
RESEARCH ARTICLE

A Study of Organizational Changes that Occur to the Adoption of Cloud Computing Technologies in Organizations: Ministry of Communication and Information Technology in Afghanistan

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ABSTRACT

Cloud computing services such as file storage and big data analysis provide cost effective, secure, flexible and reliable services to their users; however, their advantages, the adoption of many cloud services is still limited, and many organizations are unsure of adopting cloud technologies for various reasons this study using a systematic review of the factors influencing organizational regarding the adoption of cloud computing technologies, categorize and compare these factors and show that much of the literature has highlight the technical aspects of technology adoption, such as cloud security further show that factors such as top management support, relative advantage, cloud complexity, and competitive pressure are the most important factors affecting organizational attitudes toward cloud technology adoption. Furthermore, analysis of interview data collection techniques showed that cloud computing technologies affect the structure, size, tasks and work processes of organizations. These variables change at different levels. The findings showed that IT jobs have the greatest impact on cloud computing readiness and performance. Additionally, the results showed that organizations that adopt cloud technologies integrated some departments, increased work speed, removed some duplicated steps, overcame management changes, centralized IT works and removed some traditional hierarchical parts.

KEYWORDS

Cloud Computing, Technology, Adoption, Organizational Factors and Systematic Method

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1. Introduction

Today, the Internet has had many effects on our lives; the rapid development of the use of portable and hand-held devices to send information in the shortest possible time around the world has changed even the way we do our daily tasks, but the adoption of improvements has brought about changes in the performance of organizations and small businesses around the world. Since innovation is necessary in the organization, they should consider that in this era of financial recession around the world, companies and organizations are looking for technological advancement to prepare their organization for today's technology (Farid & Shoshtari, 2014). Cloud computing offers a wide range of potential benefits and reduces costs, making great steps to meet the needs of organizations, increasing transparency, natural benefits and reducing carbon impact, skilled management, elevating assets and increasing mobility. Cloud computing, in a general sense, changes the way organizations use data and advances in communication. (Pakistan Cloud to Start with Approach, 2022). Cloud computing is defined by the National Institute of Standards and Technology (NIST) as a model for network access to on-demand and flexible computing resources. Among these computing resources, we can mention networks, servers, capacity media, programs and management. "The given management can be made available at a low cost and with minimal management effort" (Kiadhi and Mohammadi, 2013). the daily use of cloud computing technology in organizations is increasing; every user of Hotmail, Yahoo Mail or Gmail communicates with and uses cloud

computing. The three main service models of software as a service (SaaS), infrastructure as a service (IaaS), and platform as a service (PaaS) can be used to categorize cloud computing services. Any software that can be accessed through a web browser, such as email as a service (EaaS), as well as blogs and applications for handheld devices, all use SaaS services; SaaS is the technology behind all Google apps, including Gmail, Google Calendar, Google Docs, and Google Drive. Currently, when someone signs up for Google's Gmail email service, they access email through a remote Google app that is not installed on the user's computer when a user sends an email to another user (Segal, 2013). The adoption of cloud computing services in organizations, government and even education is growing rapidly. Cloud computing provides an opportunity for organizations in developed countries to obtain the benefits of technology. Today, cloud computing technology has many advantages and will change the management of data, services and access to digital content. (Cassandra, 2016).

1.2 Review of related literature

There are many studies in the literature on the articles that have been published in various scopes and focused on the examination of these studies. In our study, we included a detailed review of these literature review studies while selecting these studies. Care has been taken to systematic literature review. They contain, for this reason, comprehensive review and survey articles published in this field have been reviewed. Table 1.1: Summary of previous work or studies

Table 1.1: Previous studies conducted on cloud computing adoption

| N O | Author and Year | Sample Taken | Dependent Variable | Findings/Independent variables |
|------------|---------------------------|---------------------|---------------------------|--|
| 1 | (Pathan et al., 2017) | Pakistan | CC adoption | Relative advantage, compatibility, complexity and cost reduction |
| 2 | (Al Mudawi et al., 2020) | Ghana | CC adoption | Technology (relative advantage, security concern), Organization (top management support, technology readiness), environment (trading partners' pressures and competitive pressures) |
| 3 | (Dadhich et al., 2021) | Oman | CC adoption | Self-efficacy, perceived usefulness, trust, perceived ease of use, and job opportunity |
| 4 | (Oliveira et al., 2014) | Portugal | CC adoption | Technology (relative advantage, complexity, technology readiness), Organization (top management support, firm size), environment (competitive pressures and regulatory support) |
| 5 | (Ji & Liang, 2016) | Taiwan | CC adoption | Technology (relative advantage, trial ability, complexity), Organization (top management support), environment (regulatory an security issues) |
| 6 | (East et al., 2014) | Taiwan | CC adoption | Relative advantage, technology readiness regulatory issues and security concerns |
| 7 | (Nasional, 2017) | North east England | CC adoption | Relative advantage, geo-restriction, uncertainty, compatibility, size, trial ability, prior experience, top management support, innovativeness, market scope, industry, supplier efforts |
| 8 | (Gangwar, 2017) | Singapore | CC adoption | Ease of use and convenience, security, privacy, cost reduction, reliability |
| 9 | (Alghushami et al., 2020) | | CC adoption | Technology, organization and environment Factors. |

| | | | | |
|----|------------------------------------|--------------|-------------|--|
| 10 | (Olumayowa Omozebi,2010) | Nigeria | CC adoption | Structure, Culture, Task and Procedures, IT Provision |
| 11 | (Ali Al Hadwer,2022) | Saudi Arabia | CC adoption | Relative advantage, compatibility, size, trialability, prior experience, top management support, |
| 12 | (Farid, S., & Shoshtari, M. 2014.) | Iran | CC adoption | Security issue, Relative advantage, cost saving, Top management support |

1.3 Cloud Computing Service

The cloud computing service model basically provides three main types: (1) Software as a Service In (SaaS), the service provider offers space, platform and software application as a service to end users. In this service, software is provided as a service for customers. Users have no control over the platform and cloud infrastructure and have limited control over software configuring. (Hadwer et al., 2022). (2) Platform as a Service In (PasS), the service provider rents the space and platform to the user. For example, if a user needs an email system or database software for their business, they can use a third party computing service that provides email and database solutions. Ullah & Saeed, 2020 state that the software creation platform is provided for users. Users can run their own software or use software created by other users. Microsoft Azure is an example of this service (3) Infrastructure as a Service (IaaS) only provides space to customers, where all the hardware (physical machines, virtual machines, virtual storage, etc.) to run a business is provided by CSPs, and customers install their own application software and manage IT infrastructure is provided as a service to customers these infrastructures include hardware, software, computing power, memory, etc., which are provided by the virtual machine (Kiadehi & Mohammadi, 2014; Ullah & Saeed, 2020).

1.4 NIST defined four deployment models for cloud computing.

National Institute Standard Technology divide cloud computing into four models: (1) Public cloud in this model, the cloud computing infrastructure is shared between different users; the infrastructures of different users are separated by virtual machines, and users do not have access to the information of other users this service has a low price and is offered to all customers (Kiadehi & Mohammadi, 2014). The cloud infrastructure is provided for general use by the public. (Pakistan Cloud First Policy, 2022). (2) Private cloud in this model, the cloud infrastructure is provided separately for customers. Cloud infrastructure can be internal to an organization or provided by external providers. This mode is privately owned and provided for specific users or organizations (Kiadehi & Mohammadi, 2014). Cloud infrastructure is provided for exclusive use by an organization (Pakistan Cloud First Policy, 2022). (3) Community cloud in this model, organizations with a common mission or security considerations can use community-based cloud computing services; these communities have a common focus and policies (4) Hybrid cloud This model is a combination of the previously mentioned models and can be used for special needs organizations or users can use a combination of public and private cloud to choose cloud computing services (Kiadehi & Mohammadi, 2014). A hybrid cloud is a solution that combines one or more refer cloud deployment models (Pakistan Cloud First Policy, 2022).

1.4 Impact of Cloud Technology on Organizations

Previous research has shown how the adoption of new cloud computing technologies affects various organizational components such as size, tasks, structure, and IT job performance; in this research, it has been shown that there is a direct relationship between organizational variables and information technology organizational structure can also be more affected these four variables are interdependent, meaning that any change in one affects the other three variables therefore, for cloud computing, these variables must be tested to know what kind of changes will occur (Alghoshami et al., 2020).

1.4.1 Technological Factors

Cloud computing is a tool that can help organizations develop efficient business models. Cloud computing technology has created various advantages to provide scalable computing services to its customers. This innovation has improved the way of doing business and the way of providing services. Cloud computing is a tool that can help reduce IT costs and reduce operational cost savings in organizations that offer different technologies, the use of the Internet and online technologies in education, the development of the NBN (National Broadband Network) and the increase in global costs on cloud computing are expected to affect cloud computing rates in Australia as cloud computing is a promising technology for improving the performance of Australian SMEs, we expect that (Alismaili & Llc, 2021) our institute has sufficient technological resources to implement cloud computing, including high-bandwidth Internet connectivity (Alghushami et al., 2020).

1.4.2 Organizational Factors

Studies have shown that various technology dimensions, including top management support, organization innovation, organization size, and prior organization experience researchers suggested the critical role of management support in cloud

computing technology adoption, business process reengineering, and change management in Small and medium-sized companies have mentioned to cloud computing technology innovation experiments as valuable aspects of migrating to these technologies company size can play an important role in acceptance(Oliveira et al., 2014) this factor is important in various aspects of SMEs such as high technology and manufacturing and services (Oliveira et al., 2014) Effectiveness has several acceptance characteristics, which are: a- relative advantage, b- compatibility, c- complexity, d- testability and d- observation of the result. Alismaili & Llc, 2021). Previous studies on the adoption of cloud computing highlight the importance of organizations' experience with similar technologies in adoption(Alismaili & Llc, 2021). Relative advantage, complexity, technological readiness, top management support and organizational size have a direct impact on organizational adoption of cloud computing. Analysis of the results confirmed the direct effect of cost savings on the relative advantage of cloud computing as well as its indirect effect on cloud computing adoption.(Oliveira et al., 2014) Respondents suggested top management as the most important factor for cloud computing adoption. The role of top management in the adoption and use of technology is dynamic. Top management support to efficiency in the adoption of information and communication technology trial ability is the next most influential factor in cloud computing adoption, with Microsoft, Amazon, and Google offering trial versions of their services to increase adoption adaptability is another important factor for the adoption of cloud computing, on the other hand, the learning ability of employees, lack of performance of the cloud provider, existing security systems, culture, organizational structure, size of the organization are considered in the adoption process.(Yeboah-boateng & Essandoh, 2019) Relative advantage, reliability, compatibility, security, technology readiness, top management support, and competitive pressure have positive effects on cloud computing adoption.(Alghushami et al., 2020).

1.4.3 Organizational Context

Organizational context refers to organizational characteristics that facilitate or constrain the adoption and implementation of cloud computing several factors influence the relationship between organizational characteristics and cloud adoption, including top management support, organizational inertia, the scale and complexity of cloud IT knowledge resources within the organization, and whether there are sufficient resources and support for cloud adoption these are important factors for cloud adoption and cloud migration (Ji & Liang, 2016) organizational factors such as top management support and culture are also important factors that affect the adoption of information and communication technology the results of this research show that top management support can show the adoption of information technology to some extent the literature of information technology adoption has provided evidence that shows that top management support affects higher levels of adoption and use of information and communication technology in small and medium-sized companies. (Mustafa and Hook, 2017).

▪ Top management support

Several studies have shown that top management support is the main influencing factor for cloud computing adoption. If there is more senior management support, decision makers will attend meetings and participate in the decision-making process involving cloud computing adoption such as IaaS adoption necessary; Therefore, the support of senior management is one of the most influential factors for the adoption of cloud computing in IT organizations (Rahman et al., 2017), the senior management of this institution provides resources for the use of cloud computing manage the business in an efficient way (Alghoshami et al., 2020) Top management support plays an important role in cloud adoption because it includes resource allocation, service integration top management Recognizing the benefits of cloud computing (Oliveira et al., 2014) top management recognizing the benefits of cloud E-Government (Dotta et al., 2013) The benefits of cloud computing technology are very clear, but cloud computing technology may lead to information security problems and may cause top organizations to lose control of resources (Ji & Liang, 2016).

2. Research Methodology

In our literature study, we found different methods. Among the methods, we chose the systematic literature review method because other researchers have used this method to obtain the results of their research. A number of methods are available for conducting a systematic literature review; the systematic method is a modern method that can be divided into three steps: developing the review method, important selection criteria, and conducting the review process.

Step 1

In this step, the search for articles in databases, journals, articles and related books is focused on this view; we selected the following four famous databases for this study: Google Scholar, IEEE Digital Library, Faculty Library and other sources. I divided the research question into several keywords to develop a series of searches; the search string is customized according to the search system in each database; therefore, these additional criteria were used in the later steps of the search process. All articles containing the keyword "cloud adoption" or a combination that includes other words such as adoption, changes, parameter, and determination in their titles were shortlisted; this process collected a total of 85 articles; these articles were then processed using Mendeley, a reference management software capable of removing duplicates this led to a reduction in the total number of articles from 85 to 50.

Step 2

In this step, more criteria are used to shortlist articles; not all library search results are accurate in this step; irrelevant articles based on their title in the field, review articles, editorial forewords and unrelated articles in the field are removed, as a result, all of them were removed, reducing the number of shortlisted articles to 20 peer-reviewed articles.

Step 3

In this step, all the shortlisted articles were read comprehensively for answers related to the research question and objectives (Hadwer et al., 2022).

2.1 Data Collection

To collect data in our research, we used two methods: primary data and secondary data. To collect secondary data, we use other previous studies conducted on similar topics. To collect primary data for this research, we use the interview method we test on different organizational variables (such as tasks, size, structure and job) that we found in the literature review. Interview is one of the most common methods used in conducting research because it discovers relationships between variables, so quantitative and qualitative interviews were conducted in this paper to collect primary data.

2.1.1 Interview

In this section, we focus on the interview, the type of questions, the method of data collection and analysis, and some background information about the organizations that we collect information from. In this interview, questions are prepared based on variables and literature review. Variables must be tested. Interview questions are focused on the adoption of cloud computing technologies; the questions mainly include open-ended and experimental questions, one participant to another may be different; the questions are designed to be as understandable as possible and also allow respondents to provide brief answers to some questions the questions are focused on specific departments in the organizations the questions are designed to have short answers. The interviews were conducted with information technology experts because the other participants did not have enough information in this field. The interview was conducted face-to-face, and notes were recorded on the phone. Some allowed recording, and some did not, so in this case, the answers were recorded; the data were analyzed using tables, graphs and content analysis, and the results are discussed in chapter four.

2.1.2 Participants

This interview was conducted in five different organizations, including the Ministry of Telecommunications, the Ministry of Higher Education, the Ministry of Mines and Petroleum, Kabul Bank, and Azizi Bank; four participants from each organization participated, and information technology specialists were working in different departments, unfortunately from Kabul bank and Azizi bank four people participated face-to-face interview was conducted.

3. Results

The first objective of this review is to identify the factors that may impact the adoption of cloud computing technology in organizations. The other objectives include reviewing the cloud computing adoption in other countries, categorising and comparing technical factors that impact organizational changes that occur in the adoption of cloud computing technologies, and evaluating the organizational variables that change when cloud computing technologies are adopted.

3.1 Comparison and classification of factors

Complexity, security, and performance issues all in one factor in addition to cloud relative advantage, the study concluded that internal factors, such as top management support, influence cloud adoption more than relative advantage; these factors include top management support, organization size, and innovativeness or user awareness of the relative advantage of cloud adoption. Table 3.1 shows the three classifications of these factors into technological, organizational and environmental groups. Table 3.1 details influential factors in cloud adoption among organizations in each study. Table 3.2 presents the most common factors that lead to organizational change in the selected literature:

Technological factors (RA= Relative Advantage, CM = compatibility, CX= Complexity, HC= Human Competency, Security Concerns,)

Organizational factors (MS= Top Management Support, OS= Organization Size, CS= Cost Saving, SI= Satisfaction with Existing IS)

Environmental factors (RS= Regulatory Support, CP= Competitive Pressure, CL= Cloud Locality).

The categorizations and classifications of factors that have an impact on the adoption of cloud computing in organizations are shown in Table 3.1

Table 3.1: Summary of factors that impact the adoption of cloud

| Factors | R A | C M | CX | H C | S C | M S | O S | C S | S I | R S | C P | CL |
|---|------------|--------|----|--------|--------|----------------|--------|--------|--------|-------------------|--------|----|
| Source | Technology | | | | | Organizational | | | | Environment al | | |
| 1. (Al Mudawi et al., 2020) | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 |
| 2. (Oliveira et al., 2014.) | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 |
| 3. (Farid & Shoshtari, 2014.)) | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 4. (Omozebi, 2010)) | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5. (Ali, 2020, Pathan et al., 2017) | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 0 |
| 6. (Amini & Bakri, 2015) | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 |
| 7. (Adrees et al., 2016) | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 8. (Nassif, 2019). | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 9. (Ramzan, 2018) | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 10. (Kiadehi & Mohammadi, 2014) | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 11. (Pathan et al., 2017, 2015; Oliveira et al., 2014, Hassan et al., 2017) | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 |
| 12. (Gangwar, 2017) | 1 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 13. (Aslam & Qachmas, 2020) | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 14. (Segall, 2013) | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 |
| 15. (Cassandra, 2016). | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 0 |
| 16. (Almajalid, n.d.) | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 |
| 17. (East et al., 2014) | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 18. (Isak & Elamin, 2018) | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 |
| 19. (Alismaili & Llc, 2021, Aslam & Qachmas, 2020)) | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 20. (Ji & Liang, 2016, (Dutta et al., 2013) (Rehman et al., 2017) | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 |

It should be mentioned that all the factors are compared based on their authors; each factor that is given priority by more authors or used by more authors in their articles is placed in high frequency.

Table 3.1 shows zero and one are used (that is, zero, the author did not prioritize or mention the same factor in his article, and one means that the author prioritized or mentioned the same factor in his article).

Table 3.2: Top factors frequency dimensions

| Factors | Frequency | Dimension |
|----------------------------|-----------|--------------|
| Top management support | 14 | Organization |
| Security concerns | 9 | Technology |
| Compatibility | 12 | Technology |
| Complexity | 11 | Technology |
| Relative advantage | 13 | Technology |
| Regulatory Support | 4 | Environment |
| Organization size | 6 | Organization |
| Cost saving | 5 | Organization |
| Human Competency | 1 | Technology |
| Satisfaction with Existing | 4 | Organization |
| Competitive pressure | 2 | Environment |
| Cloud Locality | 1 | Environment |

Table 3.2 shows the result of the analysis from Table 3.1, which factor has the high frequency; whichever factor has a high frequency has more impact on dimensions.

3.1.1 Technological factors

In the dimension of technology, relative advantage is one of the most influential factors in the adoption of cloud computing, which has encouraged organizations to adopt it; decreasing costs have increased the penetration of cloud services among users and led to increased adoption of cloud computing in part as a secure environment for storing organization data in this problem just difficult a few years ago, now with the advancement of technology, these problems have been solved.

3.1.2 Organizational Factors

In the dimension of organizational factors, top management support has a great impact on the adoption of cloud computing. In this section, top management support was the most effective factor in cloud computing adoption for organizations. Top management awareness of cloud benefits is believed to have a positive effect on cloud adoption. The role of top management in cloud adoption is critical, especially in developing organizations. Then, top management is not aware of the benefits of cloud adoption, and it is unlikely to support it.

3.1.3 Environmental Factors

In the environmental dimension, regulatory support has relative effects on the adoption of cloud computing in organizations; the rate of service adoption by organizations' competition was recognized as an important factor that has a positive effect on the adoption of cloud computing organizational factors, especially top management support and organizational inertia, play an important role in cloud adoption by organizations.

4. Interview Findings

This interview was conducted with experts in the field of information technology and in organizations that use cloud computing services; before conducting the interview, the topic was shared with the participants' the interview questions were clear and simple, but all questions were based on specific topics about the participants' job performance, service use, and workplace the interviews were conducted with IT professionals, as detailed in the table about the participants.

In this interview, I want to collect information from five different organizations: the Ministry of Communication Information Technology, the Ministry of Higher Education, the Ministry of Mines, the Kabul Bank, and the Azizi Bank; four different people were

interviewed from each organization this interview includes 11 questions these questions include different parts of the organizations' service programs, which are answered by the professional employees of these organizations according to the percentage and a brief explanation about the services that exist in the organization and the changes that are placed on the organization, I have put each one in a criterion so that the result is correct if there are services in the organization, what changes have been made, I have explained in the explanations that these changes or effects have been made the finding is explained in the diagram Table 4.1 gives details about different parts.

Table 4.1: Interview questions and participants answers

| Participants | | Organizations | | | Types of cloud use |
|--|---|---|-----------------------------------|--|--|
| Manager, Administrator, IT Support engineer, seiner system | | MCIT, HE, MPM, KB, AB | | | |
| Q/ N | Questions | Use of percentage | Using of cloud computing services | Changes | |
| 1 | What impact will cloud computing adoption have on your organization's vision and mission? | 35, 50, 75, <input checked="" type="checkbox"/> 100 | Web hosting | New business open, organization developing | <input checked="" type="checkbox"/> Public cloud |
| 2 | What is the impact of cloud computing on your organization among your colleagues? | 35, 50, <input checked="" type="checkbox"/> 75, 100 | Email Hosting | Better works high speed | |
| 3 | Will policies change to support the use of cloud computing products in your organization's adoption of cloud computing? | 35, 50, 75, <input checked="" type="checkbox"/> 100 | File hosting | security policy | |
| 4 | Adoption of cloud computing in your organization, what effects did it have on the relationship between management and employees | 35, 50, <input checked="" type="checkbox"/> 75, 100 | DNS hosting | Relationship better | Private cloud |
| 5 | What will affect the structure of your organization in adopting cloud computing? | 35, 50, <input checked="" type="checkbox"/> 75, 100 | VPS hosting | structure changed | |
| 6 | Will some hierarchical levels of management be removed in the adoption of cloud computing? | 35, 50, <input checked="" type="checkbox"/> 75, 100 | Database | adding new jobs, new contracts, support | |
| 7 | How will the adoption of cloud computing affect the number of office meetings? | <input checked="" type="checkbox"/> 35, 50, 75, 100 | Monitoring Tools | number meeting lees | Hybrid cloud |
| 8 | What are the effects of cloud computing on the size of your organization's workforce or workers? | 35, 50, <input checked="" type="checkbox"/> 75, 100 | Google search engine | size is less number of workers, more | |

| | | | | | |
|----|--|---|-------------------------|---------------------------------|------------------|
| 9 | What changes will come in the adoption of cloud computing in the information technology department | 35, 50, <input checked="" type="checkbox"/> 75, 100 | Application Integration | Works of IT Centralized | communi ty cloud |
| 10 | How do you think cloud computing products will affect the performance of IT jobs in your organization? | 35, 50, 75, <input checked="" type="checkbox"/> 100 | Google map | Job of IT more | |
| 11 | How do you think the adoption of cloud computing can affect the culture of your organization? | <input checked="" type="checkbox"/> 35, 50, 75, 100 | Storage space | Employee satisfaction increases | |

Table 4.1 shows the amount of use of cloud computing services in the different organizations and how much cloud computing services have been used in different departments of the organizations; as a result, we found out what changes there are from the respondent's point of view changes will come If the organization goes to cloud computing, these changes can occur, these include a new business is opened, the vision, mission of the organization is developed, all works are done better, work speed is increased, communication is improved, from the point of view of the structure of the organization, it will also change most of these new tasks, new contracts are supported, the size of the organization is reduced, more works are done and IT responsibility is centralized. Furthermore, according to the respondents, if the organization adopts cloud computing services, these changes can occur: increased security, healthy competition between employees, cost saving, changes in policies, high speed, elimination of repetitive processes, downsizing, the support of the top management, the problems are solved in a short time, the addition or removal of some work responsibilities will occur in the organizations.

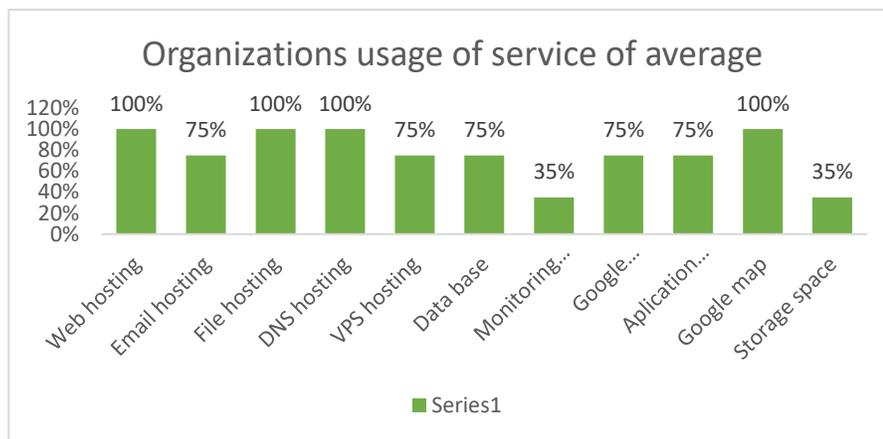


Figure 4.1 The result of the interview

Figure 4.1 shows cloud computing services are available in the organizations. This figure shows the percentage of changes or the effectiveness of cloud computing services in these organizations and evaluates the impact of cloud adoption in different parts of this organization. As a result, from the respondent's point of view, we found that, on average, based on the percentage of 64.4%, there will be changes in this organization; more details are shown in Figure 4.1

5. Discussion

We reviewed a lot of research literature based on experience or interviews. We reviewed several articles similar to our paper in this paper; we used systematic review and interview methods to obtain comprehensive and reliable information.

First, we discussed the advantages, disadvantages, opportunities, and limitations of cloud computing adoption in organizations and other countries that adopted cloud computing in their organizations.

Second, a study conducted in developing countries investigated the factors of cloud computing adoption among organizations and showed that the relative advantage of cloud computing affects the changes of organizations. Organizations have different views on the adoption of cloud computing in different countries, and top management is final and centralized the rule to kind important change decisions that are adopted to all these two characteristics of relative advantage and top management were

further studied. The study of IBM branches located in fifty countries investigated and reported the variable role of relative advantage and top management support as a key success factor in cloud computing adoption; in Section 3, all factors compared to the outcome of top management support and relative advantage have high frequency.

Third, the results, our interview, and the information we gathered from five competing organizations show that the adoption of cloud computing in organizations brings many changes in different dimensions of the organization. Of these five organizations that we interviewed, the services that they use, on average, made 64.4% changes in the work process of their organization; these changes are new business open, organization development, better high speed, relationship better structure of organizations changed, adding new job new contracts support, size is less and number of worker more, Error Issues low, Some duplication steps remove, changes overcome management, performance, some part add or remove.

6. Conclusion

The main purpose of this study is to understand the organizational changes of organizations that have adopted cloud computing technologies or use cloud computing services, what changes or effects have brought to their organizations, using a systematic literature review method, one of the main partial goals of this study is to extract and classify all the effective factors in the use of cloud computing technology services by organizations which has led to increased use and change in the work process of organizations. The most important factors and their differences have been compared with previous researches. The influence of the cloud computing adoption factors may be the case when the field changes. Technological, organizational and environmental factors are discussed in this review, and these three factors have a mutual relationship with each other for the adoption of cloud computing in organizations.

As a result of the comparison of the factors shown in Table 3.1, in the technological dimension, it has a high frequency, the factor of relative advantage was found to play an important role in the adoption of cloud computing technology in the organization as a result of comparing the factors shown in Table 3.1, in the organizational dimension, it has a high frequency, the Top management factor was found to play an important role in the adoption of cloud computing technology in the organization.

The analysis of interview techniques showed that cloud computing technologies affect the structure, size, work process, tasks and provision of work information technology of organizations. This shows that these variables change at different levels. The findings showed that the IT job function will have the greatest impact on cloud computing readiness and performance, although other parts of the organization also experienced changes, but most of these changes can overcome IT structure and provisioning also, the results showed that organizations that have adopted or use cloud technologies experience many changes new business opening, organization development, high work speed, adding new jobs, supporting new contracts, more IT jobs, employee satisfaction increases, competition between organizations, cost-effectiveness, size or structure of organizations are reduced, top management support, problems are soon solved, some departments are added or removed in the organization, adoption of a new policy, the relationship between management and employees will be without radiation some hierarchical levels of management are removed and some employees are laid off, the size of the workforce is reduced, some departments are integrated, increase work speed, some duplicates steps are removed, changes overcome management, performance, Works of IT centralized, some parts integrated, all the results show that approximately 64.4% of the changes will affect the entire organization, because the size of organization's workforce will decrease some departments will be integrated, and the effects will come in all departments of the organization.

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