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## CLOUD COMPUTING AND ITS BUSINESS PERFORMANCE OUTCOMES: CASE OF A ZIMBABWEAN HEALTH COMPANY

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**Abstract:** - Cloud computing (CC) is a method of providing convenient, on-demand information systems and services by specialized common providers. It is a modern approach to computing where information technology (IT) services are accessible over the Internet, rather than having local or personal devices to handle one's demands or requirements. The purpose of this study was to investigate the influence of CC adoption at a Zimbabwean Health Company (ZHC) on its business performance outcomes. Many researches already undertaken on the subject matter focused in other parts of the globe, with a few exceptions on Sub Saharan Africa (SSA). This cross-case study used a qualitative design. It was conducted at a ZHC, a Zimbabwean health services provision company whose holding firm has presence in the whole of SSA. Questionnaire guides, with semi-structured and open-ended questions were employed in collecting primary data which was qualitatively analysed (in and across cases) using data display tables. The results indicate that CC adoption at the ZHC enhances the business performance outcomes of the organization, and presented some suggestions for improving the positive influence. These findings have management and policy implications to all the stakeholders of the company, its sister units and other like organizations intending to migrate to the cloud: positive correlation between CC adoption and business outcomes in achievable; adequate preparation for the migration through information dissemination, choice of partners, setting up of a vibrant disaster recovery centre, and improved communication amongst all the concerned parties are of utmost importance.

**Key words:** Cloud computing, migration, Internet, business performance outcome.

### 1. Introduction

Cloud computing (CC) is a model for enabling convenient, on-demand network access to a shared pool of configurable computing resources (for example networks, servers, storage, applications and services) that can be rapidly provisioned and released with minimal management effort or service-provider interaction (Mell and Grance, 2010). It is a modern approach to computing that relies on accessing information and other information technology (IT) services over the Internet, rather than having local servers or personal devices to handle applications. The three most prevalent services offered are Software-as-a-Service (SaaS), Platform-as-a-Service (PaaS) and Infrastructure-as-a-Service (IaaS), Adam and Musah (2015).

One of the benefits that business organizations accrue from this approach is the reduction of IT related costs. According to Durao *et al* (2014), CC services are paid for per usage and may expand or shrink based on demand. CC service providers have made their systems so inexpensive to use and easy to access, that there is little reason that companies should not be exploring this option for providing data and services that are not proprietary to their business (Smith, 2009). It also provides agility through automation, portable and mobile access/management of data and IT applications. Chatman (2010) states that health care organizations, public sectors, and many other health facilities are using the said applications for several reasons, one of which is speed of implementation. It confirms why the CC technology shift has currently become a topical issue amongst many progressive business organizations.

Information has become recognized as the lifeblood of an organization (Reddy *et al*, 2009; Fink, 1994). This brings about the requirement that the systems that handle and process company information have to be structured and maintained with certainty, in order to achieve positive influence on organizational business performance outcomes from all the invested company IT resources, including the modern CC adoption. Business performance is influenced by a number of factors that include market share, business size, pricing policy and return on investments (ROI). If the existing information gap on the relationship between CC adoption (a new mode of IT resources implementation) and business performance outcomes in the developing world is allowed to persist, companies in the region will remain in the dark regarding attainable relationships between the two variables. This is compounded by the fact that situations under which organizations function and prosper differ in many ways, so it is not surprising that the business performance outcomes from CC can therefore not be a 'one-size-fit-all' case scenario.

This research will seek to analyze the impact of the modern method of IT resources implementation (CC) on the business performance of a firm that is operating in the current turbulent financial environment in Zimbabwe. The study seeks to provide a better understanding of the relationship between the CC adoption and organizational performance in a Zimbabwean health company (ZHC), a Zimbabwean financial services organization, predominantly in the insurance sector. The group has more than a hundred years of serving the country through its strategic business units, with diverse interests in short term insurance, short term re-insurance, life assurance, long term re-insurance, as well as the property sector housed under a number of subsidiaries in the country and the region. According to the company website (accessed 20/03/2017), its presence in the region now covers Botswana, Zambia, Malawi, Tanzania, Rwanda, Mozambique and Sudan. This expansion brought in a major increase (size and capacity wise) in the necessary IT resources required for running the entire territorial business entity. In an effort to improve returns from IT investments, as well as harness the other perceived benefits of the paradigm shift, one of its subsidiaries piloted the adoption of CC in the group in 2002, according to the company Chief Executive Officer (CEO). This study aims at establishing the alignment that the firm manages to achieve between the CC undertaking and its business performance outcomes.

## 2. Problem Statement

Available literature identifies a number of benefits that are achievable from the adoption of CC. These are increased investment returns, reduced IT expenses and streamlined attention to core business responsibilities that interpret into improved business performance. Despite these expectations, some of the earlier adopters of CC have had a number of challenges in attaining the expected rewards, contrary to literature due to issues such as mistrust (Smith, 2009; Ali *et al*, 2015), security and privacy (Durao *et al*, 2014; Takabi, 2010).

The identified problem is that this relationship has so far predominantly been researched in companies that are domiciled in the developed world, e.g. America (Gartner Inc., n.d.); Taiwan (Wu *et al*, 2011); Asean+3 Countries (Ahmed and Ridzuan, 2012), where some of the transformations have been mirrored with security concerns, costly, complex and uncertain/risky undertakings. In the developing countries, Adam and Musah (2015) identify a pointer for future research as the migration process to the cloud and how it impacts existing processes and the sustainability of the business. Alshamaila, Papagiannidis and Li (2013) also concur saying the future research could examine CC

adoption in different sectors and industries and in different countries, interviewing different stakeholders (e.g. top managers, staff in the IT department, end users, etc) within the same firm in the form of case studies.

The information gap leads into uninformed and poor management decisions in IT resources investments, especially the new CC adoption. To avoid such possible pitfalls, it is necessary to undertake a study that unravels the relationship achieved in one such organizations as the ZHC, and make befitting recommendations for it, its sister subsidiaries and other like firms and policy implementers.

### 3. Empirical Objectives

In order to achieve the set objective of the study, the following specific objectives were formulated:

- To establish the IT services hosted in the cloud at the ZHC.
- To investigate how the adoption of CC affected business performance at the ZHC.
- To determine the challenges that the company faced in obtaining the influence of CC adoption on its business performance.
- To recommend measures necessary to improve the influence of CC adoption on business performance outcomes at the ZHC.

### 4. Literature Review and Proposition Development

#### 4.1 CC Adoption practices

The main focus of researchers on CC adoption has been to explain and elucidate the practices, detailing their implications, advantages and disadvantages, as they continue to gain prominence in the field of IT and making an impact in many firms' IT investment budgets and their business performances. According to Bhardwaj et al (2010), the practice of CC is typically divided into three levels of service offerings: Software as a Service (SaaS), Platform as a Service (PaaS), and Infrastructure as a Service (IaaS), which support virtualization and management of different levels of the solution stack.

SaaS is about outsourcing a hosted set of software (running on a platform and infrastructure) that one pays for some element of utilization or consumption basis. It eliminates development and/or programming, plus purchasing requirements, since all of them get supplied by the cloud SaaS provider who makes it available to multiple tenants and users over the Web. Oracle Customer Relationship Management (CRM) on demand, Salesforce.com and Netsuite are some of the well-known SaaS examples, Bhardwaj *et al* (2010). PaaS is the practice where hardware is provided by a second party, delivered as a service to software developers and users over the Web. Jansen and Grance (2011) say that the main purpose of PaaS is to reduce the cost and complexity of buying, housing, and managing the underlying hardware and software components of the platform, including any needed program and database tools. It however leaves the consumer of the cloud in control over his/her applications, while security provisions become the responsibility of both user and supplier. According to Garg et al (2013), in CC PaaS provides a platform for developing other applications on top of it, such as the Google App Engine (GAE), Microsoft's Azure Services Platform, Salesforce's Force.com, Amazon's Relational Database Services and Rackspace Cloud Sites. IaaS is the provision of the hardware (servers, storage and network facilities), and associated software (system, application and virtualization) as a service, allowing users to access the resources on demand. The IaaS provider does very little management other than keeping the data center operational, as users deploy and manage software services themselves. Amazon Web Services Elastic Compute Cloud (EC2) and Secure Storage Services (S3) are examples of IaaS offerings, Bhardwaj *et al* (2010). Its characteristics and components include utility computing service and billing, automation of administrative tasks, dynamic scaling, virtualization and Internet connectivity.

Pearson (2013) says that features of CC have a direct impact on IT budgeting but also affect traditional security, trust and privacy mechanisms. As more and more information on individuals and companies are placed on the cloud, concerns are beginning to grow about just how safe an environment it is, Subashini and Kavitha (2011). In

agreement, Hashizume *et al* (2013) say that CC presents an added level of risk because essential services are often outsourced to a third party, which makes it harder to maintain data security and privacy, support data and service availability, and demonstrate compliance. Chou (2015) says that CC technology imposes some risk concerns, such as weak protection to security and privacy due to its nature of distant and remote connectivity. Dutta *et al* (2013) find that the most top 10 risks perceived by IT experts were found to be caused by current legal and technical complexity and deficiencies associated with CC, as well as a lack of preparation and planning of user companies. Tang *et al* (2016) note that access control (riskiness) is an indispensable security component of CC, and hierarchical access control is of particular interest since in practice one is entitled to different access privileges. Such evidence present the need to investigate the opinion of stakeholders (employees and managers) of firms that have adopted the cloud.

#### 4.2 Cost Benefit Analysis of CC adoption

Cost-benefit analysis is part of the toolkit that decision makers use in their objective determination when assessing the feasibility of a new project like CC adoption in their organizations. According to Chou (2015), possible benefits of adopting CC in organizations are ease-of-use, convenience, on-demand access, flexibility and least management from users, which lead to value creation as determined by some cost-benefit analysis.

Ghazizadeh (2012) says that the main advantage of CC is cost effectiveness for the implementation of the hardware and software, and can improve quality of the services provision at an affordable cost. Highlighting some aspects of this uniqueness, scholars suggest that CC is likely to prove commercially viable for many enterprises due to its flexibility and pay-as-you-go cost structure, particularly in the current climate of economic difficulties. Papagianni *et al* (2013) say that CC builds upon advances on virtualization and distributed computing to support cost-efficient usage of computing resources, emphasizing on resource scalability and on demand services. Maresova *et al* (2017) however is in disagreement saying that understanding the organizational benefits and drawbacks of CC is far from straightforward, as its adoption results in a considerable amount of organizational change that will affect all stakeholders, besides the mentioned benefits.

Such opposing voices seek to advance the need to undertake a spirited investigation into possible achieved relationships between adopting the cloud and firm business performance outcomes, as a way of properly positioning organization employees and other stakeholders faced with undertaking the migration. It is necessary to review the influence of some soft factors such as the conditions (internal and external) of the firm.

#### 4.3 Implementation Speed and Capacity

New projects implementation speed and handling capacity are some of the deciding factors on their successfulness. The high implementation speed and large capacity provided by the cloud also present other attractive features that it provides, due to the elimination of the need to undergo capital intensive constructions of (investment into) proprietary IT systems in the form of hardware, software and infrastructure. Adopting the cloud, from the traditional method of securing IT services (including the design, installation, maintenance and upgrading) is almost instant. It eliminates the need to maintain expensive computing hardware, dedicated space, and software, Hashem *et al* (2015). Hou *et al* (2010) suggest that with the pay-for-use mode, there is no limitation for the licenses anymore; and the instant service rate, average job, and response time are major benefits of CC. Son *et al* (2014) agree saying that the shifts in IT ownership do not require up-front IT investments; such shifts also reduce IT implementation time through instant deployable IT resources.

The expanded capacities (bandwidth and speed) demanded by IT systems (storage and transmission) nowadays especially in many organizations have led their costs to go beyond the reach of some firms. According to Subashini and Kavitha (2011), the geospatial sciences face grand IT challenges in the twenty-first century: data intensity, computing intensity, concurrent access intensity and spatiotemporal intensity. As a result of the enormous amount of

usage and reliance on IT resources, many organizations now invest large although varying amounts in the upkeep of those resources. These are utilized in the securing, upgrading and maintenance of the systems. In some firms they are prohibitively high, while in others they are reasonably affordable. For many organizations that use IT services, the level of investment needed will often be prohibitive, Bellamy (2013). This comes as a warning that before firms can migrate to the cloud, there should be a method to ascertain their attainment of their expected goals in a direct improvement to their business performance.

The notable benefits (reduced implementation speed, provision of higher capacity and efficient usage of IT resources) from CC are likely to positively impact on the returns of firms as they have minimal capital injection. They are also assumed to be able to deliver improved storage, data processing and transmission capacity over the Web, regardless of the user's location and device. Aljabre (2012) postulates that in today's business world, with the amount of economic downturn and loss happening every day, the need for reliable, yet affordable technology is needed more than ever; CC fills that void. In this regard, it becomes exceptionally necessary to undertake a spirited investigation in order to ascertain such a proposition, especially when it relates to a particular organization that operates in a specified environment. Aljabre (2012) agrees to such a notion, saying that even as good and innovative as CC may be, it does not necessarily mean that it is good for all businesses.

#### 4.4 Business Performance Outcomes

Business performance outcome is determined by the kind of strategies an organization foresees and implements. It is the target of most business entities today, while all their investments are the means of realizing that goal. When business performance is in question, a neighbor concept, business strategy, requires close consideration and elaboration. Business strategy can be defined as the sum of the decision-making processes in terms of selection, implementation, and assessment of alternative means to achieve and sustain competitive advantage within an operating environment. In other words, the success of business performance expresses the degree of fulfillment of managerial goals in business practices and their realized outputs by the end of a pre-determined period (Porter 1991). The level of attainment of that goal remain a function of the wellness of the employ of the available resources invested.

Measuring organizational performance, which is the process of regular collection, analyzing and/or reporting of information concerning the outcomes and results of the organization and its programs, is an essential operation for managers in an organization. Franco-Santos *et al* (2007) say that there is no consensus about the meaning of business performance measurement and suggest that researchers need to be more specific and explicit about the characteristics of the performance measurement systems they investigate. To that effect, the researcher looks at the different schools of thought that lead to the determination of performance differentiation in different firms, eventually making a selection on the theory adopted for this study.

According to Stoelhorst and van Raaij (2004) on explaining performance differentials, there are six different theories of the firm's organizational economics (Conner, 1991; Barney *et al*, 1996): transaction cost theory (Williamson, 1989, 1998) and agency theory (e.g. Jensen and Meckling, 1976; Fama, 1980) – mainly explain the coordination of economic activity; industrial organization theory, the Chicago school, the Schumpeterian view, and the resource-based view (RBV). These theories have their merits and demerits in their approaches to firms' differentiation and/or measuring organizational performance. Transaction theory relates on the reasons behind the existence of managerial hierarchies as an alternative form of governance alongside the market, while agency theory is concerned with the nature of the relationships amongst those hierarchies within the firm. Their common loophole is that they do not offer explicit explanations for performance differences between firms, viewing the firm just as an efficiency seeker like in the neoclassical orthodox.

The industrial organization (I/O) theory accepts the availability of performance differences between firms and explains them from the view of product differentiation and market power. It contradicts the neoclassical assumption

that demand is homogenous by advancing the notion that firms can partially insulate themselves from competition through offering different products. This view is in agreement to most modern schools of thought in marketing and strategic management. It is extended by the Bain-type I/O (e.g. Mason, 1939; Bain, 1951) which adds the notions of barriers to competition and market power. The role of the manager becomes broadened over and above that in the neoclassical firm by involving activities such as pricing and advertising, determining the quality of firm output and collusion. The school of thought helps companies create dynamic performance measurements with a focus on what really matters to the business and building benchmarks that serve as barometers of ongoing business performance, assisting companies to establish tailored compensation systems that reward actions and behaviors. However, since the firm conduct is viewed as being determined by industry structure, the theory remains deterministic. Stoelhorst and van Raaij (2004) say that managers are not the intended target of I/O economists, because their emphasis has historically been on the relationship between industry concentration and profits; and their message has been aimed at government officials, who, according to Bain-type I/O, have an important role in limiting the size of firms through intervention in which firms are gaining monopoly control. This therefore has left this theory off target on its intended purpose.

The Chicago school is primarily a reaction to the interventionist policy propositions of the Bain-type I/O (Conner, 1991; Demsetz, 1973; Stigler, 1986). It renewed the efficiency view from the neoclassical theory of perfect competition, where extra-large performance returns are a result of efficiency differences between firms. Firms are seen not as output restrictors, but as seekers of production and distribution efficiencies, thereby relaxing a number of assumptions in the perfect competition model. The view also accepts the costs of information, and offers an explanation for the existence of efficiency differentials. Stoelhorst and van Raaij (2004) notes that by introducing the costs of searching information, the Chicago view introduces knowledge as an input alongside labor and capital, thus giving managers additional room to influence the success of their firms. However, just like in the theory of perfect competition, the theory agrees that there are no effective permanent obstacles to entry in an industry. It advances that competitive advantage is at most temporary, because although efficiency based earnings may not be eliminated immediately, new entrants into the same market may drive the firms' economic profit towards zero. This exposes the theory to the demerits of explicit behavioral approach of perfect competition advanced by the neoclassical theory, causing it to lose favor amongst researchers.

The Schumpeter's view, just like the Chicago perspective, appears like a reaction against the antitrust policy propositions of the Bain-type I/O. It views competition as a process driven by innovation, such as from new goods' new method of production, transportation mode, new markets, form of industrial organization. With such a dynamic outlook on competition, this school of thought gives a more concrete position in explaining performance differences between firms than the other earlier economic theories. Its limitations however, lie in its likely dependence but quietness on the size, internal and external readiness to adapt to change, and availability of resources for seeding in the innovation drive.

The RBV agrees with the neoclassical theory on its proposition of perfect competition the view of firms as input combiners, but departs from it in taking differences between firms as its starting point. It agrees with the Bain-type I/O that persistent above normal returns are possible, but argues that these returns are not a result of a favorable industry structure but the firm's access to unique resources. Stoelhorst and van Raaij (2004) says RBV regards resources as the ultimate source of performance differentials between firms (Rumelt and Lamb, 1984; Barney, 1986). The job of a manager has been reduced to the acquisition, development, combining and deployment of resources, that adds value to the firm's products or lower the firm's costs. The ability to develop unique resource combinations therefore leads to performance differentials between different firms, which may remain persistent as long as the resource combinations are difficult to imitate by competitors. Rajendran (2013) asserts that the resource-based theory takes an inward looking approach to a firm by identifying those resources and capabilities that

differentiate a firm from others in the industry (Wernerfelt, 1995) because the unique resources are considered to be a source of power and pivotal in creating competitive advantage to the firm.

In summary, all these schools of thought remain grounded in the neoclassical thinking, albeit each taking exception to at least one of the assumptions of the theory of perfect competition: I/O does refute the claim that firms are always price takers and that there is no possibility of differentiating the firm's output; the Chicago view disagrees that all sellers have the same perfect information about the market; Schumpeter's theory emphasis the role of innovation that goes against the assumption that there is no chance of differentiating the firm's output; while RBV opposes the view that all firms have the same or similar access to all the necessary factors of production. Conner (1991) concludes that resource-based theory both incorporates and rejects at least one major element from each of them; thus resource-based theory reflects a strong I/O heritage, but at the same time incorporates fundamental differences from any one of these theories(available) [http://www.researchgate.net/publication/284880861\\_strategic\\_marketing\\_and\\_marketing\\_strategy/](http://www.researchgate.net/publication/284880861_strategic_marketing_and_marketing_strategy/), accessed 20/04/2017).

Some literature (e.g. Venkatraman and Ramanujam, 1986; Chen et al, 2004; Chenhall, 2005) recommends RBV in terms of measuring organizational performance, for its financial and operational aspects; capabilities of tying capital budgeting, financial planning and goal setting; and determining non-financial (social) resources. Conner (1991) says that a resource-based approach to strategic management focuses on costly-to-copy attributes of the firm as sources of economic rents and, therefore, as the fundamental drivers of performance and competitive advantage. The researcher suggests applying this school of thought in the measurement of business performance in this study for its multiple facets (financial, environmental, social and goal setting targets realization) by posing questions that seek to determine the materialization of these aspects of the firm during the technology shift. To this end, a few parameters will be investigated in an attempt to establish some reference points for comparison purposes.

The analyzed determinants of CC adoption (independent components in engaging the cloud) found in literature widely lead to varying business performance outcomes in different organizations, measured through achieved IT/TFP ratio, sustainability and scalability. It becomes a 'no-brainer' that there exist some mediating variables that impact on the relationship between the two groups of variables even in firms that operate in a particular environment. Underpinned by the RBV theory and the concept of IT resources value in a business environment, these are the factors that this study will attempt to investigate, in order to determine how they are influencing the relationship in the chosen organization. The intention is to be able to establish recommendations that can help to improve the relationship. The results will likely assist organizations in making decisions on their readiness to adopt the cloud and achieve the intended benefits in line with literature, after considering possible business implications from different perspectives. The study will be guided by the conceptual model as shown in Figure 2 below and the detailed methodology provided in the next section.

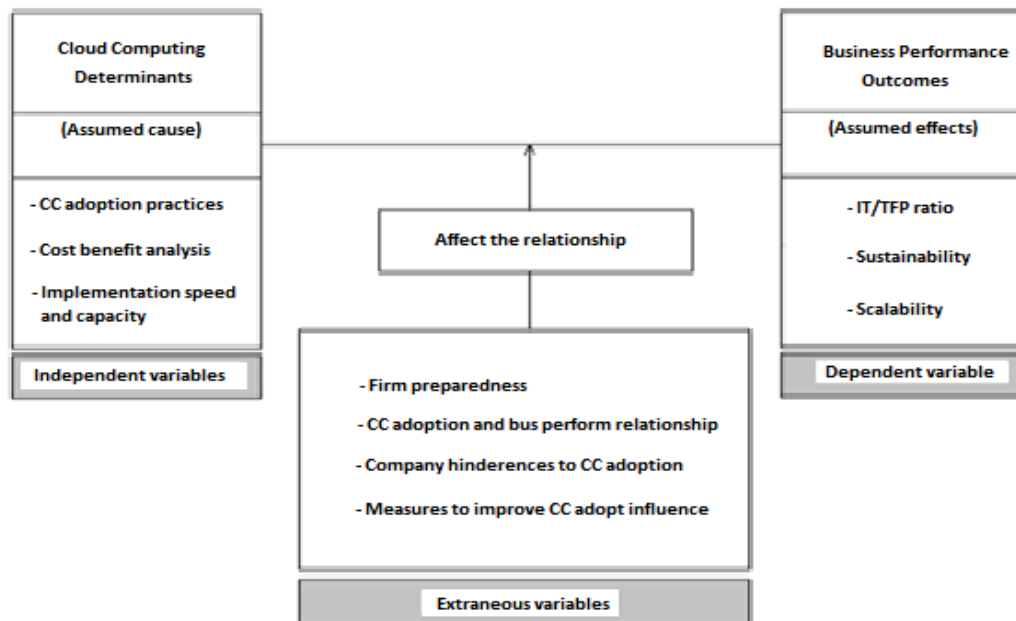


Figure 2: Conceptual model.

The main purpose here is to investigate the alignment between CC adoption and business performance outcomes at a Zimbabwean health company (ZHC). The study's proposition is that the adoption of CC enhances the business performance of the ZHC.

## 5. Research Methodology

### 5.1 Research Design, Philosophy and Strategy

This study was seeking to provide an insight into how the identified independent variables (CC adoption practices, cost benefit analysis, and implementation speed and capacity) relate to business performance outcomes (expressed through achieved IT/TFP ratio, sustainability and scalability) at a ZHC. It was for this reason, understanding the nature and causes of the existing relationship, which led the researcher into adopting an exploratory design. It assisted the researcher in establishing the factors that modeled the existing relationship between the independent and dependent variables in the company.

In order to meet the demands of the exploratory study that included establishing the reasons behind relationships, the researcher chose to use the qualitative philosophy. The appropriateness of the selected qualitative approach was enhanced by the need to incorporate the feelings of respondents on the different goings on in and around the respective organization and its operating environment. According to Corbin *et al* (2014), qualitative research utilizes an open and flexible design and in doing so stands at adds with the notion of rigor. These characteristics made it the best philosophy for exploring human behavior and opinions in depth, without limiting the scope of their responses, and thus of great relevance to such a study. It led the study into taking an inductive approach in data gathering and analysing processes.

The qualitative approach was best achieved by using an interpretivist paradigm, because of the requirement for inductive observations that express human behavior and opinions. This was the case because in this study, humans were the subject of the investigation, who interpret things in the way they see, feel and believe as individuals and/or groups. In contrast, a positivist paradigm that is used in quantitative studies would have produced objective figures



and numbers in explaining the relationships. Such evidence would not have been adequate and suitable for explaining and expressing the required human behavioral evidence in such a study. The chosen method also helped the researcher in exhausting responses by fully engaging the respondents, rather than limiting them quantitatively.

In this investigation, the adopted strategy was a case study, using a questionnaire guide in an interview arrangement. A Case-study design is appropriate for the investigation of highly-contextualized phenomena that occur within the social world and is considered a pragmatic approach that permits employment of multiple methods and data sources in order to attain a rich understanding of the phenomenon under investigation, Almutairi et al (2014). The multicentricity of the case was derived from the fact that multiple sources of information (cases) that were from the same organization (similar operating environment and working conditions) were used in determining the overall opinion regarding how the existing relationship came about. It was against this background that the case study approach was selected as the most appropriate strategy for this study.

## **5.2 Target Population and Sampling Procedure**

Since this study was concerned with the investigation of the goings on in an organization, the most relevant population comprised the stakeholders (owners, suppliers, customers and employees) of that firm. Their respective departments were found to be “exemplary” cases (Yin, 2009) because of their vested interest in the operations of the same firm. The employees stood out as the best participants due to their constant day to day involvement in the running of the organization’s business and so were considered to be most informed for providing correct, up to date and valid information on the state of affairs in the firm. It was for this reason that they became the primary population for the study.

In order to attain proper representation of the presented target population, it was deemed necessary to apply judgmental sampling method in selecting a relevant sample of nine most informed and competent respondents from the most suitable departments. “Purposive or judgmental sampling enables you to use your judgment to select cases that will best enable you to answer your research question(s) and to meet your objectives” (Saunders, 2009, p.237). In judgmental sampling, the researcher actively selects the most productive sample to answer the research question, Marshall (1996). This strategy provided the researcher with the opportunity to purposively choose the best situated respondents amongst the large population to participate in the study. With regard to the issue at hand, the well positioned respondents who could provide valuable contribution to the study were those in the following departments: IT, sales and management. The researcher applied his knowledge (on the basis of the employees’ employment status/position and duration) in selecting those that were deemed most suitable to take part in the information gathering process.

## **5.3 Instrumentation**

A questionnaire guide, with semi-structured and open-ended questions, was employed in this study, in an interview format, in order to capture the advantages of both a questionnaire and verbal interview instruments. They were deemed most appropriate, because of the need to establish the humanistic aspect of responses, the requirement to adequately probe responses received in addressing the “how” component of gathered information and the absence of the researchers’ control of events in the firm under study.

## **5.4 Data Analysis**

“Qualitative analysis transforms data into findings. No standard formula exists for that transformation” (Patton, 2002, p.432). This study employed spatially-compressed, organized display modes, called data display tables and detailed write-ups, as recommended by Miles and Huberman (1984). The approach is called constant comparative analysis, a strategy that involves taking one piece of data (one interview, one statement, one theme) and comparing

it with all others that may be similar or different, in order to develop conceptualizations of the possible relations between various pieces of data, Thorne (2000).

The use of data display tables summarized the gathered responses in a comparative process that led into the establishment of similarities, differences and scaling of the accounts of the respondents, in order to map up the results derived from the gathered information. The technique helped the researcher in comparing and contrasting the accounts and opinions of the different respondents departments (cases), by posing analytical questions and generating knowledge about common patterns and themes within their presented experiences.

### 5.5 Reliability and validity measures

To ensure obtaining findings that would be of high value, the researcher dissociated the influence of his own opinions onto the derived responses. This was achieved by availing adequate (prolonged) engagements of participants to the extent that their responses became detailed enough to neutralize any possible researcher's preconceived philosophical position, personal experiences and viewpoints.

Instrument suitability and reliability was enhanced by the involvement of advanced opinions from experts in investments returns and business performance matters, and piloted before use to ensure simplicity and dependability in addressing the intended objectives. In all cases, face-to-face interviews were conducted and recorded, with the permission of the respondents.

### 5.6 Ethical Considerations

For ethical reasons, a written permission to carry out the study as well as interviewing the company employees was obtained beforehand from the company CEO. All the gathered information was not used for any other purpose except for this study, as it was considered private to the respective organization. The identity of all informants remained anonymous, for the same reasons.

## 6. Results of the study

The respondents that participated in the study were the company employees in the IT, Sales and Management departments. Table 4.1 below shows a resume of the key respondents from the conducted interviews.

**Table 4.1:** Key respondents

Case Number (Department)	Total interviewed
One: IT	3
Two: Sales	3
Three: Management	3
<b>Total</b>	<b>9</b>

All the respondents showed a lot of interest and in-depth knowledge, providing the required information, possibly because they perceived the research as a tool for expressing their views on the project for their own benefit and that of the organization.

Table 4.2 below summarizes the information on the background of the respondents that were interviewed.

**Table 4.2:** Information on the background of respondents

Position of respondent in the firm	Age of respondent (Years)	Highest academic qualification	Number of years with the company
Group ICT Executive	46 - 55	Post graduate degree	6 - 10
General Manager	46 - 55	Post graduate degree	11 - 15
Claims Supervisor	36 - 45	Degree	6 - 10
Business Applications Support and Development Specialist	26 - 35	Degree	6 - 10
National Sales and Marketing Manager	46 - 55	Post graduate degree	11 - 15
Client Relationship Manager	46 - 55	Post graduate degree	11 - 15
Client Relationship Consultant	26 - 35	Post graduate degree	6 - 10
Medical IT Supervisor	36 - 45	Degree	11 - 15
Sales and Services Supervisor	46 - 55	Post graduate degree	11 - 15

All the respondents were above the age of twenty six, possess a minimum of a degree academic qualifications and well experienced with the business of the organization (minimum experience in the organization employee of not less than ten years). It confirms that the informants were both mature and fully conversant with the operations of the firm, especially regarding issues of investments and business performance outcomes that were being investigated in the study.

Table 4.3 below shows a summary of the responses obtained on the type of IT services the firm hosts on the cloud.

**Table 4.3:** IT services that the ZHC hosts on the cloud

Case	Responses
One – IT department	<ul style="list-style-type: none"> <li>• E-mails; individual and corporate user applications; and personal messages</li> <li>• Health services and e-mails</li> <li>• Medical clients information database and emails</li> </ul>
Two – Sales department	<ul style="list-style-type: none"> <li>• Health system, mobile applications and the biometric system</li> <li>• Health portal for services provider access and e-mails</li> <li>• Health care administration system and emails</li> </ul>
Three – Management department	<ul style="list-style-type: none"> <li>• The core business admin system – membership records, payments, service providers enquiries; support systems for group financials coordination</li> <li>• Emails and entire core business database system for accessibility by partners via internet</li> <li>• The entire health business and support systems</li> </ul>

These responses show a lot of agreement amongst the respondents on the services of the firm that are being hosted onto the cloud, despite the different terminology used by the different departments in their identification. It is a confirmation that the company wholesomely depends on its CC adoption, which leads to the seriousness that it has invested into the project. Case one further expressed it as a 'do or die' kind of a project, meaning that the company cannot afford to let the project go wrong under whatever circumstances.

There is a consensus on the good amount of dependence on the CC adoption in the running of the organization's medical services business, internally amongst the firm's employees and externally in collaboration with its partners and clients. It agrees with Bhardwaj et al (2010) who typically divides the practice of CC into three levels of service offerings: SaaS, PaaS and IaaS. SaaS is achieved through the use of outsourced cloud hosted user software applications (emailing and internet) increased utilization rates as shared facilities with other vendor clients; PaaS – outsourced cloud hosted hardware platforms (client databases and health portal system) for limitless servers, storage and network facilities; and IaaS – outsourced cloud hosted interconnectivity that allows users to remotely access the resources on demand without bandwidth constraints.

A resume of the responses obtained on how often the company review its CC adoption practices influence on the company business performance outcomes is presented in the following Table 4.4.

**Table 4.4:** The frequency that the company reviews its CC adoption practices influence its business performance

Case	Responses
One – IT department	<ul style="list-style-type: none"> <li>• Once every month, for the purpose of executive reports that are required for evaluation purposes</li> <li>• Whenever required by user departments</li> <li>• Once every three months and/or as and when requested by management and for audit purposes</li> </ul>
Two – Sales department	<ul style="list-style-type: none"> <li>• Every year</li> <li>• Annually</li> <li>• Not sure because it's a function that is championed by the IT department, but from our user side it's supposed to be every year</li> </ul>
Three – Management department	<ul style="list-style-type: none"> <li>• Every three years, inclusive of other stakeholders who communicate with the system</li> <li>• Quarterly and at every strategy session</li> <li>• Whenever required or scheduled by management</li> </ul>

This indicates that the company does value the importance of reviewing the relationship between its investments and business performance outcomes and take measures to invest in the undertaking of the same. According to case three, this is highly expected in the ZHC, being a part of a group of companies that puts a lot of emphasis in the importance of business risks evaluation.

A summary of the respondents obtained on the experts (internal and/or external) the company engages in determining the influence of its investments on business performance is provided in Table 4.5.

**Table 4.5:** The experts that the company engages in determining the influence of its investments on business performance

Case	Responses
One – IT department	<ul style="list-style-type: none"> <li>• The internal IT department and CC vendor, 2CANA</li> <li>• Internal business support specialists and Microsoft</li> <li>• IT department and CC vendor</li> </ul>
Two – Sales department	<ul style="list-style-type: none"> <li>• Internal IT experts and CC vendor</li> <li>• Internal IT department and externally Microsoft, Oracle and 2CANA</li> <li>• The IT department</li> </ul>
Three – Management department	<ul style="list-style-type: none"> <li>• Internal ICT team; CC supplier; and ad-hoc audit firms</li> <li>• ICT department and external chartered audit firm</li> <li>• IT department and the CC vendor</li> </ul>

This indicates that the IT department is responsible for the performance of the CC adoption, being the custodial arm of all information systems in the organization. However, also answerable is the CC vendor, whose collaboration with the IT department on issues of such evaluation cannot be over-emphasized.

Table 4.6 below shows a summary of the responses received on how CC adoption by the company has influenced its sustainability over the years.

**Table 4.6:** How CC adoption influenced the company sustainability over the years

Case	Responses
One – IT department	<ul style="list-style-type: none"> <li>• Very positively, because it enabled the company to commence offering full-fledged ICT services from merger resources and continued to sustain itself up to now</li> <li>• Low investments on IT infrastructure acquisition, despite immense increase in the business levels</li> <li>• Easy improved business expansion against stagnant IT investment levels</li> </ul>
Two – Sales department	<ul style="list-style-type: none"> <li>• Very sustainable due to low monthly fees and 99.9% system up time</li> <li>• Improved sustainability by the ability to immensely cut on IT expenses during times of business growth</li> <li>• Not sure because the adoption has not been over a long enough period yet</li> </ul>
Three – Management department	<ul style="list-style-type: none"> <li>• More reliable in up time; capability for remote system interrogation; easy and readiness for capacity expansion</li> <li>• Enormously improved capability to service clients</li> <li>• Phenomenally improved customer retention and expansion capability levels</li> </ul>

There is a wide consensus within and across all the cases that the CC adoption exercise has had a very positive sustainability onto the company business over the years. Such enormous sustainability over the years within the ZHC has helped the firm in its current decision to influence its other strategic business units to follow suit in adopting CC, as noted in case three.

The obtained responses on how CC adoption by the company impacted on its IT/TFP ratio over the years were summarized in Table 4.7 below.

**Table 4.7:** How CC adoption impacted the company IT/TFP ratio over the years

Case	Responses
One – IT department	<ul style="list-style-type: none"> <li>• From glory to glory, despite the challenges experienced in the operating environment</li> <li>• Very positive, regardless of the unstable operating environment</li> <li>• Impressive, due to minimal initial capital requirements</li> </ul>
Two – Sales department	<ul style="list-style-type: none"> <li>• A notable increase</li> <li>• There has been a considerable improvement over the years</li> <li>• Has really improved efficiency by improving clients turn around periods on payments and information availability and elimination of continuously involving the IT department on all issues</li> </ul>
Three – Management department	<ul style="list-style-type: none"> <li>• Positively by allowing our customers to directly access the system without human intervention, even for critical issues such as claims and payments – decisions are being made entirely on merit; no need to increase administrative personnel – saving on salary bills</li> <li>• Very positively in terms of reduced system requirements, improved down times by the use of outsourcing such services and reduced manpower skills requirements</li> <li>• Highly efficient in both accessibility and cost returns</li> </ul>

All cases proved to be highly impressed with the returns of the adoption investment. They agree with the accession from Chou (2015) that possible benefits of adopting CC in organizations are ease-of-use, convenience, on-demand access, flexibility and least management from users, which lead to value creation as determined by some cost-benefit analysis.

Table 4.8 below shows the responses obtained on how the company CC adoption affected its scalability over the years.

**Table 4.8:** How CC adoption affected the company scalability over the years

Case	Responses
One – IT department	<ul style="list-style-type: none"> <li>• Very positively, as it managed to apply its initial low resources on other demanding core business investments</li> <li>• Allowed the business to grow at a very fast pace, through the elimination of IT systems limitations</li> <li>• Experienced exponential growth from very limited initial investments</li> </ul>
Two – Sales department	<ul style="list-style-type: none"> <li>• Monthly fees have not been increased in the past few years, although our membership has grown by about 7% between 2016 and 2017 alone</li> <li>• It resulted in improved efficiencies in terms of cost being dependent on lives covered instead of the people using it</li> <li>• Service providers have made our clients happier and an improved business turnaround</li> </ul>
Three – Management department	<ul style="list-style-type: none"> <li>• Business is increasing, without a corresponding increase in the number of people handling the business; also has capacity to administer third party business for additional fees</li> <li>• Availability of limitless resources expanded capabilities regardless of the amount of business at stake</li> <li>• Efficiency of the utilization of the available resources has been unmatched</li> </ul>

All the respondents agree that the adoption process widely supported the firm's business scalability over the years, supporting Ghazizadeh (2012) who says that the main advantage of CC is cost effectiveness for the implementation of the hardware and software, and can improve quality of the services provision at an affordable cost; Hashem *et al* (2015) who says it eliminates the need to maintain expensive computing hardware, dedicated space, and software; and Hou *et al* (2010) suggestion that with the pay-for-use mode, there is no limitation for the licenses anymore; and the instant service rate, average job, and response time have become major benefits.

The responses obtained from the respondents on how consistent the company CC adoption influence levels has been on the business performance outcomes of the organization over the years are outlined in the following Table 4.9.

**Table 4.9:** How consistent has been CC adoption influence levels on the company business performance outcomes over the years

Case	Responses
One – IT department	<ul style="list-style-type: none"> <li>• Quite consistent, although not a bed of roses due to challenges from the operating environment</li> <li>• Very consistent, despite the challenges faced at the initial stages</li> <li>• Steadily attractive returns, especially after having overcome the initial changeover challenges</li> </ul>
Two – Sales department	<ul style="list-style-type: none"> <li>• Reasonably capacitated</li> <li>• Not very consistent as the business had to change systems three times in a space of six years and each change bringing its own challenges</li> <li>• Not many significant challenges faced, besides minimal hiccups otherwise the overall outcomes have been encouraging</li> </ul>
Three – Management department	<ul style="list-style-type: none"> <li>• Fairly consistence since we even have been able to negotiate with our suppliers into lowering our monthly payments, because of the power of new entrants into the CC market; and also have not experienced any decline in the class of service that we are getting – reliability, availability and adequately capacitated</li> <li>• Not sure now but earlier there were too much resistance to change before members started appreciating the benefits</li> <li>• Not as smooth as I anticipated</li> </ul>

These responses agree with Maresova *et al* (2017) who say that the use of CC services appears to offer significant cost advantages: investment and operating costs, high elasticity of services, as well as increased flexibility of certain business processes. However, it is important to note the finding that these advantages were not without some challenges, especially at the initial stages of the adoption the during the learning curve period. Maresova *et al* (2017) is also of the same notion saying that understanding the organizational benefits and drawbacks of CC is far from straightforward, as its adoption results in a considerable amount of organizational change that will affect all stakeholders, besides the mentioned benefits.

The following Table 4.10 shows the responses obtained on which internal factors the respondents think hinder the firm from receiving maximum CC adoption influence onto its business performance.

**Table 4.10:** Internal factors that hinder the firm from receiving maximum CC adoption influence onto its business performance

Case	Responses
One – IT department	<ul style="list-style-type: none"> <li>Executive worries on security issues, reliability and business continuity matters in times of CC vendor challenges</li> <li>Loss of control over IT operations network disruptions</li> <li>Resistance to change due to fears of the unknown from some of the responsible authorities</li> </ul>
Two – Sales department	<ul style="list-style-type: none"> <li>Management doubts on security matters due to the idea of outsourcing the processing and storage of data</li> <li>Lack of the necessary support from IT department and the needed stalls</li> <li>Education within due to resistance to change</li> </ul>
Three – Management department	<ul style="list-style-type: none"> <li>Resistance to change from the traditional company data repositories; fear of the unknown; absence of full confidence and commitment in the system</li> <li>Mistrust and resistance to change, where management was used to the old way of handling information systems</li> <li>Internal tensions between the powers that be</li> </ul>

Resistant to change and fear of the unknown were the main hindrances identified in all the cases, due to security concerns (case one); dependence on outsourcing such valuable company information assets (case two); and mistrust due to lack of adequate information amongst decision makers (case three). It supports the notion from Mago *et al* (2016) that for firms in Zimbabwe to be prepared for the adoption of CC and adequately reap the benefits from the migration, they have to consider adequate internal cost related matters as they are statistically significant and most uniquely influential to the intended objective.

Table 4.11 below summarizes the responses obtained from the informants on the external factors that they think hinder the organization from achieving maximum CC adoption influence onto its business performance.

**Table 4.11:** External factors that hinder the firm from receiving maximum CC adoption influence onto its business performance

Case	Responses
One – IT department	<ul style="list-style-type: none"> <li>Other vendor (electricity and networks) challenges due to down times even at critical times of services provision</li> <li>Network disruptions due to the unreliability of new partners</li> <li>Poor responsiveness from some vendors, especially at the initial stages</li> </ul>
Two – Sales department	<ul style="list-style-type: none"> <li>Unstable Internet connectivity and data migration challenges when moving from one vendor to the other</li> <li>Absence of reliable Internet; lack of control over the system, e.g. customization sometimes achieved at additional costs; and vendor insensitivity to some operational issues</li> <li>External service providers do not always respond at our required speed</li> </ul>
Three – Management department	<ul style="list-style-type: none"> <li>Security fears such as ransom-ware on remote hosting; tributary networking challenges</li> <li>Absence of the assurance to be able to pay external service providers from the monetary authorities and connectivity issues due to currency conversions</li> <li>Expanded list of external suppliers</li> </ul>



All cases identified the increased dependency on other services providers as having caused disruptions due to network and/or electricity down times and their poor responsiveness (case one); internet service providers and slow response times (case two); and possible ransom-ware attacks and absence of continued assurance to settle vendor invoices from the monetary authorities (case three). The main reason identified was due to inadequate information dissemination at the adoption preparation stage within the organization and externally. It supports the importance of adequate preparatory measures for such a paradigm shift before the adoption process commences, according to Mago *et al* (2016).

The responses received on the measures that the respondents think will assist the company in improving CC adoption influence on its business performance were compiled in Table 4.12 below.

**Table 4.12:** Measures that will assist the company in improving CC adoption influence on its business performance

Case	Responses
One – IT department	<ul style="list-style-type: none"> <li>Forming partnerships with local stakeholders (electricity and network providers, and tertiary institutions) in order to complement the external services hosting outsources (CC adoption)</li> <li>Gradual engagement of a hybrid cloud solution</li> <li>Adequate information dissemination within the organization and also with the intended hosting vendor</li> </ul>
Two – Sales department	<ul style="list-style-type: none"> <li>More regular backup of data and setting up an internal disaster recovery centre</li> <li>Closer cooperation with the CC service provider and sourcing of more affordable service providers</li> <li>Adequate information dissemination amongst the users of the system and management in order to strike a balance in the interests and concerns of both parties to remove all possible suspicions</li> </ul>
Three – Management department	<ul style="list-style-type: none"> <li>Improved customer bandwidth to improve their benefit of the widely available service; CC adoption for the entire group to eliminate any existing bottlenecks and generic problems from the traditional brick and mortar ICT systems; plus concentration into core businesses</li> <li>Adequate internal awareness in order to allay any existing fears from the unknown that are detrimental to adoption support and progress</li> <li>Expanded preparatory measures and information dissemination</li> </ul>

Case one suggested the formation of partnership with the increased service providers and the provision of adequate information within the organization and also with the intended hosting vendor; case two – setting up of an internal disaster recovery center, more regular backups, closer cooperation with the CC vendor and better communication amongst all the interested parties; and case three – improved tributary bandwidth and improved internal communication for the avoidance of possible doubts both internally and externally.

## 7. Summary of Findings

The following is a summary of the findings, as established from the study:

- There is a considerable amount of dependence on the CC adoption in the running of the organization's medical services, both internally and externally.
- The company puts a lot of value in the importance of reviewing the relationship between its investments (CC adoption included) and business performance outcomes.

- There are specific arms in and around the organization that are responsible for the evaluation of the outcomes of its investments, including CC adoption.
- CC adoption has a positive impact on the performance of the firm.
- The CC adoption process was not without some internal and external challenges, especially in its initial stages.

## 8. Managerial and Policy Implications

One of the strongest conclusions that come out of this study on CC adoption and business performance at a ZHC is a solid evidence that CC has a positive effect on the firm performance, in support of the laid down proposition. As a result of this effect, it is also regarded reasonable to believe that CC adoption increase both economic and financial factors of the firm.

The recommendation is that the company proceeds and improves its CC migration in order to continue improving its business performance. It is also evident that the correlated relationship between the two variables highly depends in the large recognition, support and emphasis that the various departments of the organization put in the implementation of the paradigm shift. The study has some vital management and policy implications in the nation's such financial and economic sectors: high level of employees' cooperation and management commitment to CC adoption attract improved firm business performance.

## 9. Directions for future research

There is a school of thought that suggests that the results obtained may not be adequately conclusive, since more solid inferences and generalization may be achieved by looking at a larger number of similar organizations that have migrated to the cloud and/or many other insurance companies. This study may also be applied in other sectors of the economy, while cross-sector comparison of findings can also add some value.

## 10. Conclusion

The study empirically demonstrated that CC adoption has a positive impact on firm business performance. Other firms should therefore seriously consider moving their IT services to the cloud in order to enhance performance. The adoption exercise however must be properly planned to involve all employees, departments, managers and partners in order to attract good understanding, participation and commitment.

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