DRIVERS AND BARRIERS OF ADOPTING CLOUD COMPUTING IN HIGHER EDUCATION

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Abstract

India's education system is still struggling to meet the needs of its pupils through the development of innovative, personalized learning spaces and resources that go beyond the walls of the classroom. As a result of the allure of a new, seductive technology, organizations that are having trouble keeping up with the demands for technology may find that employees will seek out and implement public cloud solutions without the proper permission, and such implementations may do little to improve learning outcomes. The purpose of this research is to examine the necessity of incorporating cloud computing into educational activities at higher education institutions, as well as the ways in which this technology might be employed effectively to improve educational outcomes. The study also investigates the drivers and barriers for adopting cloud computing in higher education institutes. This study is descriptive in nature. Primary data is collected with the help of questionnaire. The sample size is 200 who are academic staff in universities.

Keywords: Cloud computing, Education, University, Barriers etc.

INTRODUCTION

Computing on the cloud is quickly becoming a popular topic in both the IT sector and academic circles. Just like reliable utilities like water and electricity, it makes it easier to make use of computing resources. It's easier to gain access to more reasonably priced, versatile, and readily available processing power on the Cloud. Nonetheless, technology has improved the value of computing services and operational administration in educational institutions and revolutionized the way they function. It has been characterized in different ways by various academics. According to the National Institute of Standards and Technology,

"Cloud computing is a model for enabling convenient, on-demand network access to a shared pool of configurable computing resources (e.g., networks, servers, storage, applications, and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction."

Because its leaders want to ensure India's continued status as an economic and political powerhouse, they are making significant reforms to the country's educational system within the broader context of these ambitions.

One goal is to enhance all levels of the Indian education system, especially higher education, by incorporating more and better forms of information and communication technology into classrooms and administrative processes (ICTs). The adoption of cloud computing is one component of ICTs that may help bring about the comprehensive reforms that are being considered for the Saudi education system.

The trend toward cloud computing has entered the educational sector and is becoming ingrained in the organizational strategies of institutions. Until recently, the concept of "cloud computing" did not really exist. It's currently a major movement in the world of computers.

The cloud is gaining popularity in many different sectors, including government, business, and education, because of its convenient and flexible features and uses. The government of Saudi Arabia has been working to modernize its educational systems by adopting the most effective and efficient educational technology techniques, so it's no surprise that this technology has caught the attention of the academic community. Despite its obvious benefits, many educational institutions have had a hard time integrating cloud computing due to the complexity of administering cloud systems. Moreover, there hasn't been enough research done by experts to support the widespread adoption of cloud computing, which has slowed its introduction.

One of cloud computing's primary selling points is the money it can save businesses on information technology. Cloud computing allows businesses to avoid investing in costly IT infrastructure by renting computer power and paying only for the services they actually use. As an added bonus, cloud computing enables businesses to dynamically source software and computer resources in response to fluctuating consumer demand. Outsourcing IT can cut

costs and provide easier access to specialized data. By utilizing cloud computing, IT infrastructure costs can be drastically lowered.

These features contribute to cloud computing's enhanced efficiency, scalability, dependability, and responsiveness. Because of the shared arrangement of computer resources and the provision of on-demand scalability with pay-per-use, cloud computing also lessens the utilized energy by lowering carbon emissions.

2. REVIEW OF LITERATURE

Al Rawajbeh, Mohammad &Hadid, Issam& Al-Zoubi, Hassan. (2019). Cloud computing (CC) has begun to play an important role in improving the quality of higher education. Many valuable internet-based services are available without the need for additional hardware or software, and at a low cost. Rather than focusing solely on the positive aspects of CC, this study tries to highlight the primary problems and concerns of adopting CC. CC concepts, models, and services have a favorable influence and considerable impact on higher education institutions, according to the study. Before opting to implement CC in a university setting, researchers had to overcome a number of obstacles and concerns.

Almiklafy, Nabeel& Al-Hashedi, Abdullah Hussein & Mohsen, Abdulqader& Ben Othman, Mohamed. (2018). Higher education institutions are adopting a new IT model known as "cloud computing" in order to obtain a competitive advantage. The purpose of this study is to determine how well-known cloud computing is among Yemen's higher education institutions. An academic and administrative staff sample was used to gauge the participants' familiarity with this new technology, the extent to which they use it, and their thoughts on its benefits and drawbacks. The findings reveal that higher education institutions have a high level of understanding of the importance of cloud computing.

Steve Jones et al., (2017) Examine the use of cloud computing in a real-world setting and from a user's perspective by the United Kingdom's local government authorities It concludes that the need for cloud computing solutions develops tremendously as more firms embrace current methods of data storage and distribution.

Lovedeep et al. (2017) how to enable school administrators manage instructor profiles, establish accounts, assign classes, and maintain time tables by integrating the cloud into the educational system A teacher can prepare and upload study materials, power presentations and videos for the upcoming lesson from home. Access to study materials, power points, results and assignments can be gained by logging in. Attend meetings to learn about their child's progress in comparison to their previous successes.

3. METHODOLOGY

- Research Design: this study is descriptive in nature.
- Data collection: primary data is collected with the help of questionnaire which was distributed to academic staff of private universities.
- Sample size: the sample size is 200 which includes academic staff working in private universities
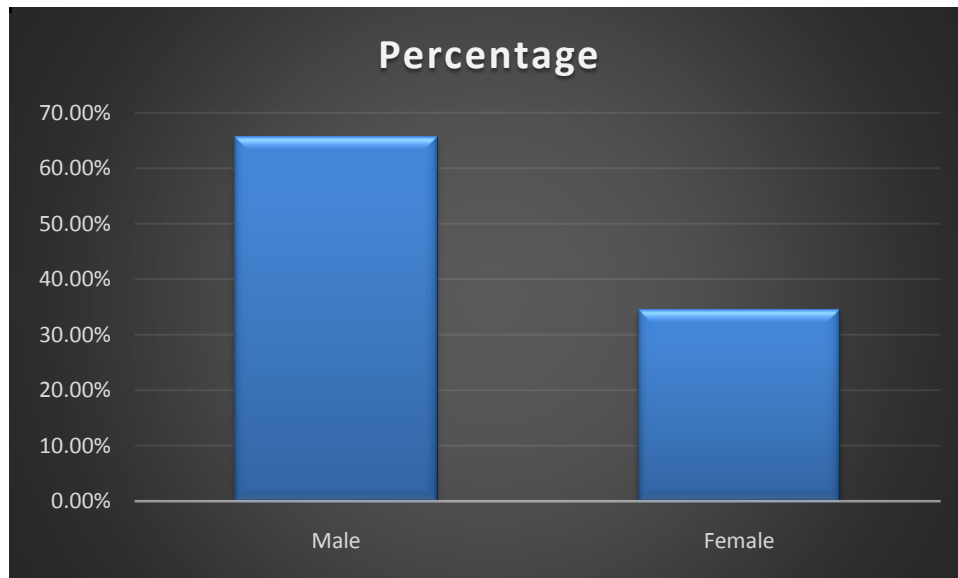- Statistical tools: Percentage

4. DATA ANALYSIS AND RESULTS

4.1 Demographic details

The current section will present information on the participants' demographics, which will provide an indication of the results provided. The results are shown in Table (1) demonstrate that most of the participants were males (65.5%) and remaining 34.5% were females from private universities.

Table 1: demographics of research participants

Gender	Percentage
Male	65.5%
Female	34.5%
Total	100%

Figure 1: demographics of research participants

4.2 Usage of cloud computing by academic and s administrative staff

The academic and administrative employees use a variety of cloud computing platforms, as shown in Table (2). The majority of participants (98%), used social media (87%), email (97%), and data storage (65%). However, only a modest proportion of them (27% and 24%) utilised online hosting and remote accessibility. Only 12% of respondents said they had used cloud computing for software development.

Table 2: Usage of cloud computing by academic staff

Statements	Responses
Internet	98%
Email	97%
Data storage	65%
Remote accessibility	24%
Social media	87%
Web hosting	27%

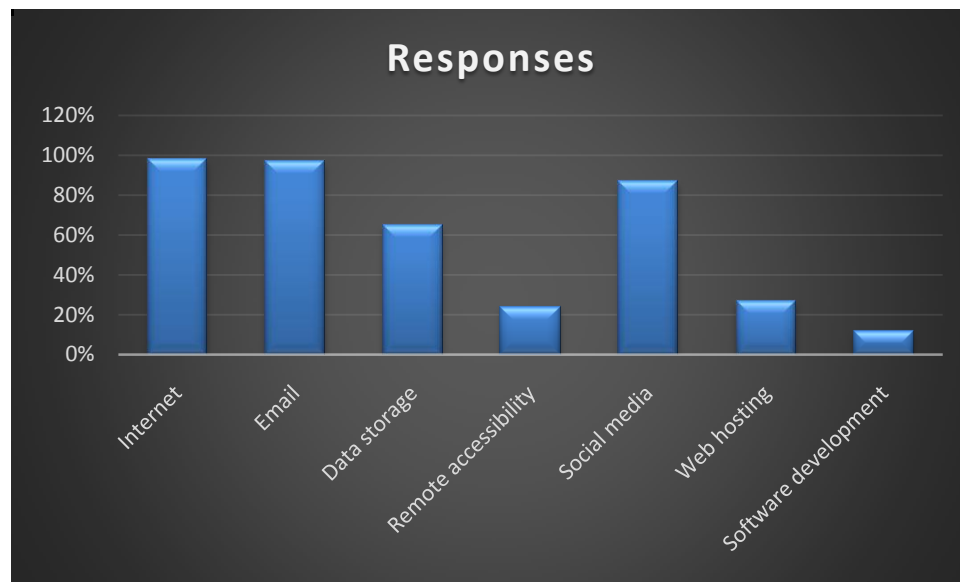|	
Software development	12%

Figure 2: Usage of cloud computing by academic staff

4.3 Drivers and barriers for adopting cloud computing

Table (3 and 4) illustrates the factors influencing cloud computing adoption and its obstacles. According to the findings, cost-effectiveness (69.4%), mobility (45.8%), and improved team communication (38.4%) were the main factors in driving colleges to use cloud computing. However, security worries (86.1%), privacy worries (67.3%), and cloud computing lock-in (45.5%) were the biggest deterrents to adoption. Only 5% of people claimed to be problem-free.

Table 3: Drivers for adopting cloud computing

Statements	Responses
Enhanced availability	30.5%
Cost-effectiveness	69.4%
Elasticity/scalability	23.8%

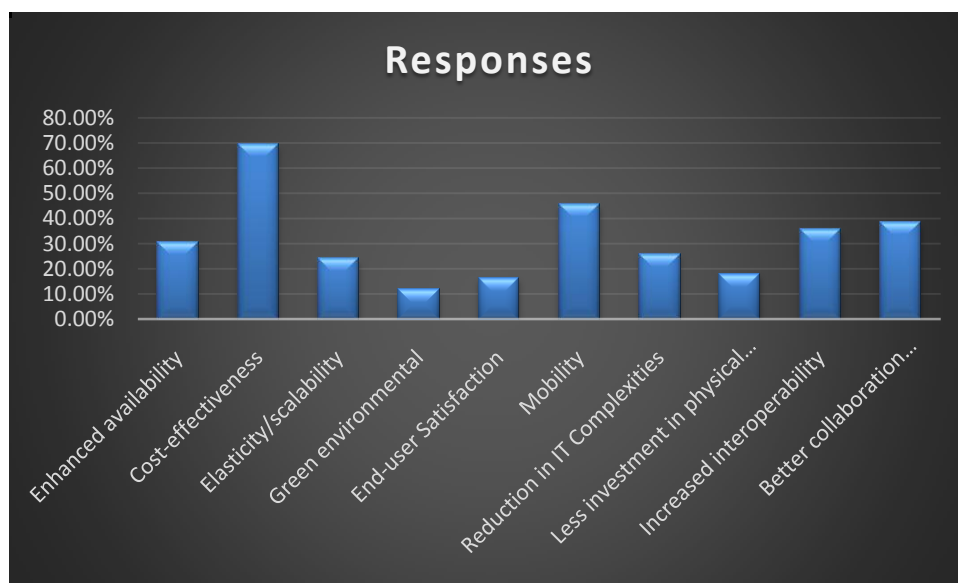|	
Green environmental	11.9%
End-user Satisfaction	16.4%
Mobility	45.8%
Reduction in IT Complexities	26%
Less investment in physical assets	18%
Increased interoperability	35.8%
Better collaboration among teams	38.4%

Figure 3: Drivers for adopting cloud computing

Table 4: barriers for adopting cloud computing

Statements	Responses

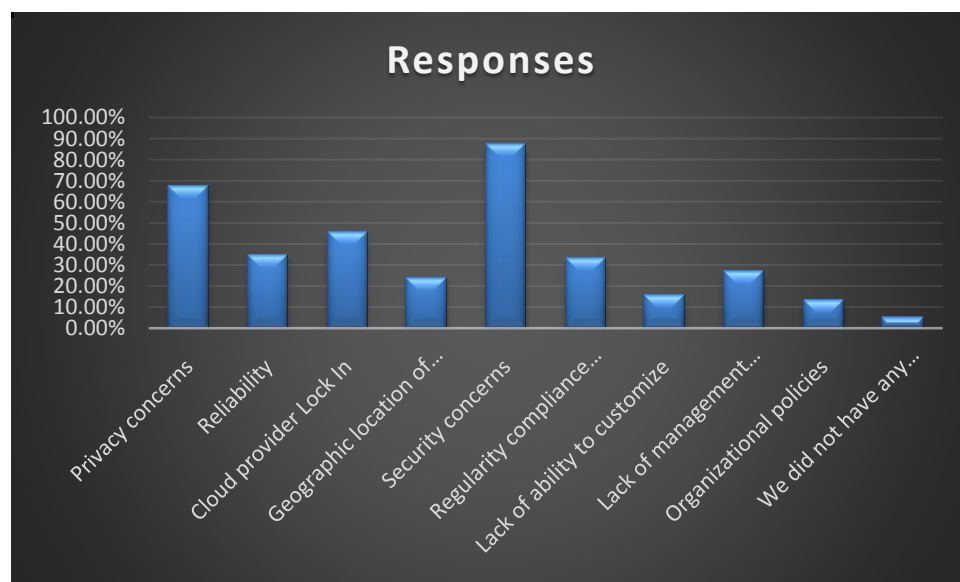|	
Privacy concerns	67.3%
Reliability	34.8%
Cloud provider Lock In	45.5%
Geographic location of cloud provider data centers	23.9%
Security concerns	86.9%
Regularity compliance concerns	33.4%
Lack of ability to customize	15.7%
Lack of management understanding	26.7%
Organizational policies	13.4%
We did not have any concerns	5.0%

Figure 4: barriers for adopting cloud computing

5. CONCLUSION

In order to better understand how cloud computing might be used to create a conducive digital learning environment, this research has focused on the elements that are currently influencing its acceptance in educational institutions. According to the results, there is widespread comprehension that migrating to the cloud may result in a more productive and stimulating classroom setting. Cloud computing has been adopted by educational institutions in order to create a digital learning environment, but it has also been driven by other factors such as lower costs, more scalability, and better cooperation and connection. The scope of this setting might include not just a "digital campus," but also digital education and research. The study's findings may be utilized as a road map by education's upper echelons to speed up the use of cloud computing and ease the transition from legacy to modern teaching methods. This research highlights the role that cloud computing may play in creating a digital educational setting in India.

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