



4th Information Systems International Conference 2017, ISICO 2017, 6-8 November 2017, Bali, Indonesia

A Review on Cloud Computing Acceptance Factors

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Abstract

Cloud computing technology is regarded as a highly useful application for organization due to advantages such as long-term cost saving, easy access of data at any given time and economically. In fact, there are lots of free cloud storage provider these days whereby user can easily store and shared their organizational data easily and efficiently. Both government and private sectors are looking into optimizing their cloud data storage. However, some of them are still in the early implementation phase with issues on both technological and human factors need to be properly taken care of to ensure its success. In the case of Malaysia our Government highly encouraged the use of cloud computing technology. Given that it is in the early implementation phase it is important to understand the factors that contribute to the use of cloud computing. This study, review studies done in health. Higher learning institution and public sector. It was found that the most contributing factors for use or cloud computing are technology readiness, human readiness, organization support, environment and, security and privacy. We hope that this study will help strengthen our knowledge and readiness in implementation of cloud computing.

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Peer-review under responsibility of the scientific committee of the 4th Information Systems International Conference 2017.

Keywords: Cloud Computing; Success Factor; Success Model; Health Care; Higher Education; Public Sector

Introduction

Cloud Computing (CC) has become an option for many organizations; particularly in curbing the current economic situation is forcing every decision made by deciding not to harm the organization. In the past, the physical data centre was a requirement and pride in the information technology, but now the physical data centre can already be forgotten when cloud computing technology provides data storage and other services at a cheaper price and very

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economical. A well-adopted cloud gives a lot of advantages to the organization such as easy and pervasive access to data and applications, increase cost effectiveness and build up competitive advantage [1]. The adoption of CC in the organization will increase a substantial saving with regards to capital expenditure and operational expenditure [1]. The purpose of this paper is to review the factors of cloud computing implementation studies that have been done before in three sectors; health care, higher education, and public sector. The objective of this review was to conclude the factors that dominated all three sectors. Is there another factor to certain sectors only? To find answers to the key questions, review using the Methodological Review and Theoretical Review was used. These three sectors were selected based on the observations obtained in a previous review that shows these sectors are among of the sectors which most implementing cloud computing.

1. What is cloud computing?

Cloud Computing is not a new thing, but it is the physical data centre technology evolution to virtual centre. National Institute of Standard and Technology (NIST) defined Cloud Computing as a model for enabling ubiquitous, convenient, on-demand network access to a shared pool of configurable computing resources (e.g., networks, servers, storage, applications, and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction [2]. CC basically offers three types of services models; Software as a Service (SaaS), Platform as a Service (PaaS) and Infrastructure as a Service (IaaS). SaaS is the highest level of the cloud of which all the services are offered by the cloud providers. Users who adopt PaaS only manage their applications and data and those adopting IaaS will have their infrastructure like server, storage and networking run by the providers.

There are three models of deployment – Public Clouds, Private Clouds and Hybrid Cloud. In public clouds, all the services offered by the providers are shared together with all the cloud users. Private clouds are deployed when the users need to enhance their data security to which the clouds are exclusively catered for them. The hybrid cloud is the combination of both public and private clouds. The adoption of these deployment and services offered depends on the needs and requirements of the organization.

2. Implementation of cloud computing

3.1 Cloud computing in healthcare sector

J. Abdullah and L. Seng applied a conceptual model of users' acceptance of cloud computing solutions to look at factors influencing acceptance of cloud computing technology among physicians and nurses worked in hospitals across Klang Valleys, Malaysia. Five key components have been employed in this study; Perceived Usefulness, Perceived Ease of Usage, Attitude Toward Use, Perceived Risk and Institutional Trust [3]. This study took 140 physicians & nurses working in Klang Valley's hospitals by using the TAM model. A multiple linear regression technique has been applied to analyze the finding. The outcomes have supported the hypothesis for variable Perceived Usefulness, Perceived Ease of Use, Attitude Toward Use and Perceived Risk. These four elements indicating significant relations and positively towards the intention to use cloud computing [3]. Model as shown in Fig 1.

Another study conducted in this area was from Alharbi, Fawaz Atkins, Anthony Stanier, Clare (2016) where they have conducted research on factors that influence the adoption of cloud computing in Saudi Arabia in the health sector. In this work, they used Adoption of Technology-Organization-Environment (TEO) & Human, Organization & Technology-fit (HOT-fit) framework. Five important factors were being assessed in this theoretical account which are Technology, Human, Business, Environment, and Organization. With the 354 respondents, the results of the study show that there are five main factors. (1) soft financial analysis, (2) relative advantage, (3) hard financial analysis, (4) attitude toward change and (5) pressure from partners in the business ecosystem [4]. This study is very interesting because it managed to identify critical factors that are useful to industry players and academics that influence adoption of cloud computing in the health sector.

Ahmadzada, Saleh Zayyad, Musa A Toy Can, and Mehmet conducted their research in the Republic of Azerbaijan to review the readiness of implementing cloud computing in the health system at the hospital around Baku, the capital of Azerbaijan [5]. More than 100 hospital staffs from private and public hospital are involved in the

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