A Conceptual Model of E-Learning based on Cloud Computing Adoption in Higher Education Institutions

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Abstract — Cloud computing refers to adopting advanced virtualized resources for high scalability that can be shared with end users. Utilization of this technology is expediting in the world to intensify the potential of cloud computing based on E-learning in higher education institutions. Due to various apparent reasons, some higher education institutions are disinclined to relocate internal services to cloud services. To develop a model for utilizing E-learning based on cloud computing is the focal point of this paper, which is based on two prominent theories: The Fit-Viability Model and Diffusion of Innovation, in addition to information culture factors. The main purpose of this model is to investigate the significant factors to exploit the cloud in the enhancement of E-learning in higher education institutions.

Keywords: Cloud Computing, E-learning, Fit-Viability model, Diffusion of innovation, Information culture

Introduction

Cloud Computing has changed the meaning of information technology (IT)[1, 2], effectively on providing various services of the Internet and communication with multiple servers simultaneously. Institutions can very effectively access various applications, with the help of different cloud features like Virtualization, Broadband Internet, and Faster Connection. However, this technology known as the new trend in the world of information technology has an enormous impact on different institutions[3]. Educators in institutions can access their applications such as E-Learning and other applications with the help of this emerging technology “Cloud Computing”[4] without upfront infrastructure. There will be no problem of power and storage for the authorized users and employees of the various business sectors due to cloud computing.

Furthermore, [5] states that higher education system takes the credit of developing the infrastructure as the innovator of networking and high-performance computing because of its convenience to the academic services based on the cloud for the optimization of a wide area, networking performance and support of necessary applications of data mining. This emerging technology has also accelerated the adoption of multiple innovations in various institutions. Moreover, the vital resources and facilities of cloud computing Technology, which is highly essential in academia, are very systematically listed.

Public and private Institutions have proposed a comprehensive and complete introduction to cloud computing [6]. E-Learning based on cloud computing in higher education institution is profitable for both administration and students of those institutions. However, the requirement of hardware and software cannot be disregarded. The shifting of work onto the cloud is necessary for the efficiency of work and saving of time. Certain tools to utilize cloud such as; cheap devices for access, web browser’s configurations, broadband Internet without wireless hotspots are required by all institutions[8].

In spite of all above-mentioned cloud computing utilities, some of the institutions are reluctant to transfer their internal services to cloud services due to many factors[9]. In addition, in the literature, relatively few studies investigate E-learning based on cloud computing adoption in the context of higher education Institutions [10-14]. There is an absence of studies, investigating the influencing factors of E-learning based on cloud computing in higher education institutions context [9, 15, 16]. Moreover, in developing countries, there are several challenges faced by the adoption of cloud computing among the higher education institutions [10], including the lack of IT infrastructure, the economic, social, cultural and IT knowledge and skills among people and infrastructure factors [10], [17]. These factors and challenges will be analyzed in this paper based on recent literature review [18]. This study, therefore, proposes a model to explore the factors influencing higher education institutions to adopt E-learning based on cloud computing. Here, most renowned IT adoption theories like DOI [18] and Fit-Viability theory [19] will be conducted.