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Assessment of the extent of using cloud computing technology in economic applications

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Abstract: *The objective of this research is to assess the factors that will affect the economic status of the organizations as a result of using cloud computing systems. Among these factors, which will be examined in this study, the relative economic benefit expected through the application of cloud computing, which relies primarily on the degree of complexity or simplicity in the work, the compatibility between the components of information system, top management support, the expected growth in the volume of business, technological preparations, and finally competitive advantages achieved.*
The research also aims to help organizations to make financial and economic analysis, to identify several economic characteristics of their work, as well as to identify the resources required to shift to cloud computing.
IT portfolio Model has been developed according to cloud computing system
Also cost-benefit analysis has been used in order to perform the economic assessment, taking into account the impact of the intangible resources and intangible benefits at the expense of investment in cloud computing. The cost-benefit analysis has provided a broader vision for the work outcomes in the cloud computing systems.

Keywords: *Benefits of cloud computing, Cloud computing, Cost of cloud computing, IT Portfolio,*

I. INTRODUCTION

What is cloud computing?
Cloud computing system, is a global system thst enables the user to access the network and directly use its information from anywhere, anytime around the world, by a special login name and password.

Economic advantages of solutions based on cloud computing
1 – Take advantage of the possibilities in cyber space
Of the advantages of cloud computing, as a user navigates to the international network to the wide world of cyber space, and the creation of a unified center for programs; this system reduces power consumption, keeps the programs from the loss, in addition to the continuity of use.

2-savings in both software licensing and hardware, as well as to dispense with the full use of the structure of a computer key, and thus saving in the spatial area and electricity, and also helps in reducing costs and risks associated with the project update, through a change in the portfolio of information technology

3- Providing another alternative for the construction of the infrastructure for the portfolio of information technology at less cost .
Where the service provider of information technology can help the organization to develop the infrastructure of Information technology, especially computers and software, by allowing organizations to focus on business.

4-Optimal exploitation of the capacity of servers
The capacity of the server can be enhanced in business applications, therefore avoiding the need to invest in expensive hardware and software, which allows the organization to focus its attention on core business .

5-Providing more flexibility to work remotely
Cloud computing enables users to work from anywhere as long as they are connected to the internet, which means provision of greater flexibility in work schedule,.and reducing stress.

Organizations will be more flexible such that they can operate more efficiently, by making it easier to rapid response to changing market needs, and internal applications, and access to new technologies, as well as ‹easier deployment, lower maintenance, and confidence in the applied solutions, which are carried out under the supervision of a service provider of information technology.
In general we can summarize the advantages and disadvantages of cloud computing as follows:

II. ADVANTAGES OF CLOUD COMPUTING

The cloud computing system provides the following benefits :
Cloud computing services enabled office users to access resources from any computer, (Gillam.2010) which provides many of the multiple benefits :

1. Workers can continue their work in the event that access to their work is hindered due to the presence of obstacles.
2. Companies can make use of staff across a wider geographical area, especially if salaries are lower as in the distant localities.
3. To maintain business operations in case of interruptions as of electricity or any other adversity in the office .
4. Providing better facilities to address the problems and interruptions of electric power networks .
5. Data recovery from data centers, as in case of disasters.
6. Replication of infinite data.
7. Application of enhanced support systems, by deleting redundant data.
8. Enables electronic archiving.
9. Application of governance systems
10. Risk management
11. Regulatory compliance on IT solutions

12. Protects data from loss .
13. Leads to lower operating costs.
14. Lower costs through sharing resources

Disadvantages of Cloud Computing.

1. Ambiguity of security features in these systems
2. Levels of protection for data and information is not specific
3. Failure to maintain the security aspects
4. The need to conduct security assessments.
5. The need to assess the legal aspects in the areas of legislative compliance, audit and follow-up .
6. Vulnerability of cloud computing systems, for many cyber-attacks .

What is the virtual storage technology?

It is the ability to run multiple operating systems on a single normal system and to participate in the sources of the hard drives where data is stored.

According to the development of technologies in computer networks, which provided a link between computers and storage devices, the storage technology changed tremendously and, at the same time, the viability of new storage technology emphasizes the use of fast networked storage, making it easier to access data from a distance, and to simplify the management in a flexible manner.

Economic savings resulting from cloud computing

1. Reduction in the cost of maintenance
2. Reduction in wages of technical Support staff
3. Reduce energy bills
4. Reduce the cost of computers
5. Reduce the cost of software licenses
6. There are no additional costs to computer upgrades.

Economics of cloud computing applications

For information Technology (IT), the cost of management and energy are significantly low, due to the smaller sizes of modern computers.

In addition, the cost of maintenance for computers represents a larger amount in the information centers for electronic archiving of the contents of cultural heritage. The majority of cost is the salaries of managers who are constantly looking for ways to save power, and to increase flexibility, to ensure reductions in the costs incurred, and increasing revenues.

Since the planning and the capacity of the information centers of the traditional institutions must be made to withstand peaks of work periods; it is not appropriate to use a computer server of low capacity where the business volumes are relatively high, even in the rest of the year a large amount of less data needs to be stored. According to the follow-up work in the information centers industry, in the past few years ago, there is a tendency to central management of data, and virtual storage that may be in most of the time of the year.

The servers has allowed the spread of the fastest computers, and specialized servers lead to a higher density of the server device without increasing the size of the data center, the number of employees, or even more power consumption.

In any case, these alternatives still require significant investments and commitments of long-term technology, and there has been increasing attention paid to the use of those alternatives, including speed of deployment, and lower maintenance requirements as less as possible. The use of cloud computing systems can meet these many requirements needed by banks and information centers.

The potential economic cost associated with the use of cloud computing services

The potential economic cost associated with the use of cloud computing services includes:

The costs of securing data

The costs of securing the transfer of data, especially sensitive data, and the cost of processing or storing data remotely. The cost resulting from limitations in the development possibilities that are currently available as a result of the developments to the service providers.

Difficulties in transfer of the proprietary of data, and programs affecting the functioning of the organization from a computer server to another.

Integrating services of cloud computing with systems of work organization; the need to modify the cost of business applications, according to the organization of business applications in the cloud computing environment

The cost of transporting data from one place to another.

Economics of Cloud Computing

Client/server computing system Is a quantum leap of the client / server mainframe to a system of cloud computing and this point is similar, in importance and amount, to a shift from the mainframe hardware to the client / server (Harms And Yamartina ،2010).

Cloud computing environment provides basic information through the provision of large data centers that can take significant advantage as a result of the economics of the wide range of applications in three directions:

1- Savings from the supply side: Large data centers with lower costs for each server machine.

2- Savings from the demand side: Evaluation of the demand for cloud computing allows flexibility to take more advantage of the change in general rates.

3- Effectiveness of the plurality of leasing: When the user change to the applied multi-lease system, increasing the number of leases, means reducing the cost of management and application of servers proportionally.

Reduction in the cost:

Costs reduction in cloud computing is due to the reduction in the price of:

1- Electrical energy: where the electricity power is of the main elements that represent the cost in using computers, may represent up to 15% to 20% of the costs of the total operating costs, nevertheless, the efficiency of energy use tends to be lower for large facilities than for smaller facilities. Anyway, the cost can be minimized by locating

data in the data centers, which is located in areas where electrical energy is economical. In addition this can be achieved through contract agreements for electricity at the possible lowest cost.

2- Labor costs: Costs savings of cloud computing labor could be achieved by automating many repetitive administrative tasks. The administrations of larger facilities can reduce costs more than smaller facilities, where system administrator can coordinate to serve a larger number of workers through data computing, which gives him the opportunity to focus on other tasks and more activities that add value to the product and improve the skills of workers.

3- The cost of insurance and ensuring the validity of the cyber product: For the cloud computing, there is general need for some degree of security to ensure the confidentiality of data or information stored on the servers, in other words, an increase in the costs; nevertheless, if we have achieved savings through cloud computing, the savings attained through securing the data, must not exceed those savings

Savings from the demand side

The total cost of information technology IT is not measured only to the cost of capacity (John W. Rittinghouse, 2009) , but also to the degree by which the capacity is utilized effectively; in this case we need to assess the amount that can be circulated through demand that we can achieve, the cost of resources actually utilized, such as the storage networks, and others.

III. THE COST OF APPLICATIONS FOR EACH WORK LOAD

In data centers which do not contain all applications in one place, savings in the cost of the work load for each application work can be realized through the server device, it does not matter here the number of servers used according to each classification of downloads, but what matters is to benefit the most from servers according to the different applications of the imaginary work, which can be through the many applications by working on the servers or even a single server, and by specific operating system,

by working imaginative work on a less number of servers with the same amount of download analysis. In fact work downloads changed over time, it may be the demand for work downloads is high in some period and less in other periods, in this case, the distribution of downloads of various work must be throughout the day or over different periods, so they can make full use of those servers at all times.

Change in the work downloads in banks.

Work downloads can be changed over different periods based on several causes, including:

Changes throughout the day vary according to the following reasons:

1- Random: models of end-user to enter their account contain some degrees of randomness, for example, individuals can access their email at different times of the day, therefore they must take into account that many

people may enter on the device server at the same time.

2 - Time of day: There is a daylong cycle from eight thirty in the morning to five o'clock in the afternoon, where more pressure is from eleven am to three o'clock in the afternoon.

Therefore the working capacity should take into account the pressure on the servers during those periods.

3- Changes in the work downloads according to seasonal changes : There are many changes in the work downloads, which vary from one industry or application to another, and this difference is the one which governs the movement in industries, for example, there are industries where the pressure of work is during holidays and seasons of purchase, while for example in the IRS, the pressure of work starts from the month March, but in the case of banks pressure on downloads starts from day 21 of each month for the payment of pensions portable to the bank; then follows another pressure from day 28 of each month, for the payment of salaries transferred to the banks; for real estate banks, as the Housing and Development Bank the pressure starts from the first of each month for payments of monthly installments; and there are many seasonal factors that may affect the change in the intensity of work, for example, the pressure to buy stocks and real state is in the summer more than during winter.

4- Changes in various sources of data: In cloud computing and storage, and input or output, where information is from public sources through servers, the capacity of computing through the CPU is limited. For example, some business downloads may need to use more than the CPU. Downloads as e-mail need a large part of the storage area and use less of the CPU , thus it is possible to buy devices with more storage capacity, but the disadvantage is that it may not be economical.

5- Unconfirmed growth models: Forecasting future needs computers, and time to supply effective servers.

How a system for managing downloads can be designed to work throughout the day in banks

There are times at which we can have a quick access to the personal accounts in banks when the number of customers, who enter to their accounts via the Internet, is small; at other times there will be high pressure on the devices.

We can determine the times at which the work downloads are certain, and therefore the pressure on the servers is significantly high, such that it does not allow for a large number of real customers to access their personal accounts. Customers are in need of confirmed or specific times to access their accounts when the pressure on servers is low. It may be needed to develop a system through studies, to determine the working time; to distribute working downloads with banks as follows:

1- From 8:30 P to 10:00 in the morning, in this period, the bank begins to open its doors to the public, and the pressure on hardware ranges from 10% to 15% of downloads for the rest of the day.

2- From 10:00 am to 12:00 at noon, in this period the pressure is 5%, and 20% for the rest of the day.
3- The time from 12:00 pm to 2:00 pm, in this period, the pressure is between 30% and 40% of downloads for the whole day.
4- From 2:00 pm till 5:00 pm, in this period, at the end of the work day, the pressure is from 35% to 45% of downloads for the whole day.

Work downloads are also high in certain periods during the month, for example, starting on the 20th of each month after receipt of salaries transferred to the bank and pension customers rush to their payments.

For Construction And Housing Bank, in particular, the pressure on the bank at the beginning of each month, as customers crowd to pay monthly installments for their housing or real estate they have bought.

The bank sends a bouquet of banking services provided through the Information Center, in preparation for its treatment, at this stage, the distribution of work is determined, for work download analysis during the month, which can be divided as follows:

1- Peak times for entering data.
2- Peak times for the extraction of information.
3- Peak times for the treatment or modification of data.
4- Specific data collection for work loads of in preparation for statistical analysis and reports to senior management.

Then, the bank staff distributes the tasks throughout the day so as not to block their network as a result of downloads build up at any time, which disrupts the work.
Management of banks has to determine the following:

1- What is the necessary time it takes to complete each task?
2- The distribution of all business downloads for banking services offered through the bank.
3- Determine the timings that are preferable to do some jobs rather than others.
4- Distribution of business downloads according to steps, so as the majority of the organization's operations are carried out in the times of not so great load.
5- The bank has to make periodic analysis of performance to determine the services that have the highest demand at specific times.

Of the primary economic advantages of cloud computing, is its ability to determine the change in the exploitation of resources that are provided through various factors affecting the cost of cloud computing; there are two important economic advantages, namely:

1- Use of hard labor, which can service a larger number of customers, where each customer has to pay for management applications, and show that the labor cost associated with the modernization of management, enables the organization to solve problems faced during regular work.
2- Limited components of servers can be used to service a large number of customers; there is a specific amount of servers for each application.

Measuring the economic savings resulting from the use of cloud computing

To measure the economic savings, from using cloud computing, we create a model to measure the distribution of costs, according to the following:

1- Cost of infrastructure: Cloud computing costs of the infrastructure can be changed through changes in the cost of software, such as the cost of operating systems, and software architecture, and the architectural technique which is used in creating the hardware of cloud computing, which may need to be adjusted according to the application of cloud computing.
2- The costs of maintenance.
3- Development costs.

Economic factors affecting cloud computing

There are many causes that encourage the use cloud computing as an alternative to traditional methods. These causes may change the role of information technology in the future; and many of the methods and models of provision of technological services and career structures that will need to be remodeled for compatibility with the computing structure that can be used easily through cloud computing; these reasons include:

1- Cloud computing is a low-cost solution.
2- Cloud computing solutions are characterized by flexibility and ease of responding to external changes.
3- Transactions and transactions developed through information technology depends, in many cases, on applications based on cloud computing.
4- Business users can control work remotely through cloud computing.

Portfolio of information technology investments as a measure of information technology in banks

Structure of the portfolio of information technology (Bryan Maizlish, 2005) .
Where the distribution of costs of information technology is of four layers as follows:

1- Costs of infrastructure: Include infrastructure assets of hardware and software
2- Transaction costs: Include the costs of assets applications and software and training.
3- Strategic costs: Strategic costs include data and information assets, for example, the costs of education.
4- IT costs: the costs include the costs of facilities of the operations and services assets.

It is emphasized that investments in information technology must support the objectives of the organizations and maximizes return on investment; moreover, the allocation of resources must serve the business elements of the organization.

It also must determine how to follow up the integration process between the needs of information technology in various stages of the project and the use of cloud computing applications, which can be stated as follows:

1- The possibility of teleworking and mobility for both business users and professionals in information technology; mobility allows savings in the costs of travel and transport from one area to another.
2- Distinction between the costs of infrastructure, as an asset, and acquiring part of it as a service, as in the following:
   - Hardware and operating systems.
   - Development costs.
   - Maintenance costs.
3- There is a difference between public computing and privet computing, where they differ according to the portfolio of information technology applications for both of them.
4- Insurance costs and privacy.
5- The costs of information technology services, in order to be compatible with the management services in banks.

Information technology (IT) Portfolio

The development of the structure of information technology portfolio model in cloud computing systems

It is the process of distributing the costs of information technology to the different types of associated costs, such that we can maximize the added value resulting from investment in information technology,

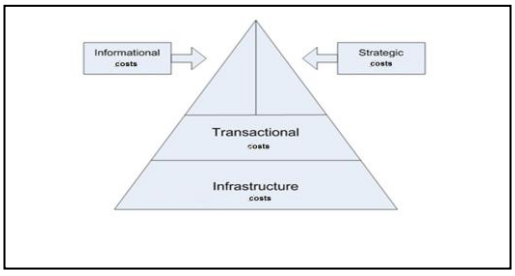
Investment in information technology must be managed as any other investment run by the organization. It is better to be managed according to the Information Technology portfolio.

IT portfolio management refers to the process of assessing and ratifying the investment of information technology as associated with other current information technology investments.

It often includes getting the right combination in most cases of investments.

Distribution of costs of information technology on the various types of cost: This can be depicted as in the following figure:

Figure (1) shows the distribution of costs in the portfolio of information technology



Rethinking in the resources of information technology

The method of distribution, of IT resources to the different classes in the portfolio, has changed. The distribution of IT costs is as follows:

Infrastructure costs. Consume from 50% to 60% of the portfolio.

Transaction costs. Consume from 20% to 30% of the portfolio

Strategic costs consume from 10% to 15% of the portfolio.

IT costs. Consume from 10% to 15% of the portfolio.

Reduction in the cost of the infrastructure became possible after recourse to the leasing of information technology resources, rather than purchased; the cost of infrastructure represented more than half of the portfolio, and thus this ratio has been reduced, and the proportion of costs, in the three other layers, is increased. Moreover, in return, the transactions costs have been reduced. The increase in IT costs that can add value to the banking service provided by a cost strategy such as innovation and change management, facilities and interaction with customers as well as increasing the proportion of cost information where possible, increased control and integration between the information, led to improving the level of banking service, and reduced the period of time spent in providing the service as well.

Low cost cloud computing solutions

Cloud computing technologies must be cost effective; if measured as part of the total cost, should improve the ratio between the costs associated with the maintenance of information technology resources, and between spending on selective IT projects.

Most of the annual budgets in many applications of IT, are spent on maintenance and repairs in return for the neglect of jobs which can provide new added value. Achieving balance is necessary, between operating costs and expenses which are incurred, in order to provide new added-value,

There is no benefit from reducing the costs of basic infrastructure, and payment of the costs of application development through the rising costs of integration between the different activities; this calls for the importance of taking another look at the real costs of information technology, which include:

1- Costs of integration between different functions.
2- Costs of Reporting.
3- Costs of planning for reform after crisis.
4- Labor costs in information technology

Costs of reducing the effects of the weaker performance of the service provider of cloud computing,.

This requires more costs for insurance against the risks of cloud computing, which requires a set of skills in the field of information technology, and more support to business units. Moreover, we must compare between the costs of cloud computing and the traditional methods of information technology; while isolating various groups from each other, and reducing the resources of information technology, which must be included within business units, and seen as part of information technology.

Cost /benefit Analysis for economic evaluation

The cost-benefit analysis for the economic evaluation of information technology resources after using cloud computing is considered one of the most important methods for economic evaluation of cloud computing intangible resources. Adopting the concept of cloud computing and services by the managers of the banks, will affect the cost benefit ratio, taking into account the influence of the virtual intangible (non-physical) resources, when calculating the

benefits of investment in cloud computing. If this ratio has been compared to that calculated for the same applications that were used prior to cloud computing dissemination, we find that the proportion, of the cost of banking services, is decreased considerably in some applications, with various forms of dealing with this new technology, and with the storage space required to complete each of them. We found the following:

1- There is change in revenue as a result to the modification in the structure components of the hardware and operating systems of computer systems in banks.
2- There are specific requirements and need to provide the cash costs when creating applications based on cloud computing.
3- In the light of cost savings, it was possible to reduce the price of the service of e-banking, which resulted in increased demand.
4- It was possible to integration of work between cloud computing services, and uses of desktop computers in some applications, to ensure the privacy and security of the necessary data and to ensure improvement of the overall efficiency of banking services provided to customers

IV. THE STUDY QUESTIONS

1- What are the factors that cloud computing can affect the work in banks?
2- What are the effects expected from the change in the method of work in banks through cloud computing?
3- What are the future trends expected by the application of cloud computing in banks?
4- What are the criteria that determine the current trend towards the use of cloud computing in banks?
5- What are the expectations about possible outcomes from the application of cloud computing in banks?

Factors that cloud computing can affect the work in banks?

1- The possibility of providing new banking services to consumers: Cloud computing enabled to the provision of banking services that could not be provided through conventional technology, and is lower in cost than traditional methods, including:
   - Access to the account via the internet.
   - transferring Balance electronically
   - Payment and review of bills electronically
   - Follow-up mortgage electronically
   - Follow-up credit cards electronically
   - Follow-up lending operations electronically
   - E-banking services
   - Customer service and administration electronically
   - Sales over the internet
   - Accounts compilation
   - Electronic funds transfer

2- Access to more subjective services: self-computing allows the provision of self-service which facilitates operations management, and requires less participation of the workers, so as to accommodate more increase in demand for banking services without any increase in costs.
3- Providing ease of movement when dealing with bank statement: it is through the follow-up of work from different places, where you can access the accounts of customers from anyplace in the world through the internet, thus facilitating the long-term negotiations, or switch in contracts easily with external contractors.
4- Workers gain more awareness to take advantage of the internet. : Where the workers can acquire new job skills to enable them to compete effectively.
5- Enables the bank to provide banking offers successfully; the bank can make banking offers as a result from savings through the use of cloud computing, as well as providing services, such as offers to deal with suppliers, as Amazon, across the internet, and buying through Google.

Reduction of technical, legal, and economic barriers that can impede the flow of banking operations, where the work is through a single network, thus contributing to the creation of new means by which to improve the working environment in the banking institution, and facilitating marketing and sales operations, and customer services. (Andrpocec, 2011)

Expected effects as a result of change in working methods in the banks through cloud computing.

Cloud computing usage alters the method in which the workers use information technology resources, and how to stockpiling their data through the use of information technology resources as a virtual computer that can run complex computations independent of the ordinary one.

Expected future trends due to the application of cloud computing in banks

Cloud computing can provide an opportunity for banks to use technical information technology resources more effectively, whether to buy or lease cloud computing resources.

Criteria that determine the trend of using current cloud computing in banks

Of the most important criteria that determine the trend of using the current cloud computing in banks, is flexibility in the sense that the establishment of economical flexible system for banking services can enable fulfillment of banking services, through the multiple supply sources of services, according to client needs; this can be achieved through the costs effectiveness and productivity, that may be relatively acceptable motive to reduce the cost.

Expectations about possible outcomes from the implementation of cloud computing in banks

Cloud computing will lead to other opportunities to the banks to build models of providing services to customers with more flexibility; which leads to the growth of profitability; as a result of training the staff to deal with the technology of cloud computing.

Field study

Research objectives

1) Assessment of factors that can affect the economic situation of the banks due to the application of cloud computing systems
2) To determine the relative economic benefit expected from the system through the application of cloud computing
3) Developing the structural model of the portfolio of information technology in cloud computing system.
4) To determine the need for modifications in the method of resource management systems in banks after the application of cloud computing.
5) To Learn how to design an information system that can maximize the economic benefit of the available assets, after the application of cloud computing.
6) Determine the potential risks of inadequate management of cloud computing systems in banks.
7) To identify the factors leading to the increase of economic resources in banks due to the application of cloud computing systems.

The nature and phenomena of the research problem

The phenomena of the research problem are the potential risks of inadequate management of cloud computing systems in banks. Furthermore, it is desirable to examine different methods of development of banks, so as to increase the economic resources as a result of application of cloud computing.

The research problem

Reconnaissance study showed that the application of cloud computing systems in the banks is better from the viewpoint of costs, compared to traditional methods, but it is offset by the ease of exposure of information to insurance risks. We can identify problems associated with using cloud computing application systems in banking transactions in the following points:

1- There are many problems relating to the use of cloud computing application systems in banking transactions due to the ease of exposure to theft of information through networks, and the subsequent identity theft.

2- The use of the cloud computing systems applications in banks can include exposure to many financial risks, which may lead to lower performance.

3- There are many natural risks resulting from the difficulty of the use of external cloud computing when dealing with customers from the outside the bank, just like buying from a commercial site as the Amazon site, but it is to take advantage only of the work during the internal computing information technology systems and unnecessary applications and the least likely to decrease in costs through cloud computing although it reasonable and cannot be ignored, but is accompanied by exposure to many risks.

4- Economic savings through cloud computing in the banks faced many challenges, including:

- The difficulty of pricing for cloud computing services, is where there is difficulty in the development of a specific mechanism for determining the price of your resources through the participation of cloud computing and the accompanying performance, which is based on the economic assessment of resources of information systems.
- Difficulties in securing information, particularly in the public cloud computing, in the light of cloud computing.
- Increasing the administrative costs of the information system under the cloud computing because of the large number and complexity of the procedures for data security.

Accordingly, the focus of the research problem can be in:

"The presence of several problems facing the banks as a result of difficulty in achieving a balance between the economic savings resulting from the application of cloud computing, and the ease of exposure to many risks when using external computing, in particular in banking transactions"

The importance of research

The importance of research on the application of cloud computing in banks can be summarized in the following :

1. Lack of interest by employees who work in Egyptian Banks to identify the risks associated with the application of cloud computing systems in banks.
2. The need to Identify the methods of cost savings, and to reduce the rates of exposure to risk, as a result from the application of cloud computing systems in banks.
3. The need to study how to maximize the savings associated with the implementation of a cloud computing environment versus a traditional infrastructure in banks .

Research Hypotheses

Based on the research problem and its importance, the research hypotheses could be stated as follows:

Hypotheses

1- There is no significance relationship between the cloud computing systems application in banks, and banking transactions, and the success of the banks.

2- There is no significance relationship between the application of the cloud computing systems in banks, and the fulfillment of economic savings in banks.

Research Methodology

1- Compiling of the theoretical framework of the search by reviewing references and scientific journals, which discussed the research topics.

2- Holding personal interviews between employees in the research sample of banks to know the method of work, and the implementation of programs that are planning to use cloud computing application systems.

3- Preparation of questionnaire form and directing it to a sample of workers in banks, where the study sample was selected on the basis of individuals who are able to give correct information in the field of study to ensure the safety of hypotheses of testing.

The research relied on the random sampling method to collect the required information from the research community because the selection of the sample is not

subject to certain conditions, due to the similarity of the working conditions in various Egyptian banks, so the researcher determined that community in Egyptian banks

The research sample
The random sampling method was applied in the field study, where the selected random sample of the study includes the following banks:

1. Bank of Egypt Iran Development
2. Bank of Alexandria
3. National Bank of Egypt
4. Housing and Development Bank
5. National Bank of Egypt
6. National Development Bank

Testing Hypotheses
To test the hypothesis of the research, the correlation coefficient test was used, to test the relationship between the variables studied, we took the average of the responses to each part of the sample of the existing organization in the research sample, and calculated this average to the nearest whole number, and then we loaded from the questionnaire form represented by each answer employee organization, then data were analyzed using statistical program SPSS / PC 17, And the degree of significance was 1%, and if the test result was significant, it meant that the null hypotheses was refused and the alternative hypothesis for both hypotheses was accepted.

First hypothesis
There is no significance relationship between the cloud computing systems application in banks, and banking transactions, and the success of the banks.

Null hypothesis
There is no significance relationship between the cloud computing systems application in banks, and banking transactions, and the success of the banks.

The alternative hypothesis
There is a significance relationship between the cloud computing systems application in banks, and banking transactions, and the success of the banks.
To test this hypothesis non parametric parameters has been used because the data are not parametric because they are the result of a questionnaire form as well as the parametric coefficients correlation was used to confirm the results, in order to study the relationship between the total answers to questions in the first group, and the total answers to questions in the second group, to see whether the relationship between them is significant or not? The results were as follows:

1- Parametric Pearson's correlation coefficient was used, which was equal to 0.485 at the 0.01 level of significance 0.000, meaning that the probability of error equal to zero per thousand.
2- Non- Parametric Correlation coefficient Kendall, was used which is equal to 0.434 at the 0.01 level of significance 0.000, meaning that the probability of error equal to zero per thousand.
3- Non- Parametric Correlation coefficient Spearman was used, which is equal to 0.487 at the 0.01 level of significance 0.000, meaning that the probability of error equal to zero per thousand.

Which means that there is a relationship between two variables equal to 48.5% according to the Pearson correlation coefficient, and 43.3%, according to Kendall's correlation coefficient, and 48.7% according to the Spearman correlation coefficient, and the correlation of this relationship is direct, because a correlation coefficient is positive, and the relationship is viewed as a significant relationship, that can be introduced.
Therefore we accept the alternative hypothesis and reject the Null hypothesis.

The Second hypothesis
There is no significance relationship between the application of the cloud computing systems in banks, and the fulfillment of economic savings in banks

Null hypothesis
There is no significance relationship between the application of the cloud computing systems in banks, and the fulfillment of economic savings in banks

The alternative hypothesis
There is significance relationship between the application of the cloud computing systems in banks, and the fulfillment of economic savings in banks

To test this hypothesis non parametric parameters has been used because the data are not parametric, because they are the result of a questionnaire form as well as the parametric coefficients correlation was used to confirm the results, in order to study the relationship between the total answers to questions in the first group and the total answers to questions in the third group, to see whether the relationship between them is significant or not? And the results were as follows:

1- Parametric Pearson's correlation coefficient was used, which is equal to 0 at 0.517 level of significance 0.01 0.000, meaning that the probability of error equals to zero per thousand.
2- Non- Parametric Correlation coefficient Kendall, was used which is equal to 0.430 at the 0.01 level of significance 0.000 meaning that the probability of error equal to zero per thousand.
3- Non- Parametric Correlation coefficient Spearman was used, which is equal to 0.487 at the 0.01 level of significance 0.000 meaning that the probability of error equal to zero per thousand.

Which means that there is a relationship between two variables equal to 51.7% according to the Pearson correlation coefficient, and 43%, according to Kendall's correlation coefficient, and 48.7% according to the Spearman correlation coefficient, and the direct correlation of this relationship, because a positive correlation coefficient, and the relationship is viewed as a moral can be introduced.

Therefore we accept the alternative hypothesis and reject the Null hypothesis.

V. FIGURES AND TABLES

As it is clear from the field study and through the open questions, that limit the opportunities provided by the use of cloud computing in the banks as follows:

Table showing the opportunities provided by the use of cloud computing in banks, and repetitions of the answer in the open question no. (1) in the questionnaire form

serial	Opportunity	Repetition
1	Providing the possibility of completing global trade transactions to accounts from anywhere in the world	**10**
2	Providing an opportunity for employees to work from home, which reduces the cost of labor	**5**
3	Increasing the speed of transactions completion by accessing the servers, and implementation of transactions.	**3**
4	Reducing the possibility of jobs and tasks that does not add value to the bank through the follow-up for all transactions made through the bank through internal cloud computing and excluding what is not necessary to them.	**2**
5	Facilitating communications and contacts with customers through the Internet, which save a lot of time spent in answering customer inquiries?	**1**
6	Cloud computing lead to the completion of the bank tasks more quickly as they reduce the cost associated with the use of information technology.	**1**
7	The Possibility to follow-up the customers through the Internet to the promotions introduced from the bank.	**1**
8	Enabling the application of green computing technology, by reducing the large number of computers used, also through savings in electrical energy and thus achieving green computing.	**1**

As is clear from the field study, and by limiting the open-ended questions that defects associated with the use of cloud computing in the banks as follows:

A table showing the disadvantages associated with the use of cloud computing in the bank and repeat the answer in open question no. (2) in the survey form

serial	disadvantages	Repetition
1	Cloud computing cannot reduce the capital costs in the existing budget.	**9**
2	It is difficult for employees to recognize how to avoid the risks associated with the external computerization of banks.	**6**
3	The emergence of non-flexible arrangements in making work in banking as a result of the presence of many of the barriers that are placed before making any bank transactions to secure the necessary data from theft, where there is more than one password its key to ensure the user accessing to their accounts before the completion of any contract to ensure the difficulty of entering hackers to any system electronically.	**2**
4	Many of the information technology resources are relatively high price according to the prices in 2011 for what was expected from the savings achieved through the application of cloud computing.	**1**
5	Although reduced costs which is provided through the use of a smaller number of computers, as well as reducing the losses in the computers, as well as reducing the losses in the exploitation of the capacity of full computers, but the insurance procedures in Banking cloud computing takes longer than the traditional roads	**1**
6	Many banks staff is not well qualified to deal with new technology to ensure the full benefit of them.	**1**
7	Increasing the probabilities of theft from banks through the ease of e-banking credit card fraud	**1**

As is clear from the field study and by limiting the open-ended questions that the solutions proposed to overcome the disadvantages associated with the use of cloud computing in the banks as follows:

A table showing the proposed solutions to overcome the disadvantages associated with the use of **Cloud Computing in banks**, **and the repeated answer in open question No. (3) In questionnaire form**

no	The proposed solution	Repetition
1	Reducing the transaction, that is done through external computing in banks as much as possible.	**2**
2	Trying to achieve economic savings through savings in operational costs such as maintenance cost for hardware or labor cost.	**1**
3	Rehabilitation of workers in banks to deal with cloud computing in order to be well qualified to deal with new technology to ensure the full benefit of them.	**1**

VI. CONCLUSION

Results:

1- The Integration between the savings in the cost of a cloud computing, both from the supply side or demand side that could eventually lead to significant economic savings . .
2- There are many risks that can occur in banks as a result of the application of external cloud computing.
3- The biggest concern in Investment services And banking is that the computing environment of cloud is not secure or flexible enough to enable them to bear the demands on the banking operations computerized by customers on an ongoing basis in the sense that it must confirm that clients are receiving banking services, after the signing of doing it in person during each period of time and signing it Personally with the responsible Department of the Bank.

Recommendations

Based on findings resulted from the study it can be recommended for the following:

1- The Use of Cloud Computing in the banks would have to be cautiously reducing the probabilities to cloud computing risks.
2- Making cloud services delivery model that ensures Meeting clients' Needs with Work Needs at the same time.
3- Taking into Account Matters pertaining to the confidential and secure data and commitment Obligations to customers and to achieve the various standards Of The quality of banking services according to the use of cloud computing.

Results and recommendations for the research

Serial	The result	Recommendation for it
1	Cloud computing technology have led to the change in the method of providing banking services in banks, so in order to comply with these developments accompanying the emergence of the need and therefore the need to apply new standards for economic evaluation of the assets after the application of that technology.	Dissemination of technology to take advantage of cloud computing and trying to lay the foundations for the economic evaluation of resources in line with the use of such technology.
2	It is No longer appropriate to use traditional methods of resources management of information technology, as doing internal transactions within the bank.	The transition to the use of cloud computing technology in all internal transactions within the bank.
3	Most of the methods used to assess the economic costs associated with the neglecting expense to secure data in transactions using cloud computing within the bank.	Update methods used in the economical assessment, including guaranteed to be inclusive of all cost items.
4	Lack of awareness from employees of many of the scientific methods needed to be done when making the work in the use of cloud computing within the bank.	Developing technical skills of workers through making training courses for them in this area.
5	The neglecting of workers to use all the possibilities available to them through cloud computing.	Informing Workers with the importance of their use of the possibilities available to them through cloud computing.
6	It may result from the use of cloud computing, many risks associated with the theft of vital data.	Further secure the vital data and save them from being stolen, lost or damaged.

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