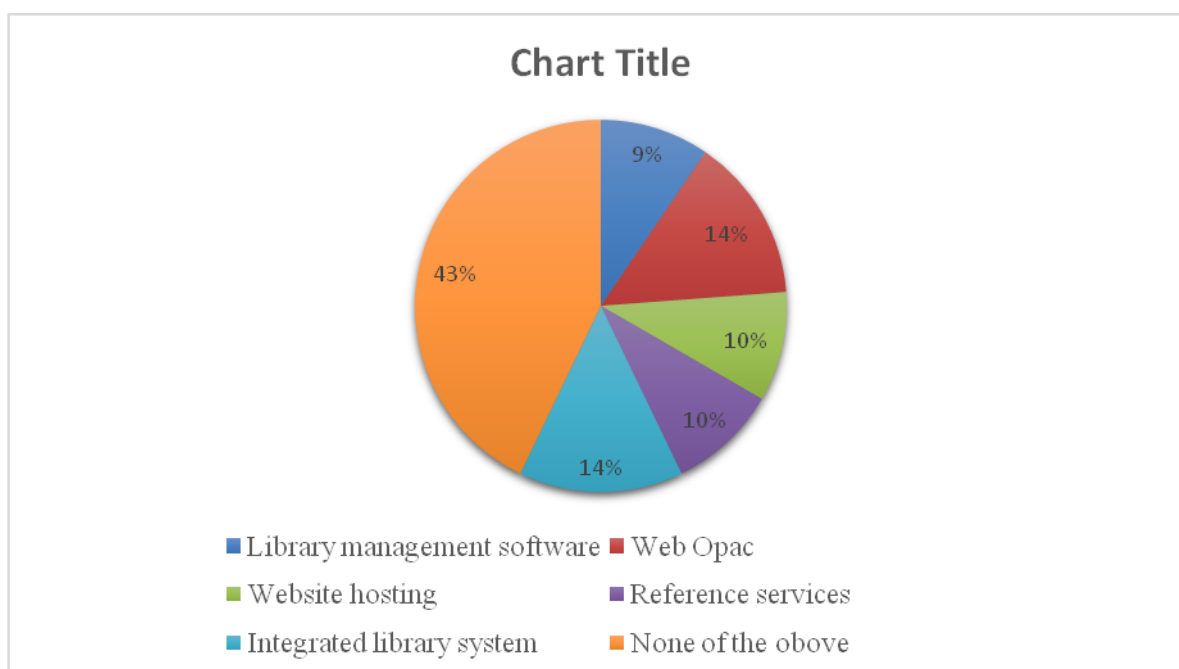
## 2. If yes, which areas in your library use which cloud computing technology?

**Table 2.1** Any areas in library cloud computing uses

Options	Response	Percentage%
Library Management Software	2	10%
Web OPAC	3	10%

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Website Hosting	2	11%
Reference services	2	11%
Integrated library system	3	11%
None of the Above	9	47%
<b>Total</b>	<b>18</b>	<b>100%</b>



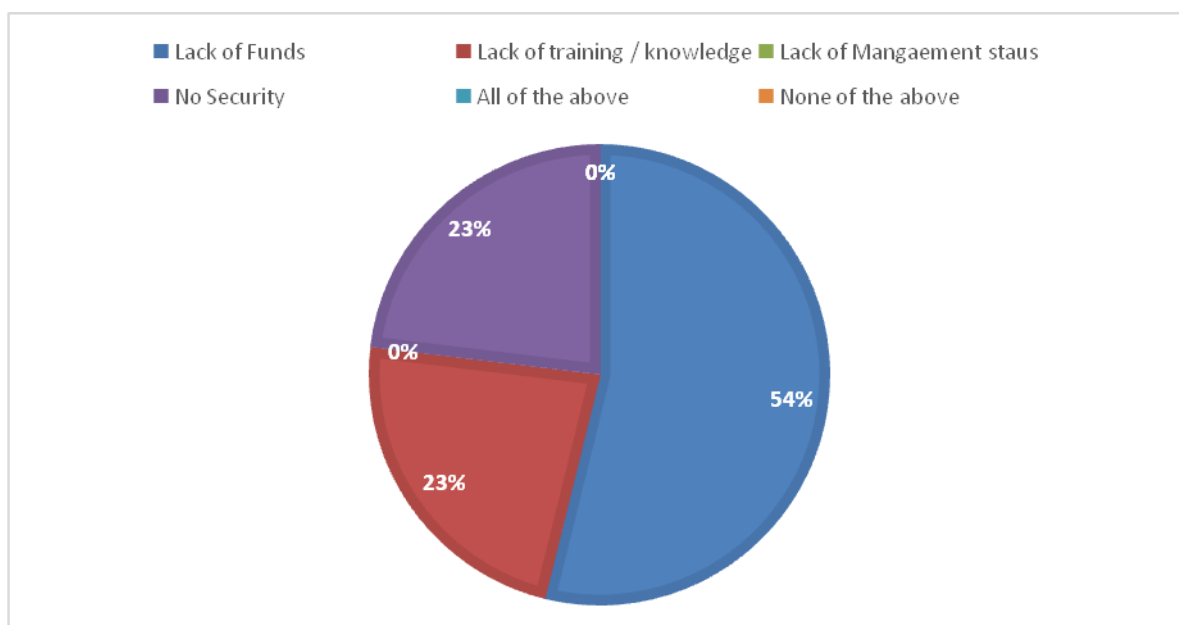
**Figure 2.1** Any areas in library cloud computing technology uses

In table 2.1& figure 2.1 shows that the in 47% are librarian are not use the cloud computing technology at college libraries. Out of 11 only 2 are all areas in library uses the cloud computing technology.

### 3. If No, in your view what do think challenges while implementing the cloud computing?

**Table 3.1** Challenges to implement the cloud computing technology

Options	Response	Percentage%
Lack of Funds	7	54%
Lack of training/ Knowledge	3	23%
Lack of Management status	0	0%
No security	3	23%
All of the above	0	0%
None of the above	0	0%
<b>Total</b>	<b>13</b>	<b>100%</b>



**Figure 3.1** Challenges to implement the cloud computing technology

In table 3.1 and figure 4.13 Shows that the 54% librarians are respond the lack of funds are the main challenge and barrier for implementing to cloud computing technology. 23% is lack of training/knowledge is a challenge for implementing the cloud computing technology in library 23% is No security is a technical challenge for implementing cloud computing in the library.

## CONCLUSION AND RECOMMEDATION

Findings from data analysis majority of respondents are not aware of the cloud computing concept many librarians have limited knowledge and understanding of cloud computing concepts. Some did mention they use cloud computing networking sites and Google apps. However, there were challenges found in implementing cloud computing in libraries many librarians responded to the lack of funds, lack of training and knowledge, and technical security issues.

## RECOMMEDATION

### 1. Policy Recommendation

The government should establish robust regulatory bodies to ensure the quality of cloud services, supported by comprehensive laws and policies. While technological advancements are crucial, they alone may not make cloud computing a mainstream technology. To encourage broader adoption, there must be a focus on collaboration between cloud service providers and the development of strong, specific legislation. Currently, cloud computing is primarily governed by general internet regulations.

### **2. The need of awareness about cloud computing concept**

The research has indicated the need of awareness about the cloud computing concept College libraries because to implement the cloud computing technology at their libraries. This digital era of cloud computing is beneficial for libraries to provide 24\*7 services for users.

### **3. Colleges Libraries should adopt cloud computing technology for the services and for promoting of the user services.**

In modern era Users, Students, and Researchers expected more facilities related with their studies, research topics, etc. and they want 24\*7 services from libraries that's why college Libraries should adopt the cloud computing technology to provide 24\*7 services for the library user.

## **REFERENCES**

- [1] Alemkhlaifi, Nabil & Al-Hasedi & Mohsen M. Abdulqadar (2018). Cloud computing awareness among practitioners in Yemen universities: an exploratory study. *Journal of science and technology*, 23(1) <http://doi.org/1020428/JST.23.11>
- [2] Apurva saxena & Pratima Gautam (2019). The era of cloud computing: A recent survey. *International Journal of advanced research*. 7(5), 198-206. Reterived from <http://dx.doi.org/10.21474/IJARO/9022>
- [3] Bala, Rajani (2012). How cloud computing will affect college libraries. *International journal of information technology and knowledgemanagement*, 5(2), 381-383. Retrieved from <http://www.ijitkm.com>
- [4] Bansode, S.Y & Pujar, S.M. (2012). Cloud computing and libraries. *DESIDOC journal of library and information technology*, 32(6),506512. Retrieved from <http://w.w.w.publications.drdo.gov.in>
- [5] Bhardwaj, Pankaj K. (2018). Cloud computing and libraries. *Journal of advancements in library science*, 5(2),55-59.Retrieved from <http://w.w.w.Stmjournals.in>
- [6] Bonde, Hemlataresh (2015). Cloud computing and its impact non library practices and services. 'Asian journal of multidisciplinary studies' 3(1).Reterived from <http://www.Ajms.co.in>.
- [7] Chopra, Manoj&Mungi, Jai & Chopra, Kubushana (2013). A survey on use of cloud computing in various fields. 'International journal ofscience engineering and technology research' (2),480-488.Retrieved for <http://www.ijetr.com>.
- [8] Jadia,Manishkumar& Rajput P.S (2012). Cloud computing technology for libraries. In R.M. Prasher, R.K. Sharma ICT based information management in Indian libraries.NewDelhi:Book well. <http://www.Technopedia.com>
- [9] Janakirman, A. & Subramnian, N. (2015). Impact of cloud computing in research and development libraries. In B. Ramesh (Ed.), Revolution of digital environment on library and information services.334-336.Delhi, B.R. Publishing
- [10] Shaw, Kumar Amit (2013). Cloud computing from libraries: An economic strategyInternational conference on academic conference' Reterieved from <http://eprints.rclis.org/19359/>