Understanding Business Strategy Factors that Support or Impede Moving Business Capabilities to a Cloud Environment in the Investment Services Industry

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Abstract

This research investigates how the business strategy factors for South African organizations either support or impede moving business capabilities to a Cloud Computing (CC) environment. In particular, the research considers larger organizations within the investment services industry. By performing a qualitative study the research investigates the various business and Information Technology (IT) strategies. The various CC options are then explored to draw a correlation between the business strategy factors and CC. It concludes that cloud computing offers no competitive differentiation for South African investment services organisations. For these organisations, their existing business models remains profitable. Business strategy, therefore, has no compelling reason to consider cloud computing. South African investment services organizations align with their business strategies through the service-level method, which cause the IT departments to focus on stability and reliability.

Keywords: Cloud Computing; Business Strategy; Business Capabilities; Financial Services; Investment Industry.

1 Introduction

Organizations are cognisant of the changing business environment, yet struggle to achieve business value through Information Technology (IT) (Bartlett & Ghoshal, 2002). The growth of Cloud Computing (CC) has made it a viable alternative to existing IT infrastructure within organisations (Brender & Markov, 2013). However, South African organizations base their CC strategy on the perceived success of other organization (Cohen, Mou, & Trope, 2014). This lack of proper planning can cause IT to hinder the performance of an organization (Lu & Ramamurthy, 2011). Implementing an IT solution requires an understanding of the business strategy, to ensure the IT deployment realises its business value (Lu & Ramamurthy, 2011).

This research sets out to describe the potential role of CC and its relationship to business strategy within the South African investment industry. Firstly, it identifies the key strategic factors an organization considers. Secondly, it creates an understanding about existing IT strategies, and thirdly it discovers any relationship which may exist between the business and IT strategy. The research collected data from South African investment services organizations, while the data collection was done using semi-structured interviews.

Limited research exists with the purpose of understanding the relationship between organisational performance and IT capability (Chen et al., 2014). Business strategy is vital when considering IT investment, to ensure maximum rewards and higher performance (Lu & Ramamurthy, 2011). South African organizations do not currently have clear strategies with regards to their CC adoption. This research aims to support South African organizations to understand the relationship between their CC options and their business strategy.

2 Prior Literature

2.1 Understanding Business Strategy

An understanding of the industry structure provides the ability to determine the profitability of any industry. The industry structure is determined by the Porter's five forces for competition. It, therefore, requires an investigation into the rivalry amongst existing competitors, entry of new competitors, the threat of substitutions, bargaining power of suppliers, and bargaining power of customers. All competitors can earn attractive returns where the pressures of these five forces are relatively even. Few competitors can earn attractive returns where the pressure is intense from one or more of the five forces. Industry profitability is therefore not a function of the product itself, but instead of the structure of the industry (Porter, 2008). Once an organization understands the industry structure, there is a need to understand which strategic position to take.

The strategic position of an organisation can fall into defenders, prospectors, and analysers. Defenders attempt to create a stable environment for their organisation by "sealing off" the total market and creating a domain for themselves. This creates a niche market in which they aggressively defend their market share. Prospectors are the opposite of defenders, and their primary objective is to discover and exploit product and market opportunities. Analysers combine the attributes of the prospector and defender, which attempt to combine their strengths to ensure a minimal risk exposure while maximising profits (Miles, Snow, Meyer, & Coleman, 1978). Next, the organization need to decide which strategic mode it should operate under in the intended market segment.

Strategy mode requires the organization to consider the competitive advantage it wants to have in its intended market. Firstly, the organization needs to choose whether their product offering will enter the market at a lower cost or create a differentiation within the market. Secondly, the organization must choose a competitive scope, which requires the organisation to consider whether it will target a broad range of customers or a focused group of customers within a chosen market segment. These allow organisations to choose between the three generic strategies of focus, differentiation, or cost leadership. By sub-dividing the focus strategy further, the organisation can choose between cost focus and differentiation focus.

Organisations need to employ three levels of engagement to deliver on their objectives, namely strategic, operational, and tactical. Strategic delivery refers to employing and developing the properly skilled people, business processes, and technology in a synchronised manner, which contribute towards achieving the organisational goals and objectives. Operational delivery comprises a series of short-term activities or projects executed to realise medium-term objectives or goals of the organisation. Tactical delivery is short-term activities aimed at employing skilled people, technology,

and information for direct encounters with competitors and achieves limited organisational objectives (Dettmer, 2003).

2.2 Cloud Computing Strategies

An organisation should note the following three findings when considering CC. Firstly, general-purpose applications are ideal to move to the cloud, since they contain no organisation-specific knowledge. Secondly, small to medium enterprises benefit mostly from CC at present. Thirdly, large enterprises, with existing infrastructure, should consider features of CC, which can be used within their infrastructure environment (Marston, Li, Bandyopadhyay, Zhang, & Ghalsasi, 2011).

Garrison, Wakefield, & Kim (2015) found the hybrid delivery model, which combines the private and public cloud delivery model, contributes the most towards organisation performance. Achieving this requires the organisation to use the public cloud for carefully chosen low-risk workloads and the private cloud for applications and data, which are more sensitive towards data losses or outages (Garrison et al., 2015).

2.3 Understanding Organisational Impacts

Organisational agility refers to the capability of the organisation to sense and interpret changes within the business environment and swiftly amend business processes to benefit from the change (Chen et al., 2014). Lu & Ramamurthy (2011) defines organisational agility as the capability to handle unexpected and unstructured changes, not planned for in the organisational flexibility. Organisational agility plays a vital role in contemporary business environments. However, research lacks a thorough understanding of how organisations construct and leverage agility to achieve exceptional performance. Although some researchers indicate how IT competencies can assist in constructing the agile capability, limited empirical research can identify the role played by the IT competency (Chakravarty et al., 2013).

Organisational culture relates to the shared values and beliefs within an organisation (Slater, Olson, & Finnegan, 2011). Organisational culture can facilitate the understanding of the business strategy by employees. It creates the appropriate behaviour within employees, which enables the success of the organisation (Slater et al., 2011). Within the organisation, the personality and value system of the top-level leaders set the tone throughout the organisation. It determines the types of people within the organisation, the acceptable behaviour, decision making and the interaction and relationship between people (Giberson et al., 2009).

Strong & Volkoff (2010) broadly categorise organisation-IT fit into coverage and enablement. The coverage fit refers to the ability of IT to satisfy the requirement of the organisation. By comparison, enablement fit characterises the ability of IT to assist the organisation in operating efficiently and effectively. In the same way, the study of Hung et al. (2014) categorises organisation fit into business process fit and data fit. Business process fit evaluates how the organisation performs activities and the boundaries within the organisation for these activities. Data fit concerns itself with the various data formats and sensitivity of the relevant data. Hung et al. (2014) argue how these two categories of fit play a vital role in the successful fit of a new IT system into the organisation.

Change Management is important since CC carries with it a complex, yet flexible technology infrastructure, which can integrate geographically distributed disparate systems. Managers are required to embrace and enact shared policies and standards, which ensure information can easily be, shared internally and externally (Bhatt, Emdad, Roberts, & Grover, 2010). However, senior managers are finding the traditional methods of management, which consists of using hierarchy, bureaucratic systems, and control-based management no longer effective. Instead, the networks amongst people, flexible processes, and relationships which feature coaching and empowerment have respectively replaced this (Bartlett & Ghoshal, 2002). A challenge facing managers is to navigate the political

landscape of the organisation. The senior managers will set the policies and standards while enactment thereof, is handed over to the various areas within the organisation. Managers in these various areas face challenges when employees resist the changes brought about by the policies and standards (Khajeh-Hosseini et al., 2012). Another challenge for managers is to ensure they understand the service level agreement they have with the cloud provider.

3 Research Methodology

This research has taken an interpretivist view. An inductive study enabled the researcher to find relationships between business strategy and CC. While, a descriptive and explanatory research approach was chosen to understand the relationship between business strategy factors and CC. An inductive thematic analysis research strategy assisted with the classification and presentation of the collected data. Finally, the data were collected using a qualitative method, while the time-frame was cross-sectional due to time constraints.

This study collected data from investment services organisations within South Africa. The primary collection method used was face-to-face interviews using a general interview guided approach with key stakeholders. The interview questions were based on the literature review of both business strategy and CC strategies. The interview guide can be made available on request from the authors.

Within the context of this study, it is important to understand the type of organisation and profile of the participating individuals. All the participating organisations, interviewed, were multi-nationals with operations in various countries, each with their business requirements. Furthermore, these organisations owned a variety of technology. A table provided in section 4.1.6 summarises the organisation selection.

Table 1.   Organization Summary

Organization	Number of Employees	Years of Operation	Industry Type
ORG1	40+	30	asset management
ORG2	20,000+	130	Banking
ORG3	15,000+	100	Insurance; banking; asset management
ORG4	290+	25	investment management
ORG5	170+	24	asset management
ORG6	24+	18	investment advisory
ORG7	50,000+	170	Investment; savings; insurance; banking

The participants in this study held either senior management or executive positions, within their respective organisations. This level of participants was important towards ensuring a level of business strategy exposure. The table below highlights some details about the participants.

Table 2.   Participant Demographics

Participant	Position Held	Gender	Has Done A CC Implementation	Business Strategy Exposure
CIO1	Chief Information Officer	Male	Yes	Yes
CIO2	Chief Information Officer	Male	Yes	Yes
CIO3	Chief Information Officer	Male	Yes	Yes
CTO1	Chief Technology Officer	Male	Yes	Yes
HOD1	Head: IT Strategy & Architecture	Male	Yes	Yes
HOD2	Head of IT	Male	Yes	Yes
HOD3	Head of IT	Male	Yes	Yes
HOD4	Head of IT	Male	Yes	Yes

ITA1	Enterprise Portfolio Architect	Male	Yes	Yes
ITE1	Information Technology Executive	Female	No	Yes
ITM1	Information Technology Manager	Male	No	Yes

Saturation was reached after the third interview, out of the eleven participants interviewed. This early saturation can be attributed to the following conditions. Only large organisations with their own internal data centres were considered. Most of the participants had experience in CC and could relate from experience. The participants had knowledge of the business strategy and how CC played a role in strategy formulation or strategy execution. Consequently, the quality of data was good when collected during interviews.

Some limitations were encountered while performing the data collection and data analysis. One of the limitations entailed securing interviews with the selected participants. Due to the seniority of the participants, the researcher was not able to reach all earmarked participants to schedule an interview. Another contributing factor was the research timeframe, which prevented the researcher from going back to all interviewees.

4   Findings

All participants in this study were South African based organisation. The participating organisations were multi-nationals with operations in various countries, each with their own business requirements. Years of operation, of the participating organisations, provided insight into how older organisations dealt with the evolution of technology, compared to their younger competitors. This provided insight regarding their business strategies and the success of those business decisions towards the survival of the organisation.

This research made use of the inductive thematic analysis to search for patterns in the data. The initial steps entailed reading through all the transcripts and coding the text based on the literature review, of this study while noting the types of sub-themes emerging. By, iteratively, revising the codes the researcher could merge similar codes to create a more manageable list of codes. After reviewing and refining the codes, they were placed into groups. These groups were based on what seems to make sense logically. The remainder of this section will discuss the findings from this analysis.

4.1 Frameworks and Models

The use of frameworks and models is extensive in participating organisations, and this section will discuss these in more detail. Within the participating organisations, there is reference made to Bimodal IT, the SMAC model, and the Pace-Layered Application Strategy.

Bimodal IT requires the organisation to split its IT department into two modes of operations. The first mode (mode-1) is where the IT is functioning as a conventional IT company. Here IT ensures the existing infrastructure, which the organisation relies on, is stable and reliable. The second mode (mode-2) is a non-linear IT capability and deals with the rapidly changing customer needs. These modes of operation provide the organisation with the ability to respond to competitors, using its mode-2 IT operation (Horlach, Drews, & Schirmer, 2016). One annual integrated report clearly states how executes are aware that their organizations should be able to respond to technology changes.

SMAC is an IT model enabling the organisation to be more future fit by using different technologies, which allow the business model to transform (Gopichand, 2015). SMAC refers to using Social-media, Mobile, Analytics, and Cloud within the organisation, where each area affects the various stakeholders within the organisation. Social media is of importance to the business stakeholders, while mobile affect the customers. Analytics is important to the leadership within the organisation, and cloud influences the IT departments themselves (KPMG, 2014). Within the context

of this study, various participants refer to the SMAC model. "We are changing all our analytics capability and because we realise you know you want to have to use social media that is the new trend. To know your customer better."(ITE1)

Pace-Layered Application Strategy is a method of categorising applications in such a way that the organisation can respond to business needs. The organisation need to categorise application based on the usage within the organisation, which categorises the application as systems of records, systems of differentiation, or systems of innovation. Systems of records manage the master data and support core transaction processing of the organisation, which results in a slower pace of change with standardised processes. Systems of differentiation allow the organisation to adapt to business needs and these changes can occur regularly. Systems of innovation allow the organisation to deploy an ad-hoc application with a short lifecycle, which allows for the exploration of new business ideas (Gartner, 2012). Within the context of this study, participants know this application strategy and use it when deciding which application to deploy in a CC environment.

4.2 Customer Experience

Customer Type definition is important for these large organisations towards understanding the type of person they are dealing with. The people internal to the organisation (internal staff) are responsible for performing various business functions. The intermediaries who are the sales force of the organisation also require support. For them, the organisational solutions should assist them in selling and servicing their customer. Finally, the actual policyholder exists, who benefits from the service or product offered by the organisation. The policyholder deals either directly with the organisation or via the intermediaries. The primary customer types for participants is the internal organisation staff and the intermediaries. Almost no direct interaction exists between the policyholder and the organisation, and the intermediary maintains most policyholder relationships.

Turning to Customer Behaviour, it is important to understand the behaviour of these key customer types and their relationship with CC. For instance, ITA1 mention how the intermediaries are using SaaS to augment their service offering to the policyholder. The provider of these SaaS-based products is not always the organisation itself. Furthermore, ITE1 mention how the prevalence of social media and smartphones has made the internal staff and intermediaries well prepared for different user experiences, compared to what are currently available.

Moreover, the expected customer experience is not specific to the insurance industry. Instead, these are industry-agnostic behaviours, such as having an application on a smartphone (mentioned by ITA1) or accessing files from anywhere (CIO2). Contrary to these trends, the current policyholder demographic for participant organisations still prefers the existing operating model (CIO3 and ITM1). "The current policyholder demographic is not an on-demand demographic. They are very much a face-to-face traditional engagement demographic."(CIO3)

Customer experience is an important consideration for participant organisations. Thus, everything the organisation does ties back to customer experience, to ensure the organisation is focusing on the right things (CTO1). Given the easy accessibility of online tools, the organisation is wary not to remove a capability from its customers when providing an organisation specific solution (ITA1). Customers are not concerned whether the particular solution is cloud-based. Instead, they are interested in how the solution eases the performance of a specific business function (CIO2). Furthermore, ITE1 expresses that the nature of their business differs from banking and therefore does not require the online transactional type of customer experience. In supporting this view, HOD2 notes how the cloud-based competitors pose a negligible business threat. This competitor view is based on customers wanting to experience long-term investment assurance, which the new entrants cannot offer.

4.3 Value Chain Augmentation

Business Capability is any feature, which extends the value proposition of the organisation to its targeted market segment. The capabilities the participants mention is not a direct CC play, but instead capabilities, which happen to be available in the cloud. For instance, ITM1 is implementing an e-learning solution, based on an organisational need, and not because there is a SaaS-based solution that made technical sense.

According to CTO1, it makes sense to buy instead of building a product, which is not part of the strategic offering of the organisation. However, ITE1 expresses the need to retain some of the capability within the organisation to mitigate any risk when changing vendors. As far as productivity is concerned, ITA1 highlights that end-users would use SaaS-based solutions to be more productive, even if not available inside their organisation.

However, even though CC is providing various new ways of performing tasks, the participating organisations have no compelling reason to adopt CC, as it is not yet directly compromising their business models. Both HOD1 and CIO3 express this view, with the following quotes: "It is just plumbing."(HOD1) or "So from a point of vigilance we are looking at this and resilience, but we do not have right now burning business cases or use cases to deploy in the cloud."(CIO3)

Proof of Concept is a valuable tool to experiment with a new capability, explore new market segments, or evaluate new business models and concepts. As an example, CTO1 explain how their organisation uses SaaS-based solutions in smaller proof-of-concept type projects to understand the extent to which a capability can be utilised in the larger organisation. Meanwhile, both CIO3 and ITE1 uses CC to build proof-of-concept solutions outside of the organisational infrastructure, because CC provides a fast way to prove the business value of a particular capability.

HOD2 explains how their organisation is using IaaS during the development cycle of their solution. Once the final user testing is complete, HOD2 moves the solution into a hosted environment with one of their existing trusted vendors. ITE1 shares the same view as HOD2 to bring the final solution back into the organisation and to run the solution on the organisation's internal infrastructure. Contrary to this, CIO2 is building proof-of-concept solutions, which they continue to use in the CC environment as the final solution.

4.4 Business Viability

Value Proposition is the benefit a particular solution provides and provides an indicator of whether a particular solution is worth adopting into the organisation. Adopting CC requires the organisation to understand the cohesion between the various technologies and use what makes business sense. For instance, ITA1 recognises how running their infrastructure requires effort and can distract the organisation from focusing on adding value to the customer. Therefore, adopting IaaS can ease this burden for the organisation. ITE1 expresses the same view, and deem the use of IaaS and SaaS as a way for the business to focus on value-added services for their target market. However, not all participants share the same view.

Those participants with more exposure to cloud implementations experience cloud services as more expensive compared to running a similar service internally. HOD1 and CIO1 share this view towards cloud services. Due to the size of their organisations, running software solutions on their infrastructure is more cost effective, compared to IaaS and PaaS. Similarly, CIO3 cannot justify the cost of cloud services to counter industry competition. In fact, CIO3 sees no strategic value, which CC provides and is therefore not actively adopting CC. HOD2 and CIO2 recognise that their end-users do not care whether a solution is cloud-based, but instead about the business value a particular solution provides. Once the value proposition is established, participants consider the time to market of any new venture or solution.

Time to market of business capability is important to the participants, and SaaS-based solutions provide the necessary acceleration. SaaS-based solutions can assist organisations on two levels concerning time to market. The first level relates to the internal IT capabilities. Here, CIO2 and ITA1 explain how the ability to buy a capability, enables them to shorten their time to market, by not having to invest time and resource into development. Similarly, CIO1 require a shorter timeframe and lesser skillsets to implement their SaaS-based solution. While for HOD2, cloud-based services allow them to compete better against a competitor and move towards leading within their market segment. The second level relates to the business or end-user of the organisation. Here end-users of a particular solution also derive business value much quicker by utilising SaaS-based solutions. Similarly, ITE1 uses a SaaS-based solution to fast track their footprint expansion into new market territories. Similarly, CIO2 mention how the primary concern for end-users is a quicker turnaround time of business value, which SaaS-based solutions offer. For these end-users, the fact that the solutions are CC is immaterial. After considering all these points, the organisation still needs to ensure no operational disruption for the organisation.

4.5 Cost Structure

The Cost Model of IT, within an organisation, is a persuasive factor when considering CC. ITA1 and ITE1 explain how the cost of infrastructure is shared amongst all business units consuming the infrastructure. HOD1 explain how business units buy a service or capability from the internal shared-service provider, within the organisation. Using these internal providers, therefore, places a constraint on the cost and type of services available. In fact, when ITE1 extended the organisation footprint into an African country the IT cost within the organisation shared-services became prohibitive. This cost hindrance led to implementing a SaaS-based solution to reduce the IT cost for the market expansion into Africa. In contrast, CIO3 maintains CC only makes sense where the organisation has constraints with working capital. CIO3 and ITE1 highlight the accounting practice of asset depreciation, which enables the organisation to a show return on investment. The monthly payment for CC, coupled with the associated contracts only creates unnecessary administration overhead (according to CIO3). By understanding the cost models within organisations, the next step is looking at how to deal with the operational cost.

Operational cost is one reason some participants (CIO1, CIO2, CTO1, and ITA1) prefer outsourcing their infrastructure, thus removing the burden of maintaining the infrastructure themselves. However, CIO3 and HOD2 maintain large organisations have the funds to maintain their infrastructure. Furthermore, ITE1, ITA1, and HOD1 shares how the infrastructure cost, within large organisations, is split amongst the various business units. The cost sharing discourages business units to move off the shared platform, and negatively influence moving business capabilities to a CC environment. Also, organisations buy infrastructure for a five-year period, and the organisation grows into the infrastructure. These factors require a further understanding regarding expected cost saving.

4.6 Adaptive Capacity

Organisational Readiness for CC requires alignment between technology and business. This alignment requirement is due to the changes in both business processes and technology when implementing CC in an organisation. From a business perspective, the organisation may no longer require a certain skill set, or there might be less demand for a particular skill set. All participants recognise that changes are required within their respective organisations to embrace CC fully. An unwillingness to make the organisational changes can prevent the organisation from taking full advantage of the CC capabilities.

Another concern is integrating CC into the legacy IT platforms and legacy financial products (highlighted by HOD1). Within the organisation of ITE1, there is a practice of having detailed

knowledge of the platform provided for a business solution. ITE1 realises this mindset needs to change when moving into a CC environment. Of equal importance to organisational readiness is the limitation, which exists within the IT capability of the organisation.

4.7 Technology Architecture Review

IT Infrastructure of large organisations is complex and consists of several moving parts that are aligned to act as one cohesive unit. By employing various strategies, this cohesive unit is optimised to provide the expected business in the organisation. The application architecture also requires revision as some applications consist of legacy programming languages and potentially need to be ported. As a result, any change made to the IT infrastructure must satisfy the needs of the whole organisation.

Similarly, the integration between the various systems in these large organisations requires revision to ensure a service-oriented architecture that is cloud ready. Moving to CC is not simply using one or two small SaaS capabilities in isolated areas or business units. For the participants, it means these SaaS capabilities properly integrate into their existing infrastructure. For instance, HOD1 have realised that their organisation need to do a full migration to CC, after an initial investigation. Such migration is neither feasible nor technical possible for the legacy systems. "We did lots of evaluation and investigation, and most probably not. You have got to move the whole thing, and the whole thing does not work there."(HOD1)

IT Security remains a concern for large organisations. Those using SaaS apply various internal security measures before sharing information with the cloud provider. These measures include not sharing the actual client details and instead only providing a single key from which only the organisation can internally link it back to the client. Other measures include ensuring that the organisation's data is stored in a completely separate database. Even with these measures in place, participants all concede the cloud provider is more secure than their environments.

4.8 Vendor Influence

Vendor Relationship plays a big role in participating organisations because the vendors become trusted partners. However, the relationship results in vendors having a huge influence regarding the type solutions bought or developed by the organisation. The participants suggest the vendors operate in one of two modes. The first mode is in-sourcing, and the vendors form part of the organisational staff. While the second mode is outsourcing and the organisation only use the vendor service or product. In this mode, the vendor does not form part of the organisation. Adopting CC influences these operating modes and changes the nature of the conversation when renewing vendor contracts.

Infrastructure provision is not the only role, a hosting service provider play within organisations. For some participating organisations, the hosting service provider performs key business functions. However, HOD2 cancelled their services with their hosting partner, to align their IT architecture to CC.

5 Discussion

This research objective is to describe and explain the factors compelling large South African investment services organisations to adopt CC. The main topic of this study is, therefore: "understanding the business strategy factors that either support or impede moving business capability to a cloud environment".

5.1 Business Strategy

In this study, the ***customer experience*** sub-theme shows the customer base, of participating organisations, still prefers face-to-face interaction and CC is not playing a vital role. The ***value-chain-augmentation*** sub-theme shows the business models of participant organisations have remained very profitable, thus weakening the case to change their existing business models to accommodate CC. In the same way, the ***business-viability*** sub-theme shows the substitution products offered through CC is niche products, compared to the boutique of products offered by participating organisations. The ***cost structure*** sub-theme shows industry rivalry is combated through the existing cost models and policies within participating organisations and CC can help to minimise operational cost but does not contribute towards business profitability. The ***vendor influence*** sub-theme illustrates vendors using CC to their advantage to force participating organisations into adopting CC. These findings correspond to the five forces of competition by Porter (2008). However, the data analysis shows a weak relationship between the competitiveness of participating organisations, which means CC, has a minimal impact on their industry structure.

The **strategic position** for participating organisations resonates with being an analyser. The ***value-chain-augmentation*** sub-theme show participating organisations uses the strength of CC to build proof-of-concept business ideas. At the same time, the ***cost structure*** and ***technology-architecture-review*** sub-themes show participating organisations defending their current market positions by optimising their organisational infrastructure. When comparing these findings to the study of Miles et al. (1978), the alignment is to an analyser.

Organisations are required to choose a **strategy mode** when competing in a market segment, which is a competitive advantage (differentiation or cost) or competitive scope (Porter, 2008). The strategy mode is an important decision for any organisation to be successful in their chosen market segment. Based on the data analysis, the researcher could not find sub-themes, which support strategy mode and will therefore not discuss it.

Strategy execution is vital towards realising the business value envisaged by the business strategy. In this study, the ***adaptive capacity*** sub-theme shows how, on a strategic level, executive managers are receiving education about CC. Meanwhile, the ***business viability*** sub-theme illustrates CC contributes to the operational and tactical execution. In the same way, the study of Dettmer (2003) shows executing a business venture falls into the levels of strategic, operational, or tactical. Findings from the data analysis indicate organisations use CC on an operational and tactical level, and participating organisations do not view CC as a strategic option.

5.2 IT Strategy

In this study, the IT strategy of participating organisations plays a utility role, which enables the organisation to explore new products and services. Based on the findings, the ***cost structure*** sub-theme show cost is an important factor for IT within participant organisations. Based on these findings, the researcher concludes IT plays a utility role within the participant organisation, as per the finding of Gingras (Gingras, 2006). Regarding categorisation, the ***value chain augmentation*** and ***adaptive capacity*** sub-themes show the existing business models are still profitable, and the IT skill set, within participating organisations, is not yet ready for a CC adoption. Drawing comparisons to the study by Zhou and Wu (Zhou & Wu, 2010) the researcher concludes IT enables participating organisations to explore new products and services.

5.3 Business and IT Strategic Alignment

Strategic alignment between business and IT is important within an organisation. In this study, the ***cost structure*** sub-theme shows the existing structures within the participating organisations are

hindering business from responding to external changes in the target market. Coupled with this, the ***technology-architecture-review*** sub-theme illustrates the participating organisations focus on ensuring their infrastructure remains stable and reliable. On the other hand, the ***customer experience*** sub-theme highlights the change in customer behaviour, given the availability of cloud-based solutions. When drawing comparisons with the study findings of Henderson et al. (1996), this study finds participating organisations implement their strategic alignment model using the service-level method. The service-level method is due to the focus of participant organisations on stability and reliability, and less about effective usage of CC capabilities.

5.4 Cloud Computing Strategies

The literature review, in this study, shows CC strategies can take various forms. The ***value-chain-augmentation*** sub-theme identifies SaaS-based solutions as a key driver to accelerate the business strategy realisation, which is similar to the findings of Gonçalves and Ballon (2011). However, this study finds SaaS-based solutions is only providing an accelerated time-to-market of proof-of-concept business ventures and not the total-cost-of-ownership benefit as Gonçalves and Ballon (2011) shows.

5.5 Organisational Impact

Preparing the organisation to adapt to CC is an important factor. This study finds the organisation, excluding the IT department, is ready to adopt CC, which contradicts the study by Akande and Van Belle (2014) who shows the financial services sector readiness level is low. Within the participating organisations, the IT department is the hindrance towards adopting CC. This hindrance results from the IT department focusing on the stability and reliability of the existing infrastructure at the cost of flexibility and reduced time-to-market, of new business initiatives. These characteristics of the internal IT department force the rest of the organisation towards CC. Consequently, preparing the organisation relates more to preparing the IT department to adopt CC.

Business models are vital to determine how an organisation intends creating and delivering a value-added service to a target market. The ***value-chain-augmentation*** sub-theme shows the existing business models of the participating organisations, is still profitable and not impacted by CC. Even the new competitors entering the market and substitute products introduced into the market does not pose a threat to the participating organisations. Therefore, the findings of this study contradict Tongur and Engwall (2014) and McGrath (2010) who shows changes in technology pose a threat to organisations and reinforces an organisation should experiment with their business model.

Organisational agility determines how well the organisation can adapt to unplanned changes in their business environment. This study finds participating organisations are optimising their internal processes to ensure the organisation can adopt CC. None of the data findings shows the participants focus on market capitalisation, as a result of CC, which is rooted in the view that CC pose no threat to their business. The present study concludes the participating organisations are not agile, based on the findings of Lu and Ramamurthy (2011) and Chakravarty et al. (2013).

Organisational fit plays an important role when considering the suitability of CC, for participating organisations. From this study, the ***business viability*** sub-theme shows the business units, of participating organisations, adopt CC to enable business processes. In contrast, the ***technology-architecture-review*** sub-theme show organisations regard CC as adopted when integrated into the larger organisational infrastructure. The study of Strong and Volkoff (2010), categorise the organisational suitability of an IT solution into enablement and coverage. However, the data findings show CC provides enablement but does not always fulfil the coverage requirement for organisational fit.

Management plays a vital role within the organisation to ensure the execution of the business strategy. Through the ***adaptive capacity*** sub-theme, the findings show managers need to handle the

impact on staff when adopting CC. On top of that, the ***vendor influence*** sub-theme highlights the factors in a vendor relationship which managers should concern themselves about. Though the study by Bhatt et al. (2010) highlights the requirement of change-management, the focus is on the technology and not the business impact. In contrast, this study identified factors, which managers within participant organisations have to deal with to handle the organisational change.

5.6 Relationship Matrix

The purpose of the relationship matrix is to show how CC relates to business strategy factors. Four relationship types has been created, namely, Business Consideration, Support (strong), Support (weak), and Impede. *Business consideration* relationship-type represents business factors and indicate the relationship neither supports nor impedes CC. It only provides input into business strategy formulation. The *Support (strong)* relationship-type indicates the relationship strongly supports CC. The *Support (weak)* relationship-type indicates the support to adopt CC is weak. The *Impede* relationship-type indicates a barrier towards CC. Conclusions from Relationship Matrix

Based on the relationship matrix this section discusses the relationships by first considering it by each row and then by each column. This translates into first describing the relationship between the literature-based themes. The second description discusses, the relationship based on the themes from the data findings. The literature-based relationships consider Business Strategy, IT Strategy, Business and IT Alignment, CC Strategies, and Organisational Impact. **Business Strategy** has a predominant "business consideration" relationship-type, which means organisations only considers the effect of CC as input to their business strategy decision. However, CC does not drive their business strategy for the organisation. **IT Strategy** has mostly an "impede" and "support (weak)" relationship-type, which is rooted in CC being regarded as either operational or tactical. **Business and IT Alignment** has both a "business consideration" and "support weak" relationship-type. This implies CC provides input into business strategy, but the relationship is not strong enough to influence the alignment between business and IT. **CC Strategies** only has a "support (weak)" relationship-type because CC does not provide any business value to the organisation. **Organizational Impact** has a "business consideration" and "impede" relationship-type. Given the complexity of large organisations, this means CC provides input into business strategy, but the impact of CC on the organisation creates a barrier for CC into the organisation.

Table 3.   Relationship Matrix

Themes	Frame-works and Models	Customer Experience	Value Chain Augmentation	Business Viability	Cost Structure	Adaptive Capacity	Technology Architecture Review	Vendor Influence
Business Strategy		Consideration	Consideration	Consideration	Impede	Impede	Consideration	Consideration
IT Strategy	Support (strong)		Support (weak)		Impede	Impede	Impede	
Business and IT Alignment	Consider-ation	Support (weak)						
CC Strategies			Support (weak)					
Organisational Impact			Impede	Consider-ation	Impede	Consider-ation	Impede	Consideration

The data findings sub-theme relationships consider Frameworks and Models, Customer Experience, Business Viability, Cost Structure, Adaptive Capacity, Technology Architecture Review, and Vendor Influence. **Frameworks and Models** has a "business consideration" and "support (strong)" relationship-type, which means this sub-theme can provide a positive impact on the

organisation and adoption of CC. **Customer Experience** has a "business consideration" and "support (weak)" relationship-type. This means that even though CC provides input into the business strategy, it does not assist the organisation with alignment between business and IT. **Value Chain Augmentation** has a predominantly "support (weak)" and "impede" relationship-type, which means CC does not provide a strong input into business strategy. **Business Viability** only has a "business consideration" relationship-type, which means CC only provides input into business strategy. **Cost Structure** only has an "impede" relationship-type, which means the business strategy creates a barrier for CC to enter the organisation. **Adaptive Capacity** has a "impede" and "business consideration" relationship-type, which means the organisation will consider the CC input into its business strategy formulation. However, the input provided will not lower the barrier of entry into the organisation for CC. **Technology Architecture Review** also has an "impede" and "business consideration" relationship-type. Here the "impede" relationship-type shows the organisation has barriers to entry for CC based on the existing IT strategy and potential organisational impact introduced by CC. **Vendor Influence** only has a "business consideration" relationship-type because vendors are trusted partners, and when considering CC the business strategy should consider the existing vendor relationships.

6   Conclusion

This research aims to describe and explain the business strategy factors, which either support or impede moving business capability to a CC environment. Data was collected using semi-structured interviews, within large organisations in the investment services sector.

6.1   Summary of Findings

The study's objective was to describe the role and potential of cloud computing, and its relationship to business strategy in the South African investment industry. This research found that SaaS-based solutions are the most used CC option. Contemporary business environments are competitive, and organisations are considering ways to explore products and services. The SaaS-based solutions accelerate the time-to-market for proof-of-concept products and services. However, most implementations of the final business solution are on the internal infrastructure of the organisation. PaaS and IaaS are used to a lesser degree by organisations in this study.

The business strategy consists of industry structure, strategic mode, strategic position, and strategic execution. Organisations also have an IT strategy and need to align the IT strategy with the business strategy. CC influences the strategic thinking of participants given the catalyst CC has been for capabilities the organisations are considering. However, CC offers no competitive differentiation for investment services organisations, and their existing business models have remained profitable. Even so, organisations are still looking at optimising their internal processes to ensure the organisation can adopt CC.

IT is a utility service in most organisations, which enables the organisation to explore new products and services. Organisations, therefore, has a service-level relationship with IT to align IT strategy to business strategy. This forces the IT department to focus on maintaining a stable and reliable infrastructure. A relationship, which forces the IT department only to consider CC when it contributes to the service level gives rise to misalignment, and individual business units adopt CC, in isolation, to fulfil their business need.

6.2 Research Contribution

Prior research focuses on CC capabilities and technical issues surrounding it. Most prior research in CC takes the perspective of the cloud provider, and not the cloud consumer. Little CC based

research considers the business perspective towards understanding the role CC plays, within the business context of the organisation. The focus in the present study is on the business strategy aspects of an organisation and its relationship with CC. It considers the CC capabilities and the value-added contribution to the business. Specific focus is on business strategy factors and the relationship CC has with the strategic position, mode, execution, and industry structures of an organisation. An assessment is made of the impact CC has on each of these business strategy factors and how those impacts support or impede moving business capability to CC. To achieve this, the study used a matrix to describe the relationship between CC and business strategy. This matrix is named the relationship matrix. The research contribution is the description of the relationships, which exist between the business strategies of South African investment service organisations and CC.

6.3 Recommendations

From a business strategy point of view, the organisation should recognise the industry-structure impact CC has on their customer experience. By clearly identifying the customer types the organisation intends of serving, the organisation can focus on identifying the expected customer experience. Organisations need to start preparing their IT infrastructure by adopting a suitable framework. Even though there are different frameworks and models, followed by organisations, they need to focus on first getting one right. The researcher recommends an organisation place focus on implementing the bimodal IT strategy to separate the needs of the legacy infrastructure from the rest of the IT infrastructure. This separation caters to the ever-changing needs of the business environment.

This study interviewed only a relatively small number of organisations owning a data centre. This small population size is in part because the study is limited to investment services. Future studies should consider other industries to draw comparisons to the present study. The role of the person interviewed could be extended to include non-IT roles, such as chief executive officers or chief financial officers. This would add a more business-oriented view.

7 References

Akande, A. O., & Van Belle, J. (2014). A proposed framework to assess and increase the cloud computing readiness of financial institutions in South Africa. Paper presented at the Confluence the Next Generation Information Technology Summit (Confluence), 2014 5th International Conference-, 46-52.

Bartlett, C. A., & Ghoshal, S. (2002). Building competitive advantage through people. MIT Sloan Management Review, 43(2), 34.

Bhatt, G., Emdad, A., Roberts, N., & Grover, V. (2010). Building and leveraging information in dynamic environments: The role of IT infrastructure flexibility as enabler of organizational responsiveness and competitive advantage. Information & Management, 47(7), 341-349.

Brender, N., & Markov, I. (2013). Risk perception and risk management in cloud computing: Results from a case study of Swiss companies. International Journal of Information Management, 33(5), 726-733.

Chakravarty, A., Grewal, R., & Sambamurthy, V. (2013). Information technology competencies, organizational agility, and firm performance: Enabling and facilitating roles. Information Systems Research, 24(4), 976-997.

Chen, Y., Wang, Y., Nevo, S., Jin, J., Wang, L., & Chow, W. S. (2014). IT capability and organizational performance: The roles of business process agility and environmental factors. European Journal of Information Systems, 23(3), 326-342.

Cohen, J. F., Mou, J., & Trope, J. (2014). (2014). Adoption of cloud computing by South African firms: The role of institutional forces, absorptive capacity, and top management. Paper presented at the Proceedings of the Southern African Institute for Computer Scientist and Information Technologists Annual Conference 2014 on SAICSIT 2014 Empowered by Technology, 30.

Dettmer, H. W. (2003). Strategic navigation - A systems approach to business strategy. Milwaukee, Wisconsin: ASQ Quality Press.

Dinh, H. T., Lee, C., Niyato, D., & Wang, P. (2013). A survey of mobile cloud computing: Architecture, applications, and approaches. Wireless Communications and Mobile Computing, 13(18), 1587-1611.

Garrison, G., Wakefield, R. L., & Kim, S. (2015). The effects of IT capabilities and delivery model on cloud computing success and firm performance for cloud supported processes and operations. International Journal of Information Management, 35(4), 377-393.

Gartner. (2012). Pace-layered application strategy. Retrieved from https://www.gartner.com/newsroom/id/1923014

Gingras, D. (2006). Where does your organization fit? Retrieved from http://www.cioupdate.com/insights/article.php/3578881/Where-Does-Your-Organization-Fit.htm

Gonçalves, V., & Ballon, P. (2011). Adding value to the network: Mobile operators' experiments with software-as-a-service and platform-as-a-service models. Telematics and Informatics, 28(1), 12-21.

Gopichand, M. (2015). Cloud computing: An introduction to SMAC. International Journal of Innovative Science, Engineering & Technology, 3(7)

Henderson, J. C., Venkatraman, N., & Oldach, S. (1996). Aligning business and IT strategies. In J. N. Luftman (Ed.), Computing in the information age: Strategic alignment in practice (pp. 21-42). New York: Oxford University Press.

Horlach, B., Drews, P., & Schirmer, I. (2016). Bimodal IT: Business-IT alignment in the age of digital transformation. Multikonferenz Wirtschaftsinformatik (MKWI), , 1417-1428.

Hung, S., Chen, C., & Wang, K. (2014). Critical success factors for the implementation of integrated healthcare information systems projects: An organizational fit perspective. Communications of the Association for Information Systems, 34(1), 39.

Khajeh-Hosseini, A., Greenwood, D., Smith, J. W., & Sommerville, I. (2012). The cloud adoption toolkit: Supporting cloud adoption decisions in the enterprise. Software: Practice and Experience, 42(4), 447-465.

KPMG. (2014). SMAC: The paradigm shift. Creating future of the enterprise. Retrieved from https://assets.kpmg.com/content/dam/kpmg/pdf/2014/09/SMAC-Revised.pdf

Lu, Y., & Ramamurthy, K. (2011). Understanding the link between information technology capability and organizational agility: An empirical examination. Mis Quarterly (2011): 931-954.

Marston, S., Li, Z., Bandyopadhyay, S., Zhang, J., & Ghalsasi, A. (2011). Cloud computing—The business perspective. Decision Support Systems, 51(1), 176-189.

Miles, R. E., Snow, C. C., Meyer, A. D., & Coleman, H. J. (1978). Organizational strategy, structure, and process. Academy of Management Review, 3(3), 546-562.

Porter, M. E. (2008). Competitive advantage: Creating and sustaining superior performance.New York, NY: Simon and Schuster.

Slater, S. F., Olson, E. M., & Finnegan, C. (2011). Business strategy, marketing organization culture, and performance. Marketing Letters, 22(3), 227-242.

Strong, D. M., & Volkoff, O. (2010). Understanding Organization—Enterprise system fit: A path to theorizing the information technology artifact. MIS Quarterly, , 731-756.

Tongur, S., & Engwall, M. (2014). The business model dilemma of technology shifts. Technovation, 34(9), 525-535.

Zhou, K. Z., & Wu, F. (2010). Technological capability, strategic flexibility, and product innovation. Strategic Management Journal, 31(5), 547-561.