Chapter 16
An Investigation on Cloud Computing Adoption Within Information Technology Companies

Alireza Mohammadi
University Putra Malaysia (UPM), Malaysia

Armin Saeedikondori
Multimedia University Malaysia, Malaysia

Hossein Nezakati
Sunway University, Malaysia

Naghmeh Sabermajidi
Majan University College, Muscat, Oman

Amer Hamzah Jantan
https://orcid.org/0000-0003-1519-4584
Putra Business School, Malaysia

ABSTRACT

Cloud computing is one of the most popular technology services, and its usage has increased significantly in recent years. This study aims to understand the factors that influence cloud computing adoption by Malaysian information technology (IT) companies. An in-depth review in the previous literature demonstrated a relationship between relative advantage, complexity, compatibility, top management support, firm size, technology readiness, competitive pressure, and trading partner pressure with cloud computing adoption in Malaysia. The study's findings displayed that relative advantage, compatibility, top management support, and competitive pressure significantly affect cloud computing adoption. The study contributes to applying new technological features of cloud computing adoption in the industry through a wide range of variables. The results also help companies foresee their IT investment when implementing cloud computing. The relative advantage is identified to have the highest impact on cloud computing adoption.

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1. INTRODUCTION

Nowadays, the computing concept has changed to become service-oriented like the traditional utilities such as electricity, gas, water, and phone subscriptions and deliver the services in the same manner. Users can send requests and receive responses in the cloud settings even with very little knowledge of their technical work and server location. Many paradigm shifts occurred in computing to meet this utility's vision; paradigms like cluster computing, grid computing, and cloud computing (Buyya et al., 2009). Cloud computing is a scalable type of computing, and because of its virtual source ability, users can easily share the resources. Users don't need to have the technical knowledge to use this service (Kayes et al., 2020). Many servers exchange information among themselves to respond to the online user request; it means a user could be unaware of technicalities yet connected to many hosts and servers simultaneously.

In addition to delivering services like online applications, cloud computing includes the datacenters, which provide both hardware and software services. These services are referred to as Software as a Service (SaaS), commonly used throughout the present study. Cloud refers to the internet and generally relates to software and hardware datacenters (Fox et al., 2009; Kayes et al., 2020). Cloud computing is internet-based computing services such as E-mail, and Enterprise Resource Planning (ERP), allowing internet users to communicate with many exchange servers simultaneously (Low et al., 2011).

1.1 Cloud Computing Categories

Generally, there are four cloud computing categories, including Public Cloud, Private Cloud, Hybrid Cloud, and Community Cloud (Ngongang, 2011). A public cloud is when an owner prepares the resources for the client on the public network. The technology belongs to the provider, so the user does not control the resources, operations, services, and delivery responsibilities. In pay per use model, the user only pays for the host's selected services. Perceptibly, cloud providers do not tie themselves to only one customer and simultaneously provide a platform for many. Amazon Web Services, Google App, and Microsoft Azure are some examples of public clouds.

In contrast, private cloud users have the ability to control the resources on their private network. The main users of this type of cloud computing are companies. According to the network policies, every company can decide the data accessibility and limitations for its users. The whole system is inside the company, and they have control over it by using a firewall. Therefore, in this category, companies have high control over the network while the service provider manages the maintenance and upgrades. When the hardware is corrupted, the system automatically switches to another node, which is the virtual servers.

The platform of a hybrid model is interoperating between public and private clouds. It is suitable for companies to have internal infrastructure inside the company, enabling them to prevent a third-party cloud from accessing their data (Lehrig et al., 2018). This model shows that many enterprises like to have a private cloud for themselves, and all the information should not remain in the public cloud. They can decide to access data locally or remotely.

The last type of cloud computing is the community cloud that allows companies to share the infrastructure and the resources with other companies in similar markets and activities. They can communicate directly or with the help of a third party over the net. Several domain controllers and computers work aligned for parallel processing to do the operations and tasks faster. The structure should be on a peer-to-peer network by virtual servers in other nodes to record data, so when the local server is out of