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Adoption Of Cloud In Enterprises Environment

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ABSTRACT

Much of the research that has been conducted into the adoption of cloud-based systems have concluded that businesses have often shown resistance to and mixed views on aspects of cloud adoption. Upon reviewing the literature, it is noted that there are some specific areas of concerns surrounding adoption of cloud-based technologies within business sectors. These concerns tend to focus on the potential for a negative impact on the business due to uncertainty, the complexity of implementing cloud structures, the reliability of information systems, data accessibility, resource re-organization, and privacy & security. The overall perception of business users seems to be that adopting cloud technologies may bring more problems than benefits.

This research focuses on: identifying the critical factors for businesses currently using traditional computing for their IT, especially among financial and corporate sector firms; reviewing their concerns; and establishing a framework to support their transition towards cloud-based technologies (such as SaaS and IaaS) for their IT services. The research, therefore, comprises two processes: 1. through data analysis, the investigation of the factors that affect business in adopting cloud technologies and 2. through a review of the previous literature. Understanding the business model, as well as the perceptions of users and senior management will enable an appropriate framework to support the adoption of cloud technologies to be recommended. Such a framework and user training structure are vital factors to alleviate the negative perceptions business users regarding the adoption of cloud technologies and thence to support their successful implementation. For this research, we have collected perceptions and feedbacks through an online questionnaire from employees of varying professions within a multinational corporate services business. The employees' data were analyzed in respect to their technical and managerial abilities. The data analysis provided an understanding of the potential benefits and drawbacks of cloud technologies a business might face if implemented. This research found very promising results among various levels of

staff working in different jurisdictions in respect to improved willingness to adopt the technology.

KEYWORDS. Cloud Computing, Enterprise System, Technology Adoption.

INTRODUCTION

Advances in Information Technology (IT) have undoubtedly progressed rapidly with newer and better ways of utilization within business sectors. Cloud technology is one of these relatively new technologies and has been growing rapidly in recent years. Cloud technology is widely used across a variety of devices - PC, smartphones, tablets and the IoT (Internet of Things). Cloud computing has not only influenced consumers but is also becoming an integral part of our daily computing, especially when it comes to mobile computing and BYOD (Bring Your Own Device). According to Ma (2015) the name "cloud computing" was coined in 2008 and has attracted huge attention within the information technology (IT) industry. Ma (2015) further highlighted that cloud computing has resulted in significant improvements in terms of providing aggregate IT services and coordinating resources for intensive computing tasks.

On the one hand, IT services usually require significant investment in hardware, licensing software, infrastructure, resources, maintenance and labour while, on the other hand, organizations are continually looking to cut operating costs due to shrinking budgets. These factors are increasingly pushing stakeholders to explore alternative ways to procure IT resources in respect to both applications and services while at the same time keeping their business running efficiently (West, 2014). In this context, Gangwar, Date and Ramaswamy (2015) have stated that organizations look for effective ways to reduce costs in tandem with efficiently managing their resources, including information systems, hardware, software and IT operations through better tools and techniques. Cutting costs on IT services, resources and infrastructure can take a heavy toll on business productivity and competency, however. Khan and Al-Yasiri (2015) further state that IT infrastructure can be very costly if it is maintained internally, but that without proper IT services the organization can quickly lose focus on its customers' needs. To limit the cost incurred by the use of IT, therefore, many organizations have increasingly outsourced their non-critical IT services, keeping just a bare minimum of IT resource internally. Since cloud computing allows business partially or completely to outsource IT services, it is becoming a viable option to allow significant savings on IT resources.

For businesses, adapting to cutting-edge technologies has always carried substantial risks and uncertainty. Nonetheless, in the modern market environment,

businesses need to keep up with rapid technological shifts if they are to remain competitive. Despite its numerous advantages, adoption of cloud technologies appears to be challenging for businesses. Cloud-based computing uses a number of technologies in conjunction, and therefore for an industry to adopt cloud architecture, it has to deal with numerous factors. Dutta, Peng and Choudhary (2013) argued that there are wide range of potential risks and challenges associated with cloud computing. Firstly, corporate's sensitive data storage to a third-party cloud vendor has never been such an easy business decision. In fact, in this research we found that nearly 70% (170) respondents agreed that there are potential risks to corporate's sensitive data stored by third-party cloud vendor. Additionally, choosing a datacentre, securing technical support, arranging and allocating resources and infrastructure, setting up access and roles through cloud computing, migrating data into cloud architecture, running business applications and programs through cloud interfaces, bringing the required services to users' desktops are just some of the essential factors. Secondly, cloud technology architecture is already complex and its implementation across multiple jurisdictions adds even more complexity. According to Dutta, Peng and Choudhary (2013), potential barriers in such implementation across multiple jurisdictions come from inconsistent data-protection and privacy laws adopted by different countries. Finally, cloud computing is relatively new technology where its appropriate use need some amount of technical knowledge among the users. In fact, Phaphoom et al. (2015) debated that cloud technologies adoption even had irked IT leaders as they believed that they are not in a position to fully able to assess the technology's associated risks. Furthermore, IT/technical staffs have consistently resisted cloud adoption fearing that the migration towards cloud technologies would cause them to lose their control in managing and servicing the IT. Notwithstanding these operational barriers, organizations can still reap huge benefits in terms of business productivity through the highly flexible cloud architectures. Over the years, cloud computing has matured and is these days provisioned with enhanced security features.

IT sometimes take a back seat in organizations as they focus their concentration towards revenue sources rather than aligning their IT and business to reap the benefits of the latest technologies. It is possible that these negative perceptions could be alleviated if staff are provided with an understanding of cloud technologies and how it can be used to align their IT and business. Furthermore, setting up user training sessions could improve skills and understanding regarding the use of cloud-enabled services. Such education can provide staff with insights into how existing resources - software, hardware, human resources i.e. staff, investments, funds and infrastructure, can potentially be used to increase productivity and ease governance policies through cloud architectures. Thus, a cloud adoption framework and/or a roadmap outlining the benefits of cloud technologies in conjunction with setting up mandatory training sessions will help organizations to take the correct decisions to enable the migration of their information systems from traditional computing towards cloud and service-based architectures. These are the main objectives and purpose of this research, with the intention of providing a valuable contribution to the academic literature on the adoption of cloud computing and its impact on organizational productivity.

This research focuses primarily on small-medium sized financial and corporate services business carrying out their services across multiple jurisdictions. Small-medium size business here refers to the number of employees per regional office ranging from 20-50 employees.

The organizational scope covers the following:

- 1.The organization has branches (regional offices) across multiple jurisdictions.
2. The organization is small to medium sized, i.e. number of employees per regional office is less than 50.
- 3.The business origin of the organization is financial and corporate services.
- 4.The business has at least a head office (Secretariat).
- 5.The business provides services for clients.
- 6.Services to clients are either solely provided by the branch or shared between branches.
- 7.Each branch's operations are self-managed.
- 8.Each branch reports financial statements to the head office.

The IT services scope covers the following:

- 1.Each branch maintains and manages their own IT services, resources, vendors and infrastructure (hardware, software, and tools) or IT services subscribed from their (the branch's) local IT provider.
- 2.In addition to the branch's built-in IT services, there is some group approved software, and IT services are provisioned.
- 3.Group approved IT security, and governance policies are enforced from a central IT function.
- 4.Server and workstation environment.
- 5.Database maintained locally within the branch.

Proposed Cloud Architecture:

- 1.SaaS - Software-as-a-Service
- 2.IaaS - Infrastructure-as-a-Service
- 3.Centrally managed IT Services through Cloud
- 4.Centrally enforced governance and security policies framework.

The research work is mainly carried out to facilitate optimal Information Technology (IT) services using cloud-based technology for a medium sized (number of employees range from 20 to 50 per regional office) multi-national corporate services business. The business in this context is a global corporate services provider with branches in about 28 countries spread across a number of jurisdictions. These

businesses currently are individually self-managed (we call it a regional office) in each of their regions (jurisdictions). The business services a large volume of clientele and their information are commonly shared among multiple regional offices based on the type of corporate service they offer. Also, each regional office manages and maintains its own IT resources, services and architecture by themselves. On a quarterly basis, the head-office (we call it The Secretariat) receives financial, business and accounting reports from the regional offices.

The current structure of the industry, coupled with the scattered information across multiple jurisdictions means that data is often uncontrollably fragmented, redundant and inaccurate. Additionally, this situation is causing a number of cost overheads in respect to IT maintenance and support. Cloud architectures such as the Software-as-a-Service (SaaS) and Infrastructure-as-a-Service (IaaS) models appear to overcome the current issues faced due to decentralized IT. (For more information on SaaS and IaaS) Since the proposed idea involved changes to the current IT structure throughout the organization globally, it was vital to assess the current situation and create a roadmap for effective migration. There are plenty of factors that influence the organization's decision to implement the change successfully. Thus, the primary intention of this work was to devise a framework or a roadmap to migrate their information systems effectively from a distributed computing to a cloud-based centrally managed IT environment.

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