Chapter 2
The Role of Cloud Computing Adoption in Global Business

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ABSTRACT

This chapter introduces the role of cloud computing adoption in global business, thus explaining the application overview of cloud computing, the adoption of Information and Communication Technology (ICT), and the Technology, Organization, and Environment (TOE) framework related to technological context, organizational context, and environmental context. In addition, technological context includes the relative advantage, uncertainty, compatibility, and trialability. Organizational context includes the size, top management support, innovation, and prior technology experience. Environmental context includes competitive pressure, industry, market scope, and supplier computing support. Adopting cloud computing in global business will significantly enhance organizational performance and achieve business goals in the digital age.

INTRODUCTION

Cloud computing is a technological innovation that has adapted the utilization of information systems from traditional physical computers to virtual technology services (Ratten, 2014). The rapid emergence of cloud computing usage has occurred because of its dynamic and innovative nature (Stein, Ware, Laboy, & Schaffer, 2013). The use of ICT can improve business competitiveness, and has provided genuine advantages for small and medium-sized enterprises (SMEs), enabling them to compete with large firms (Bayo-Moriones & Lera-Lopez, 2007). Cloud-based end-user services, such as e-mail or office applications, find their ways into daily business practices, offering new opportunities and capabilities, but equally creating new challenges for stakeholders (Alshamaila, Papagiannidis, & Li, 2013). Cloud computing services are helpful to consumers because of the reliability and flexible access they provide to data on hosting devices (Gray, 2013).

Cloud technology allows an organization to scale its business operations easily (Berman, Kesterson-Townes, Marshall, & Srivathsa, 2012). Sultan (2013) stated that cloud computing makes economic sense in the digital age. Cloud computing represents a fundamental shift in the delivery

of IT services that has permanently changed the computing landscape (Srinivasan & Getov, 2011). Organizations can use cloud computing to be more flexible and cost effective so that people working for them can have better scalability of information systems (Ratten, 2012). Cloud computing services save consumers money by handling information maintenance needs and by facilitating quick technology applications without the high upfront costs of purchasing hardware or software resources (Karakas & Manisaligil, 2012).

The strength of this chapter is on the thorough literature consolidation of cloud computing. The extant literature of cloud computing adoption provides a contribution to practitioners and researchers by describing a comprehensive view of the functional applications of cloud computing to appeal to different segments of cloud computing in order to maximize the business impact of cloud computing adoption. In this chapter, the TOE framework is explained and leads the practitioners and researchers in the area of innovative business management regarding technological context, organizational context, and environmental context systematically utilized to gain sustainable competitive advantage in modern organizations.

Background

In computer networking, cloud computing involves a large number of computers connected through a communication network such as the Internet, similar to utility computing (Carroll, Kotze, & van der Merwe, 2010). Cloud computing is a synonym for distributed computing over a network, and means the ability to run a program or application on many connected computers at the same time. Cloud computing reshapes the IT sector and the IT marketplace in modern business (Prasad, Gyani, & Murti, 2012). In traditional IT environments, the software, hardware, and networking equipment require specialists for implementing and maintaining IT services (Thinkstrategies, 2002).

Cloud computing is defined as a new style of computing in which virtualized resources are provided as services over the Internet. Cloud computing economically moderates the requirement of advanced handsets for running mobile applications (Prasad et al., 2012). Mell and Grance (2010) defined cloud computing as a model for enabling ubiquitous, convenient, on-demand network access to a shared pool of configurable computing resources that can be rapidly provisioned and released with minimal management effort or service provider interaction. Cloud computing is considered as a collection of disembodied services accessible from anywhere using any mobile device with an Internet-based connection (Erdogmus, 2009; Gartner, 2009; Misra & Mondal, 2010; Sultan, 2010). Cloud computing is viewed as a type of parallel and distributed system consisting of a collection of interconnected and virtualized computers that are dynamically provisioned and presented as one or more unified computing resources based on service-level agreements established through negotiation between service provider and consumers (Buyya, Chee Shin, & Venugopal, 2008).

Cloud computing includes network access to storage, processing power, development platforms, and software. Cloud computing has been in use for years. In 1990s, cloud computing is developed by major IT providers such as Sun, Microsoft, Google, and Amazon. Different products come into use for different levels of users. The most popular services for end users include web-based email systems (e.g., AOL, Gmail, Hotmail, and Yahoo Mail), and office applications (e.g., Google Docs and Microsoft Office Online). Developers can run their programs on the cloud like Google App Engine, Windows Azure, and Force.com. Organizations store their large data on remote servers such as Rackspace, Microsoft Azure, Animoto, Jungle Disk, Amazon's EC2, and S3 servers (Liu & Cai, 2013).

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