The Role of Cloud Computing to Improve Foreign Trade in Developing Countries

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Abstract

This study aims to focus on the importance and role of cloud computing in improving the level of Foreign Trade, especially in developing countries. Cloud computing, its concept, features, benefits, and applicability in trade are clear. Simply, a cloud computing is a group of technical servers connected together, which are centrally managed through local information networks or the Internet. To reduce time, space, speed of data delivery. Cloud computing service provider has the Capability of providing large storage spaces for users. Developing countries are taking steps or considering policies towards boosting their domestic cloud computing industry.

Keywords: Cloud Computing- Foreign Trade -Developing Countries-Services.

1. INTRODUCTION

Cloud computing has wide characteristics, enables it to improve the level of Foreign Trade in developing countries. It has computing facilities to enhance the processes of providing services according to consumer demand. Cloud computing services are accessible through any electronic device, such as cellphones, laptop and desktop computers. Moreover, cloud computing reduces, maintaining, managerial and information technology costs. Foreign trade systems can benefit from cloud capabilities by increasing its efficiency, especially in developing countries. Today, developing countries try to benefits from global cloud computing players around the world. For instance, IBM and Microsoft have established cloud-computing centers in many cloud-computing countries. This study suggested that developing country markets are important market forces to drive the global shift toward cloud computing. It is possible for the developing economies, to catch up with the developed countries as cloud computing allows them to have access to the same Information Technology infrastructure, data centers, and applications. Companies and traders can use cloud computing to pay for services based on usage, and upload, save documents related to their foreign trade.

2. Research Problem

Research problem can be identified in the following statements, is there a good future for cloud computing in developing countries, what is the possibility of establishing information and communication law in developing countries and rules to protect consumers dealing with electronic commerce and What is the effectiveness of the procedures and projects that are accomplished in cloud computing in developing countries.

3. Research Hypothesis

Can be as follows: "The volume and the role of cloud computing in developing countries may increase, with increasing attention and improving the infrastructure in the ICT sector".

4. Research importance

-This study recommended Cloud Service Types, in Foreign Trade in Developing Countries, and the challenges that facing it in these countries.

-This research attempts to benefit from previous practices that applied cloud computing, especially in developing countries.

5. Research Methodology

Descriptive method used in this study, that describes the characteristics of cloud computing. In addition, it focuses more on Case Studies of Developing Countries.

6. The Term (Cloud Computing)

International Telecommunication Union (ITU), define it as, a pattern that enabling network access to elastic shareable physical resources with on demand and self service provisioning. (1)

6.1 Types of cloud computing services

As shown in figure [1], Cloud computing offers three types of services:

A-Infrastructure as a Service (IAAS), B-Platforms as a Service (PAAS) and C-Software as a Service (SAAS).
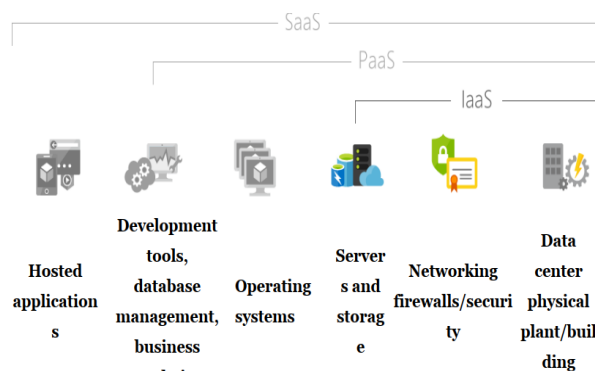

FIG [1] Different types of cloud computing services

First, Infrastructure as a Service (IAAS) is an instant the physical infrastructure (hardware) of the cloud, the cloud computing service provider manages the infrastructure, while the end-user purchases, installs and configures its software. Second, Platforms as a Service (PAAS), is a software package that provides the ability to create, develop, test and automate evaluation. (PAAS) is the link mediates a service between (IAAS) and (SAAS). Third, Software as a Service (SAAS), this service is based on providing software to the cloud without the need to install it on the cloud, and it allows users to connect to and use cloud-based apps over the Internet. For examples are email and office applications. Programs are often compatible with all types of devices (laptop, desktop, phone…etc.) (2).

6.2 Cloud Computing Models

Public Cloud Computing: It is an infrastructure, that provides all computing applications and resources to all clients and applications are available on computing servers. Private Cloud Computing: It is infrastructure, but it is rented for a single person or organization so that it works for private purposes in terms of data, security, quality, and efficiency of service. Hybrid

Cloud Computing: It is an infrastructure that combines public and private cloud models so that each of them can be provided.

7. Benefits of Cloud Computing

Cloud computing reduces significant costs for its users due to the lack of having to use special devices after purchasing them and the costs of maintaining them. Cloud computing provides safe access to data and information stored on it. Cloud computing is a great way to keep data and information from losing it. Cloud computing depends on the strength of network servers and not on the personal resources of your device. No matter how efficient your personal computer is. Cloud computing ensures continuity, guarantee safe and quality service without interruption.

8. Cloud Computing in Developing Countries

Cloud computing technology advances in communications technology, and infrastructure, enables individuals and businesses around the world to connect to data and computing resources everywhere. The evolution of mobile phone industries has enabled mobiles providers to build simple interfaces into mobile phones for such connectivity. With cloud computing, mobile phone connects to the cloud service provider. All services are available from wherever we are. Developing countries need more strategic approaches to cloud computing to narrow competitiveness with global rivals. An instant, countries like Nigeria and Kenya are now using, banking transactions through mobile phones. These developing countries that lack banks or (ATMs), Mobile money applications are emerging as potent financial tools in rural and remote areas. Without bank accounts (3).

8.1.1 Cloud Computing in Nigeria

A large percentage of companies in Nigeria use (SaaS) and very few companies use (IaaS). (SaaS) has a higher rate in use than (PaaS) and (IaaS). Email services is the highest cloud service used. Major cloud providers Cisco, IBM and Google. They providing cloud-computing services in Nigeria. Cloud computing is also receiving strong support from the government. Microsoft collaborates to provide cloud services to the Central Bank of Nigeria as well as the top eight banks in Nigeria, to reduce business cost, and boost their profitability. The Nigerian National Petroleum Corporation (NNPC) also built a private cloud in (2012) (4).

8.1.2 Cloud Computing in China

In 2007, the Chinese software industry received 24 investments from the government, mostly in (SaaS). IBM opened a cloud center in Beijing In (2008). In (2009) IBM also opened in (2008), a healthcare Lab in Beijing, work with hospitals and rural area. On another hand, China's Beijing University is among (17) educational institutions worldwide to participate in the IBM Cloud Academy (5).

8.1.3 Cloud Computing in Saudi Arabia

Cloud computing is being applied in Saudi Arabian. The Government is investing wisely in electronic government applications to improve facilities provided by the public sector and making use of cloud computing services. Two telecommunication business companies in providing cloud services in Saudi Arabia. However, the Information Technology Commission issued the regulatory framework for cloud computing in

the Kingdom, after studying and evaluating international experiences and analyzing the views of the public. The framework included obligations and rights for both cloud computing service providers, individual users, the government and the private sector. The authority indicated that the regulatory framework for "cloud computing" will work after 30 days from December 2019 (6).

8.1.4 Cloud Computing in Egypt

Egypt has decided to develop a strategy for Government Cloud computing, to support the utilization of cloud computing in the government. All the stakeholders from the government, private sector, and others. Cloud computing provides an opportunity for the Egyptian government to deliver efficient, cost- effective public services. (We) and (Orange) telecom in Egypt, use Cloud Computing service, where customers can pay for renting computing resources, offering Infrastructure as a Service (IaaS), as well as Software as a Service (SaaS), by using self-provisioning server management and Get easy access from anywhere.

Egypt will host Chinese telecom company Huawei's first cloud data platform in the Middle East and North Africa, Huawei is seeking to expand in Africa. The size of the cloud computing market in Egypt, before the end of 2015 is estimated at 120 million $, this is why the Egyptian Telecom and Information Technology Authority, introduced a strategy to use the cloud computing services in the government through a working group. That included all the relevant stakeholders from the government, the private sector, academic institutions and organizations (7).

9. Cloud Computing Services on Foreign Trade:

Cloud computing is already making an advance at leading trade finance software players. To enable banks and trade finance organizations to maximizing its profitability. All foreign trade stakeholders get benefits from cloud computing, such as importers need to buy goods or services from exporters in a different country. Importers use Cloud Computing trade finance from their banks for guaranteeing the time, delivery and the quality of goods and services against the payments made. Importers expect from their banks a fast flow of trade documents to save money and time, with low costs and standing charges.

Exporters who selling goods or services to importers in a different region want to be assured of getting his money from the importer. By using the cloud computing in trade exporters ensures timely payment for goods or services delivered with no risk. Cloud computing guaranty higher straight-through processing or (STP) rate in a trade transaction. A higher rate of (STP) means the speed of document verification and communication with the bank. Developing countries should increase Trade websites, because, it is portals contribute to achieving higher (STP) rates.

World trade organization have not identified cloud computing. However, Under the General Agreement on Trade in Services (GATS) members include computer services and telecommunication services, which are relevant to cloud computing (8).

Paper documents exchange in trade cannot guarantee satisfy, efficiency and security. In (2005) United Nations (UN) recommended establishing a (Single Window) project. It is

a single entrance for all documents, necessary to import or export goods and services, for more efficient and secure customs process (9).World Customs Organization Conference in (2011), featuring the theme of the cloud. Representatives from the (USA) and Namibia make plans to create the (Trans Kalahari Corridor) Regional Single Window. With a system built on Microsoft technology. That will link customs between the governments of Namibia, Botswana, and South Africa. Electronic commerce services as marketing, selling, delivering, and paying for products and services that the Cloud can provide.

Cloud computing in developing countries will look to take advantage in electronic commerce. Marketing, selling, delivering, and paying for products and services that the Cloud can provide. However, online banking, enterprise content management, and supply chain management can all fall under the electronic commerce header.

Cloud computing has several benefits for developing countries. These benefits include ease of access to affordable computing infrastructure and the ability to access the up to date hardware and software. The Following table (1), show how developing countries could get benefits from the cloud service types in foreign trade.

Table (2) cloud computing support for foreign trade in developing countries

Cloud Service Model	Support for Foreign Trade Activities
Software as a Service (SaaS)	Exporters and importers use of standardized applications for exchanging documents. For instance, Google Documents can aid Exporters and importers in spreadsheet processes To decrease Expenditure.
Platform as a Service (PaaS)	Exporters, importers, financial institutions and customs access to a development environment or platform in the cloud where install on Their applications for instance (Google App Engine). This type of service is directed towards programming and application developers to customize their implementing and analysis tools.
Infrastructure as a Service (IaaS)	Supply as requested machines like computers, servers, and personal computers. (IaaS) benefits is to reduce financial cost and minimize logistical burdens.

Cloud computing service takes place over a network, where users can access to computing resources, via the internet network from anywhere, makes it more susceptible to all forms of cyber-attacks (10).

The availability of a good internet connection is one of successes of the effective use of cloud computing in developing countries. Therefore, the lack of a good internet connection is a particular problem in developing countries. There has been a lack of awareness of cloud computing, even

among large enterprises in developing countries. Level of (ICT) Infrastructure technologies and government support for cloud computing specifically in developing countries is moderate. A low number of skilled software developers are some critical problems for the development of (PaaS) and (SaaS) in developing countries.

Many developing countries have made less progress in creating legal frameworks for cloud computing. the fear of losing data in the cloud especially with the incessant electric power outages they experience in developing countries. Based on face-to-face interviews a survey of the IT workforce from Academia and the IT industry, identified that the major factor behind the slower growth of Cloud computing was the controversial view of the fear of job loss in the minds of the IT workforce (11).

10. Conclusion

Cloud computing has great potential for the foreign trade and finance industry. The benefits can be reducing costs and increasing accessibility to trade finance solutions. Many countries, such as Egypt, Nigeria, and Saudi Arabia, have taken positive steps to enter the world of cloud computing. This study recommended how to take advantage of cloud computing in foreign trade in developing countries. However, it is some challenges that face developing countries in establishing of cloud computing, such as a lack of communication infrastructure and a lack of rules and laws governing the cloud computing service.

And there are several recommendaions from this research can be conclude in several points in developing countries required many issues to enhance cloud computing such as:

- Cloud computing must be included in business environments, banks, customs, and trade documentations.
- Establishing high-speed internet services in these countries, with an emphasis on communication and information infrastructure.
- Increased awareness of the importance and the role of cloud computing in facilitating imports, exports and e-commerce operations.

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