

## Analysing the impact of cloud-based accounting on business performance of SMEs

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### Keywords

Cloud Computing, Cloud Accounting, SMEs, Intellectual Capital, Accounting, Finance

### Abstract

*This study aims at helping the SMEs to enhance their business performance through installing cloud accounting in their business systems. To achieve that aim, it is important to find out the nature of the relationship between cloud accounting and the Intellectual Capital and then the relationship between Intellectual Capital and business performance. SMEs are focused on this study as the Sri Lankan economy is largely comprised of SMEs. Cloud accounting is becoming important in the outsourcing field as well; therefore, Sri Lankan SMEs also should start adopting the new technology to benefit from that. This study was based on previous foreign studies which has been done before and comparing the findings of this study with the previous findings.*

*The study was designed as a quantitative study, using a deductive approach. The method which was used here was a survey method and a self-administered questionnaire was distributed to collect data from the sample. A purposive sample was chosen for this study as not many SMEs have adopted cloud accounting, and it is hard to capture companies using cloud accounting through a random sampling method. A conceptual model was built to test the relationship between the variables. Cloud Accounting was the independent variable for this study, components of Intellectual Capital; Human Capital, Relational Capital, and Structural Capital were intermediate variables and Business performance was the dependent variable. A five-point Likert Scale was used to capture and quantify the input of the respondents.*

*Findings suggest that cloud computing positively impact all three components of Intellectual Capital. However, the relationship was significant for relational capital and human capital. The most effective relationship was between relation capital and cloud computing. All three components of Intellectual Capital had positive relationships with business performance. Most effective relationship was between human capital and business performance. These findings were in line with most of the previous researches. However, there were some contradicting results as well.*

### Introduction and background to the study

The key to survive in the dynamic business environment today is the adaptability of a particular business. This will depend mainly on exploiting new commercial opportunities and investing and adapting to new technologies. This study has focused on new technology in accounting and finance in Sri Lanka which is a developing country. In the study of Burns, Ezzamel, and Scapens (1999), it has been stated that there are three drivers of change for the field of accounting and they are namely; increasing globalization, improved information technologies, and improved methods of production. This study will be focused on the second driver of change mentioned above; improved information technology.

According to the SLASSCOM report in 2013, Sri Lanka has been ranked number four in AT Kearney Global Index for Financial and Accounting Outsourcing. Many other advisory firms such as Tholons have also ranked Sri Lanka in top countries for knowledge outsourcing. More than 300 companies have commenced operations in Sri Lanka and employ over 65,000 staff. Outsourcing of Finance and Accounting of a company will play a major role for the accounting to be cloud based. Therefore, it is important to study about the impact of cloud-based accounting and finance infrastructure of Sri Lanka, in the dawn of growth in Financial and Accounting Outsourcing industry.

In the study carried out by Cleary and Quinn (2016), it has been mentioned that cloud computing is the new technological development that has the ability to even transform how businesses operate. As a

part of cloud computing, Cloud accounting will be acting as one element of this transformation. It has been suggested by Afshari (2014) that, cloud computing can impact the business organization performance and innovativeness, ultimately impacting the intellectual capital of an organization. However, Young (2010) has stated that even though cloud computing has this transformational ability and cloud accounting has the ability to transform finance and accounting functions, it still remains predominantly back office oriented.

Therefore, it is worthwhile to see the impact of cloud-based accounting to various aspects of the business performance.

### **Research Problem and Problem Statement**

In the SLASSCOM report 2013, it is anticipated that Financial and Accounting Outsourcing sector will grow in the near future. With the growth of Outsourcing, cloud accounting will also grow. To encourage business ventures to adopt cloud accounting it is important to know the impact of cloud accounting to the business performance. This impact will not be limited to only one aspect of the organization. Cleary and Quinn have stated that the three other element of intellectual capital (human capital, relational capital, structural capital) will be strengthened through cloud accounting, which in turn will favourably influence the business performance. Therefore, a business venture adapting cloud-based accounting will need to know what aspects of the business will be impacted from cloud-based accounting and to what extent.

The problem here will be to identify the business aspects that will be impacted by adapting cloud-based accounting based on the perception of the cloud-based accounting users, and the extent to which each aspect has been impacted by cloud-based accounting.

Depending on the above problem statement, the following research question was derived

“What business functions are impacted from the adaptation of cloud-based accounting and what are the most affected business functions?”

### **Research objectives**

Main objective of this study is to find the business aspects that will be impacted by the cloud accounting of a business organization. Aspects found in further researches will be used in this study to test whether the same aspects are being affected in Sri Lankan context as well. Main capital components of an organization's intellectual capital will be tested here against the cloud accounting and infrastructure and the business performance as a whole will also be tested.

Another objective of this study is to rank the factors based on the significance of the influence. A business organization will be able to know what aspect of the organizational performance or intellectual capital will be impacted the most through cloud accounting. It will enable the business organizations to take more informed and effective decision on cloud accounting and any changes to be made.

It is also aimed that the findings of this research will encourage businesses to adopt cloud accounting and hence to boost Sri Lankan Financial and Accounting Outsourcing Industry. Since Sri Lanka has been identified as a growing force in this field as mentioned above, it is important that researches in this field are done to provide a support to a growing industry and through that it is anticipated to contribute to the development of Sri Lankan economy, which is focused on service industry.

### **Scope and Limitations**

This study has only focused on the impact of cloud accounting on the human capital, structural capital, relational capital and the ultimate impact on business performance. Cloud accounting may have its impact on other aspects of the business, however, due to the time and resource constraints the three aspect of intellectual capital which was mentioned earlier were tested through this study.

This study was limited to Sri Lankan organizations and it was also limited to Small and Medium enterprises. Since the objective of the study was to support the growing industry of Financial and Accounting Outsourcing in Sri Lanka, the study was limited to Sri Lankan organization. Small and Medium businesses were chosen since 75% of the business enterprises in Sri Lanka are Small and Medium Enterprises (National policy Framework for SME).

Further research can be done in the fields of cloud computing and its impact on other business aspects.

The remainder of this paper is organized as follows; Section two will include a discussion on the previous studies and their findings on this regard, Section three will explain the design of the study and the model, Section four will analyze and discuss the findings, and section five will include concluding remarks and suggestions for future research.

### **Literature Review**

Before conducting the actual study, existing literature on cloud accounting was analyzed critically. Detailed below is the critical discussion of findings of the previous studies including cloud computing and accounting, how the business performance of various business organization has been impacted through intellectual capital, and potential synergy between cloud computing, accounting, Intellectual Capital, and performance of small and medium enterprises.

#### *Cloud Computing*

According to Mongan (2011), cloud computing is the mass centralization of computing resources, and information, processing, software will be made available by connecting into this centralized cloud. Key drivers of the conversion to cloud computing are reduction of capital expenditure, resilience and scalability, business agility, and the green agenda. According to NIST,(2011) Cloud computing is a model for enabling ubiquitous, convenient, on-demand network access to a shared pool of configurable computing resources (e.g. networks, servers, storage, applications and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction. There are three models of cloud computing; IAAS (Infrastructure as A Service), PAAS (Platform As A Service), and SAAS (Software As A Service). According to Cleary and Quinn (2016), low barriers to innovation, ability to free up scarce resources are benefits of using cloud computing in addition to the ones mentioned by Mogan (2011).

Accountants will be more focused on benefits such as data protection, privacy and reliability of data, when using cloud accounting. Du and Cong (2010) has argued that, cloud computing is safer than the other organizational systems. It is their opinion that cloud accounting is similar to outsourcing however, in traditional outsourcing the whole business process is purchased whereas in cloud accounting, the IT infrastructure is bought, in which several business processes can rely. Auditors will tend to face challenges when assessing the IT environment of cloud accounting users. There have been doubts about using cloud computing for accounting as a repository of critical data in an organization as depicted by Gill (2011). Still cloud accounting has been always supported as an enhancement to information flow within an organization.

#### *Intellectual Capital*

According to Chiucchi and Dumay (2015), Intellectual Capital is consisted of human capital, structural capital and the relational capital. These three parts of the Intellectual Capital is defined in the study of Cleary and Quinn (2016). Tacit and explicit knowledge gathered through the staff of a firm is defined as human capital. This can be the experience of the staff, education, skill level etc. Structural capital is defined as procedures, rules, norms that comprise the very center of the firm and which will facilitate the flow of organization knowledge required to enhance the efficiency and effectiveness of the organization. Knowledge gained through the external relationships that are built with key stakeholders which enables the organization to gain competitive advantage is defined as relational capital. All three elements of Intellectual capital encompass knowledge depicting the requirement of the organization to convert knowledge to saleable item such as goods and services. In the same study it has identified accounting to be a part of structural capital.

The relationship between cloud based accounting and structural capital has not been significant although positive in the study of Cleary and Quinn (2016). The reasoning behind this is the unchanged mechanics of accounting even though their delivery has been changed. This finding was supported by the study of Mehralian et. Al (2012), where they have found there is no significant relationship between the structural capital and financial performance which is depicted through accounting output. However, in the study of Novas et. Al (2012) has found a contradicting result, where the structural capital has shown a positive and a significant relationship with the accounting system.

In the study of Cleary and Quinn (2016) it was also found that there was a moderately strong positive relationship between human capital and cloud-based accounting systems. A similar relationship existed between relational capital and cloud-based accounting systems. This indicated that cloud accounting-based systems have enabled employees to perform their duties efficiently while using their knowledge in a more effective manner. The positive relationship with the relational capital reveals that the cloud-based accounting systems enable an organization to collect and analyze data to have increased and effective interactions with their stakeholders. However, in the study of Mehralian et. Al (2012), it was observed that there was no significant relationship between human capital and financial systems.

#### *Intellectual capital and business performance*

All three components of Intellectual Capital were found to be having a significant positive relationship with business performance in the study of Cleary and Quinn (2016). It indicates that collectively Intellectual Capital will positively impact the business performance of Small and Medium Enterprises. In the same study it was also found that 71% of business performance was explained by the Intellectual components through a regression analysis.

According to Bontis (1998), the relationship between intellectual capital and business performance will not be significant if not for the interrelationship between the components of the intellectual capital. Using the partial least squares method, it was found out that the intellectual capital and business performance had a significant positive relationship.

Study of Aziz et al, (2010) has stated that the three components of Intellectual capital showed a significant relationship with business performance in par with the previous findings. Researchers have found that in light of these findings, if the Jordanian firms manage intellectual capital effectively, they can enhance their business performance. Relational capital had the most influence over business influence. Innovation and creation had the most impact on human capital, structural capital was influenced mostly by the systems and procedures, and Relations with suppliers, customers and partners influenced the relational capital the most. There are four levels to enhance intellectual capital namely, individual, group, organization, and country. In that study it is also discussed about the importance of social capital and the impact on the business performance.

### **Research Methodology**

#### *Research approach*

The main objective of this research was to find out the relationship between the Intellectual capital components and cloud computing (accounting). To quantify the perception about the components of the intellectual capital, and to find out the significance of the relationship it was decided to adopt a quantitative method. As suggested in Saunders (2009) a quantitative method is more suited for a deductive study, and therefore, previous studies and the theories were considered before the analysis for this study was done. As an explanatory study, this will explain the relationship between intellectual capital, cloud computing, and business performance. A survey approach was taken for this study as have been followed by earlier researchers in similar studies such as Cleary and Quinn (2016). The most popular instrument of the survey method is questionnaires as depicted by Saunders (2009). A questionnaire was distributed in this study to collect data.

### **Variables**

#### *Independent Variables*

As mentioned in the earlier chapters, independent variable would be cloud computing/accounting. The components of intellectual capital namely human capital, relational capital and structural capital were considered as mediator variables. Therefore, the relationship between cloud computing and the components of intellectual capital was analyzed first. The questionnaire measured the opinion about the cloud accounting and components of intellectual capital. Indicators for the independent variable and mediator variables are as shown below.

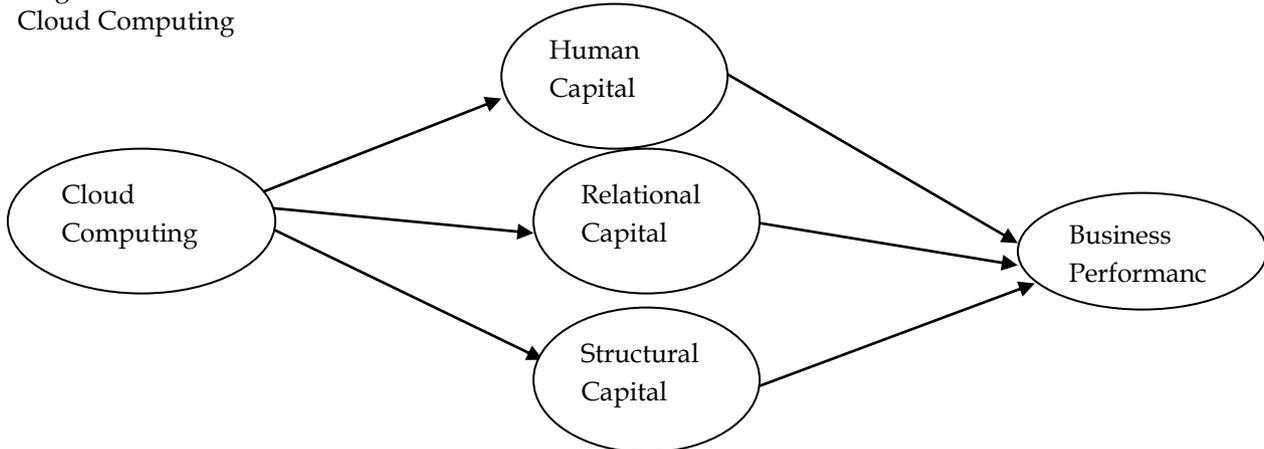
Variable	Indicator
Cloud Accounting	Ability to customize finance and accounting standardization of accounting simplification of accounting process documentation of accounting process convenience for the staff ease of replication ease of communication and training
Human Capital	Ability of accounting staff to collaborate with organization Management Decision making Motivation of accounting staff Ability of non-accounting staff to use financial knowledge Feasibility of appointing cross functional teams Retention of accounting staff
Structural Capital	Ability to acquire knowledge Ability to acquire knowledge from multiple sources Retain relevant knowledge Upgrade accounting systems Use accounting systems Share knowledge
Relational capital	Acquire and use information about customers Acquire and use information about suppliers Meet current customers and market needs Interact with employees Predict future trends

*Dependent Variable*

Components of intellectual capital are also acting as dependent variables which were explained above. The main dependent variable in this study is the business performance of a SME which assumed to be getting affected from the cloud accounting. The indicators of the dependent variables are as shown below.

Variable	Indicator
Business Performance	Improve business performance Outperform Rivals Attain a competitive advantage Enhance business value Enhance corporate reputation

The relationship between the independent, mediator and dependent variables can be shown in a diagram as below.



## Hypotheses

Based on the above-mentioned variables following hypotheses were built and tested in the study.

- H<sub>1</sub>-There is a significant positive relationship between cloud computing and human capital
- H<sub>2</sub>-There is a significant positive relationship between cloud computing and relational capital
- H<sub>3</sub>-There is a significant positive relationship between cloud computing and structural capital
- H<sub>4</sub>-There is a significant positive relationship between business performance and human capital
- H<sub>5</sub>-There is a significant positive relationship between business performance and relational capital
- H<sub>6</sub>-There is a significant positive relationship between business performance and structural capital

These hypotheses were tested through the gathered data. Through analysis it was studied whether these hypotheses can be accepted or rejected. That finding was compared with the findings of the previous studies and then findings were finalized.

## Population and the sample

The population for this study is the set of SME s which use cloud accounting in their organization. SME was chosen as 75% of the Sri Lankan business enterprises are SMEs. However, since the time and resources are limited to conduct a study for all the Sri Lankan SME s which use cloud-based accounting, a sample of 25 companies were chosen to conduct this study through SLASSCOM data bases and snowballing effect. Since the accounting system of the companies is not publicly available information, snowballing technique was used to identify companies which use cloud-based accounting systems. Saunders (2009) has mentioned in his book that purposive or snow balling sampling is categorized under nonprobability sampling. This would have led to a non-symmetrical sample. However, since there was no readily available information about companies using cloud accounting, a purposive sampling method was chosen.

## Data collection

As mentioned earlier data were collected through a self-administered questionnaire. Participating in this survey was completely voluntary and collected data were treated confidentially. Questionnaire was in English language to overcome the language difficulties. Questionnaire was consisted of three parts. First part was aimed at collecting demographic data of the company. Second part consisted of questions to collect data about the independent variable and the mediator variables. The perceptions on these variables were measured through five-point Likert scale with a range of one to five; 1 being strongly disagree and 5 being strongly agree. Third part of the questionnaire collected data on the perception on business performance which is the dependent variable through a five-point Likert Scale. Questionas for this study was inspired by the previous studies such as Cleary and Quinn (2016).

## Analysis performed

SPSS was used to analyze the collected data. To analyze the sample, descriptive analysis was performed on the collected data. Mean, media, Anova and T-tests were performed under descriptive analysis. A stem and leaf diagram, Q-Q plots were used to check for outliers and removed them to ensure the symmetry of the collected data. Reliability analysis and validity tests were performed to assess the instrument in a pilot study as well as in the main study.

According to the objectives of the study it is necessary to find the nature of the relationship between the variables. To analyze the relationship between independent variables and dependent variable Persons' Correlation test was performed. Regression test was performed to find out the variance of dependent variable which was explained by the independent variables.

## Analysis and Discussion

This section will include details on the results of this study.

The validity and the reliability of the questionnaire were checked through SPSS. Reliability was checked through Chronbach's Alpha in SPSS. The threshold of the test is 0.7 and the questionnaire for this study scored 0.83 in Chronbach's Alpha and the validity was 0.69 which is also above the threshold of 0.5.

Despite the fact that a purposive sample was chosen data remained symmetrical and outliers were removed to ensure the symmetry of the data.

The correlation analysis was done after the descriptive analysis of the sample. The findings of the correlation analysis were as follows. It was found that cloud-based accounting impacted firms' structural capital positively but not statistically significant as the correlation coefficient was only 0.256. The variance of structural capital was only explained by 16% through the cloud-based accounting. Since the accounting structure doesn't change just due to the adaptation of cloud accounting, this finding could be justified. This finding supports the finding of Cleary and Quinn (2016), and Mehralian et. Al (2012). However, Novas et. Al (2012) has found a significant relationship between structural capital and cloud accounting, which contradicts with the current finding. Based on these finding H<sub>3</sub> was rejected.

Cloud accounting has a significant positive relationship with both human capital and relational capital. Relational capital has the highest correlation with cloud accounting. This indicates that adapting cloud accounting has enabled employees of SME s to perform their duties better, to collaborate better and generate knowledge. In the aspect of relational capital, the significant relationship can be defined as cloud accounting has enabled SME to acquire and use information about stakeholders in a more effective manner. This supports the finding of Cleary and Quinn (2016), which was mentioned earlier. However, this contradicts with the finding of Mehralian et. Al (2012), stating that there was no significant relationship between human capital and cloud accounting. 64% of the variation in human capital can be explained through cloud accounting, 49% of the variation in relational capital can be explained by cloud accounting. H<sub>1</sub> and H<sub>2</sub> can be accepted based on these findings.

All three components of Intellectual Capital and business performance showed positive and significant relationships between them. There was a low positive relationship between structural capital and business performance. It indicates that, structural changes in the company would not impact business performance in a larger manner. H<sub>6</sub> Can be accepted on the grounds of these findings. Human capital and relational capital show a moderately strong but positive relationship with business performance. Positive changes in the human capital and relational capital impacted by cloud accounting will bring about improvements in business performance in Sri Lankan SMEs. Therefore, H<sub>4</sub> and H<sub>5</sub> could be accepted. This finding supports the findings of Cleary and Quinn (2016), and Aziz et al, (2010). 80% of the SMEs business performance can be explained by the three components of Intellectual capital.

The findings can be concluded as that cloud-based accounting has positive significant relationship with the three components of intellectual capital and the three components of intellectual capital have positive significant relationship with business performance. The next chapter will include the concluding remarks based on these findings and recommendations.

### **Conclusion and Recommendation**

Cloud accounting will enable SMEs in Sri Lanka to achieve, superior business performance, enhanced relationships with stake holders, knowledgeable and committed work force, and cost savings. In addition to these, enhanced flow of information is also enabled by cloud accounting. It will make organizational decision making efficient, with the enhance accessibility of information. Mentioned in Cleary and Quinn (2016), is that this will result in ultimate value creation for the organization through the acquisition of unique intellectual capital resources. These advantages might not have been available to SME before the introduction of cloud computing due to the capital investment limitations.

The results of this study suggest that Sri Lankan SME s have the ability to enhance their business performance through the implantation of cloud accounting system which will impact the accounting/finance area of their business. As the results suggest that elements of intellectual capital are positively impacted by cloud accounting, and with the continual interactions between the three elements, a SME can potentially expect the installation of cloud accounting system to positively change the business performance. The result on the value creation supports the findings of the previous researchers such as Cleary and Quinn (2016), Mehralian et. Al (2012), Aziz et al, (2010). Etc.

In the dynamic business environment, a SME will face higher competition, and cost control will also be an important aspect to consider facing the competition. To survive and for the prosperity, a SME should adopt technologies such as cloud accounting Cleary and Quinn (2016). The benefits associated with cloud accounting which was discussed above would definitely support this decision. The SME s who do not adopt cloud accounting will have a competitive disadvantage to the SMEs which do. Cloud computing will transform the way the businesses operate through their impact on intellectual capital.

It is expected that these findings will be used to transform the finance/accounting function of SMEs in Sri Lanka to become a key element on the organization and to play a significant role on strategic decision making. Since SLASSCOM reports suggest that outsourcing is going to become successful in the future, SMEs should embrace the new technology and benefit from the technological advantages. Accountants of the SMEs should be assured and satisfied about the functions of accounting which will be converted to cloud and the resistance to change should be overcome before the system migration. If not, employees' resistance will diminish the positive impact of the cloud accounting.

Further research could be conducted in larger business organization and the impact caused by cloud-based accounting. Since this research was done for SMEs, it will be worthwhile to understand the impact of cloud accounting on larger organizations as well. Studies using larger sample sizes can also add new findings to the research field on this subject. Cloud accounting can impact other areas of the business as well, therefore further researches on the impacts on other business areas are also recommended. As mentioned earlier, employee perception to cloud accounting can also be researched as an addition to the current study.

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