

Chapter 11

An Entrepreneurial Approach to Cloud Computing Design and Application: Technological Innovation and Information System Usage

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ABSTRACT

The design and application of cloud computing services is inherently entrepreneurial as it is constantly evolving as a result of technological innovation. This chapter focuses on providing an entrepreneurial approach to understanding change in the cloud computing context by highlighting the importance of innovative system usage. The chapter discusses how cloud computing services are creating a ecosystem of mobile commerce applications that is changing the way consumers, businesses and the government collects, disseminates and stores information. These changes have given way to entrepreneurial service innovations in the cloud domain that are a result of consumer demand for more current and relevant technological innovations. This chapter addresses the role of entrepreneurship in technological innovations by focusing on marketing and learning applications that are unique to cloud computing services. The future research suggestions from this chapter stress the importance nature of being entrepreneurial to encourage technological innovation in the cloud computing context.

INTRODUCTION

Cloud computing is a technological innovation that provides a computing platform for every business that has software, hardware and infrastructure (Ratten, 2014). As a rapidly emerging technology trend, cloud computing has developed as more information needs to be stored in a mobile electronic data format (Ratten, 2015). The advantage of the internet for storing information is that it enables convenience, flexibility and anonymity (Freestone & Mitchell, 2004). The concept of cloud computing has been

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around for a long time but only recently has it been mass marketed to consumers and businesses (Harauz, Kaufman & Potter, 2009). Cloud computing services have been referred to as Infrastructure as a Service (IaaS), Platform as a Service (PaaS) and Software as a Service (SaaS) (Morrell & Chandrashekar, 2011). Cloud computing comprises a wide range of internet applications including providing information and configuring servers (Moch, Merkel, Gunther & Muller, 2011).

Cloud computing enables the outsourcing of technology infrastructure in order to manage information systems, protect data and enabling people to gain access to information process intensive activities by lowering the barrier to entry (Ratten, 2013a). The large cloud computing service providers including Amazon, Yahoo and Salesforce have the ability to provide massive data management and data mining services that a small company would not be able to do by themselves (Bradshaw et al., 2011). This has lead to cyberinfrastructure being built upon a service orientated architecture that is based on grid and utility computing (Vouk, 2008). The cyberinfrastructure enables a large amount of electronic information to reside in a large data centre that is managed by a third party and accessible at any time or geographic location with an internet connection (Bradshaw, Millard & Walden, 2011). The use of on demand services is a key differentiating feature of cloud computing, which has evolved from the increase in the number of e-commerce transactions occurring (Osterman, Iosup, Yigitbasi, Prodan, Fahringer & Epeman, 2010). Globally many businesses have increased the commerce they conduct on the internet and with this large physical data centres have been built to handle the increased internet traffic and data flow (Ratten, 2013b). At the same time cloud computing has progressed as a way for businesses to store data without facing large capital hardware outlays and for outside companies to manage information software systems (Armbrust, 2010). This paper defines cloud computing as a “platform that is able to dynamically provide, configure and reconfigure servers to address a wide range of needs ranging from scientific research to e-commerce”.

Cloud computing enables a person to access information stored electronically from any location (Lu et al., 2003). This advantage of increased independence to store electronic data enables the transfer of information and better communication (Altschuller & Benbunan-Fich, 2009). Part of the appeal of cloud computing is that it enables access to material previously only available in hard copy format thereby increasing a person’s mobility to communicate. Mobile commerce has further increased a person’s access to electronic information in a free-space environment without physical conduit technology being used (Aungst & Wilson, 2005). Mobile commerce is increasingly being used for business purposes and cloud computing is a major part of future growth within the industry as it is an alternative to face-to-face transactions. In conjunction with mobile commerce, cloud computing integrates electronic data storage into business processes thereby forming part of the electronic commerce industry (Vaquero, Rodero-Merino & Moran, 2011).

An ethical issue has been raised by cloud service providers managing information in the event of cybertheft or system crashes (Sasikala, 2011). Other ethical issues facing cloud computer services include privacy, anonymity, liability, reliability and government surveillance (Jaeger et al, 2008). Despite the advantages of cloud computing, there are ethical issues related to different international laws occurring in countries around the world. This has lead to a growing divide between the current usage of cloud computing services and the laws governing its applications (Vaquero, Rodero-Merino & Buyya, 2011). The ethical issues raised by cloud computing is an area that merits more attention because of the increased usage by both consumers and businesses. Educational institutions including various universities around the world have been partnering with large technology companies such as IBM and Google

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