

EXPLORING A BUSINESS TO BUSINESS RECURRING REVENUE FRAMEWORK FOR THE DELIVERY OF SOFTWARE AS A SERVICE THROUGH A CLOUD COMPUTING CHANNEL

By

David Dempsey MBA

Submitted in Fulfilment of the Doctorate in Business Administration



Waterford Institute of Technology

School of Business

Waterford Institute of Technology

Research Supervisor: Dr Felicity Kelliher

Submitted to Waterford Institute of Technology

June 2015

QQI

DECLARATION

The author hereby declares that, except where duly acknowledged, this thesis is entirely his own work.

This thesis is not one for which a degree has been or will be conferred by this or any other university or institution.

Signed:

David Dempsey

June 2015

ABSTRACT

Cloud Computing (CC) is creating a new paradigm for the distribution of computer software applications. Within this context CC enabled Software as a Service (SaaS) fundamentally changes the revenue expectations and business model for the application software industry. This study considers the revenue expectation of the CC industry and its dependency on renewal subscriptions, while the study focuses on SaaS in the Business-to-Business (B2B) domain, delivered through the CC channel. In this new world securing the SaaS subscription renewal is critical to the survival and prosperity of the Cloud SaaS business. Of note is that any significant attrition, i.e. cancellation or reduction of the service, can have a significant impact on the financial viability of any business based on this model. The primary research seeks to examine the drivers behind the B2B SaaS subscription renewal decision and, in doing so, to explore the recurring revenue framework for the Cloud SaaS business. The research question is: What is the B2B recurring revenue framework for the delivery of SaaS through a Cloud Computing channel? The research includes an examination of the existing software distribution and revenue models and assesses their applicability to the Cloud SaaS provider. The study focuses on the revenue attrition risks inherent in the B2B SaaS business model and proposes a revenue renewal framework where the Cloud SaaS subscription renewal risks are identified such that any patterns or trends in the data will allow the Cloud SaaS service provider to build awareness, and commercial exploitation, of these trends into their business model and planning strategy.

Table of Contents

DECLARATION	ii
ABSTRACT.....	iii
ACKNOWLEDGEMENTS	vi
DEDICATION	vii
LIST OF ABBREVIATIONS	viii
GLOSSARY OF TERMS.....	ix
SECTION ONE: RESEARCH OVERVIEW AND STUDY CONTEXT	1
INTRODUCTION	2
RESEARCH OVERVIEW	3
ORIGINS OF THE RESEARCH STUDY	9
RESEARCH QUESTION AND OBJECTIVES	10
OVERVIEW OF THE RESEARCH PROCESS	11
THESIS STRUCTURE	14
SECTION TWO: CUMULATIVE PAPER SERIES	22
PAPER 1	23
PREFACE	24
Paper 1: Conceptual Framework	28
PAPER 2	49
PREFACE	50
Paper 2: Research Methodology.....	56
PAPER 3	88
PREFACE	89
Paper 3: Research Design and Phase One Findings	93

PAPER 4	124
PREFACE	125
Paper 4: Phase 2 Findings and Initial Discussion	131
SECTION THREE: CONCLUSION AND RECOMMENDATIONS	159
INTRODUCTION	160
SUMMARY OF RESEARCH OUTCOMES AND EXTRACTION OF THEMES	162
REFINED CONCEPTUAL FRAMEWORK	168
CONTRIBUTIONS TO KNOWLEDGE	174
RESEARCHER REFLECTIONS	181
RESEARCH LIMITATIONS	181
AVENUES FOR FUTURE RESEARCH	182
SECTION FOUR: REFLECTIVE LOG EXTRACTS	188
INTRODUCTION	189
LOG EXTRACTS	191

ACKNOWLEDGEMENTS

I wish to acknowledge gratefully the support and assistance of my colleagues and mentors at Salesforce.com. They are the real Cloud Computing experts and I'm proud to be part of such a great team.

I also wish to acknowledge those who so graciously gave of their time and expertise to participate in the research study, particularly the interviewees who were so open with their insights.

Finally, I want to especially and very sincerely thank my supervisor, Dr. Felicity Kelliher for her patience and never failing support and encouragement. Without your help, Felicity, this simply would never have been completed.

DEDICATION

To my wife, Bernie, and our beautiful children, David and Julia. Thank you for your patience and never failing encouragement.

And for Mam and Dad, who didn't live to see the completion but whose guiding hands were with me throughout.

LIST OF ABBREVIATIONS

API	Application Program Interface
B2B	Business-to-Business
CC	Cloud Computing
CSAT	Customer Satisfaction
DBA	Doctorate of Business Administration
FLF	Feature Limited Freemium
IaaS	Infrastructure as a Service
PaaS	Platform as a Service
RFL	Reason for Loss
RLF	Resource Limited Freemium
SaaS	Software as a Service
SLA	Service Level Agreement
TLF	Time Limited Freemium

GLOSSARY OF TERMS

Business-to-Business (B2B): business conducted between companies

Cloud Computing (CC): a model for delivering ubiquitous, on-demand access to a shared pool of computing resources which can be rapidly provisioned and released with minimal management effort or service provider interaction.

Doctorate of Business Administration (DBA): The DBA programme provides education in research, and focuses on the application of theoretical knowledge to the advancement of management and business practice. It is designed to develop analytical, conceptual, and critical thinking skills of senior business and management professionals and combines workplace and professional engagement with scholarly rigour of academic institution (Professional Doctorate in Business Administration Induction Handbook 2010).

Freemium: a term merging the terms ‘free’ and ‘premium’ is a business model that works by offering cloud services for free, while charging a premium for advanced features.

Infrastructure as a Service (IaaS): form of cloud computing that provides virtualized computing resources over the Internet. IaaS is one of three main categories of cloud computing services, alongside Software as a Service (SaaS) and Platform as a Service (PaaS).

Platform as a Service (PaaS): category of cloud computing that provides a platform and environment to allow developers to build applications and services over the Internet. PaaS is one of three main categories of cloud computing services, alongside Software as a Service (SaaS) and Infrastructure as a Service (PaaS).

Private Cloud: a hosted, single tenant, infrastructure that, although allowing the end user access the application service as if it were a Cloud Service, is managed and delivered through a single, unique, hosted environment licenced in a model closer to the traditional industry licence than that of the Utility Cloud.

Reasons For Loss: refers to the company-generated codes relating to attrition reasons offered by surveyed attriting or reducing clients.

Software as a Service (SaaS): software licensing and hosted delivery model in which software is licensed on a subscription basis. SaaS is one of three main categories of cloud computing services, alongside Infrastructure as a Service (IaaS) and Platform as a Service (PaaS).

SECTION ONE:
RESEARCH OVERVIEW AND STUDY CONTEXT

INTRODUCTION

The father of the Internet, Leonard Kleinrock (1969, as cited in Leiner et al. 1997) looked forward to the time that computer networks would grow in sophistication so that we would see the emergence of ‘computer utilities’ (Leiner et al. 1997). In the almost half a century since Kleinrock and the original ARPANET¹ team first began to connect the technical world, this prediction of computer utilities may have finally come to pass. In their recent research on the topic, Professor Buyya and the team at Melbourne University position Cloud Computing as the utility service envisioned by Kleinrock, going so far as to refer to it as the 5th Utility, following on from the previously acknowledged utilities of Gas, Electricity, Water and Telephony (Buyya et al. 2009). Once envisioned by Kleinrock as a futuristic dream, this dream is very much a reality (Meeker et al. 2010) with Forbes (2015) predicting the Cloud Computing marketplace to have an estimated value of \$106 billion in 2016.

There were a number of technological advances and offerings that helped the industry move towards the cloud offerings available today. The sharing of mainframe computing resource among many users by means of multi-programming and multi-tasking was introduced in the 1960s and emerged as the prominent model of computing in the 1970s. Cluster technology was introduced in the 1970s as a means to loosely or tightly connect computers that work together so that, in many respects, they can be viewed as a single system; while from the 1990s Grid Computing can be thought of as a distributed system to facilitate the collection of computer resources from multiple locations to reach a common goal. From Mainframe Timeshare (Shapin, 1982) to Computing Clusters (Werstein et al. 2006) to Grid Computing (Green and Miller, 2003), all were primarily motivated by the need for access to more powerful computing technologies. Initially driven by the computing power hungry applications predicted by Kleinrock (1969, as cited in Leiner et al. 1997) the success of the distributed computing model (Thain et al. 2005) morphed to increasingly drive and support the business and consumer applications that have proliferated as the world has become more and more connected.

The journey from the computer utilities perspective (Leiner et al. 1997) through to the Cloud Computing utility delivery model (Lavigne and Kavis, 2010) and onto the

¹ The Advanced Research Projects Agency Network (ARPANET) team, funded by the U.S. Department of Defence developed the early packet switching network and was the first network to implement the

commercial acceptance and take up of enhanced technology (Weinhardt, Blau and Stober 2009) is well documented. At this stage in the technology trajectory, Cloud Computing, often referred to by its alter ego Software as a Service (SaaS), is now a 'commercial reality' (Ambrust et al. 2010). Just like Gas, Electricity, Water and Telephony, consumption of the new Utility services requires the user to have little hardware or software infrastructure in their own location and it is delivered as an elastic and scalable service for which the user pays as the service is consumed (Buyya et al. 2009). As such, SaaS is both the democratic and ubiquitous service that Kleinrock predicted back in 1969. Cloud Computing (CC), in its current guise, has been with us since the late 1990s when companies like Amazon (1997), Salesforce.com (1999) and GoToMeeting (2004) started to offer pay as consumed computing application services. However, it is really in the last decade that it has begun to experience the growth that Meeker et al. (2010) envisaged. As stated previously, Forbes (2015) predict the global market for Cloud Computing SaaS software revenues will reach \$106 billion in 2016, this in itself a 20%+ increase over projected 2015 revenues.

RESEARCH OVERVIEW

Much of the existing literature struggles to clearly define Cloud Computing (CC). The earlier academic literature (He et al. 2004; Weiss, 2007) primarily focus on the recommendations for the technical provision of the infrastructure necessary to support the delivery of remote computing services. Others, such as Boss et al. (2007) refer to CC as technology, not a business model. While many (Fox, 2009; He et al. 2004; Mell and Grance, 2011; Weiss, 2007) view CC as a technical rather than a business paradigm advance, Fan et al. (2009) question whether CC is, in fact, a business rather than a technical innovation. Fan et al.'s (2009) perspective is supported in the literature with a number of the more contemporary researchers reflecting recent trends in the Cloud industry (for example: Skilton and Director, 2010; Fan et al. 2009). These studies reflect the industry in its current manifestation. Table 1.1 sets out a taxonomy reflecting this change in emphasis.

Table 1: B2B SaaS Revenue Renewal Taxonomy via a CC channel

Role	Criteria	Description	Supporting Literature
Subscriber	Previous Performance	Quality of Service Delivery	Verhoef (2003)
	Fulfilment of User Expectations	Previous Experience, Adoption Levels	Taylor and Hunter (2002)
	Contracted Terms	Cost, Credit Terms, Billing Frequency, Timing of Renewal, Value	McLauchlin (2010)
	Peer Influence	Market Acceptance, Existing Installed Base, User Case Studies	Childers and Rao (1992)
Supplier	Alternative Offerings	Competitor Suppliers	Porter and Millar (1985)
	External Influences	Regulatory, Network Robustness	Kim and Yoon (2004)
	Localisation	Language, Business Culture fit	Dawar and Frost (1999)
	Supplier Reputation	Market Perception	Keh and Xie (2009); Sheth (1973)
	Trust	Earned Relationship, Perception	Burez and Van den Poel (2007)
	Loyalty	Earned Brand Commitment	Moritz and Fitzsimons (2004); Zineldin (2006)
	Relationship Management	Proactive Programmatic Adoption	Peppard (2000)

Based on the foregoing journey from which Cloud Computing as a concept evolved, as summarized in table 1, CC is creating a new paradigm for the distribution of computer software applications. Within this context CC enabled Software as a Service (SaaS) fundamentally changes the revenue expectations and business model for the application software industry.

The CC SaaS Business Model

Securing SaaS subscription renewal is critical to the survival and prosperity of the CC SaaS business. Any significant attrition, i.e. cancellation or reduction of the service, can have a significant impact on the financial viability of any business based on this model. Failure of the subscription renewal is therefore the ‘Achilles heel of Cloud

Computing' (McLauchlin, 2010). Dependency on the renewal event, and the subsequent risk of churn², is not new. This is the same as any other subscription, be it subscriptions at a pay television company (Burez and Van den Poel, 2007), insurance premiums in the financial services industry (Peppard, 2000) or subscription-based telecom and retail services (Verhoef, 2003). Whether it be magazine subscriptions or retail services like razor blades or computer printer ink refills, the renewal criteria are common (Taylor and Hunter, 2002). As McLauchlin (2010) points out, the failure of the renewal will kill the subscription business. Without a growing or maintained subscriber base revenue will drop and competition will grow (Porter, 1996), while the cost of maintaining the service infrastructure will need to be spread across a smaller pool of revenue contributing customers. Coupled with the fact that the cost of acquiring a new customer is significantly more than that of retaining an existing one (Pfeifer, 2005) meeting SaaS user expectations is key to building the recurring revenue framework that is vital for the survival and prospering of the SaaS provider.

Simply put, as this illustration light-heartedly illustrates, just like the leaky bucket analogy if the subscription revenue inflow is not greater than, or equal to, the churn or attrition outflow, then the SaaS or Cloud Computing service provider cannot hope to grow, or as McLauchlin (2010) opines, even survive.



The traditional software industry has grown around a business model where the typical sector participant invests heavily in its early stages in the design and build of the software application. Once these investments are made and the software product is delivered and production is ready, the industry player then typically seeks to recoup its development costs and convert its product into revenue through the repeated distribution and perpetual license sales of its software solution (Cusumano, 2008). Once the classic software company reaches this selling stage it is then in a position to recognize (collect) the sales revenue received in full, on payment. There are some exceptions to the immediate recognition, such as where part of the payment is held in a suspense, or warranty fund, until final acceptance sign-off on the software deliveries by the paying

² Churn rate (sometimes called attrition rate) is the annual percentage rate at which customers stop subscribing to a service.

customer. However, although the final license fee payment may be delayed, all of the revenue still becomes available to the software provider on delivery of the warranted component. Any delay in payment due to specific warranty agreements does not alter the classical software ‘up-front’ revenue recognition model.

In the Cloud Computing or SaaS model (Sääksjärvi et al. 2005) the revenue recognition of the software license fee is fundamentally changed. In place of the upfront revenue, the SaaS provider instead will only be able to recognize (collect) the revenue on successful delivery of the SaaS Service (Fader and Hardie, 2007). The SaaS provider may well license the use of its software application in the same way as the classic software provider, i.e. \$x per application user, but in the case of SaaS instead of the upfront payment expectation of the perpetual use license, the fee is broken down into a per month rental, i.e. \$x per month per user. While, as illustrated in figure 1 below, the monthly rental fee per user license is significantly lower than the classic perpetual per user license fee, nonetheless over the extended usage life of the contract, the license subscription fee will often match or exceed the perpetual fee over the extended period.

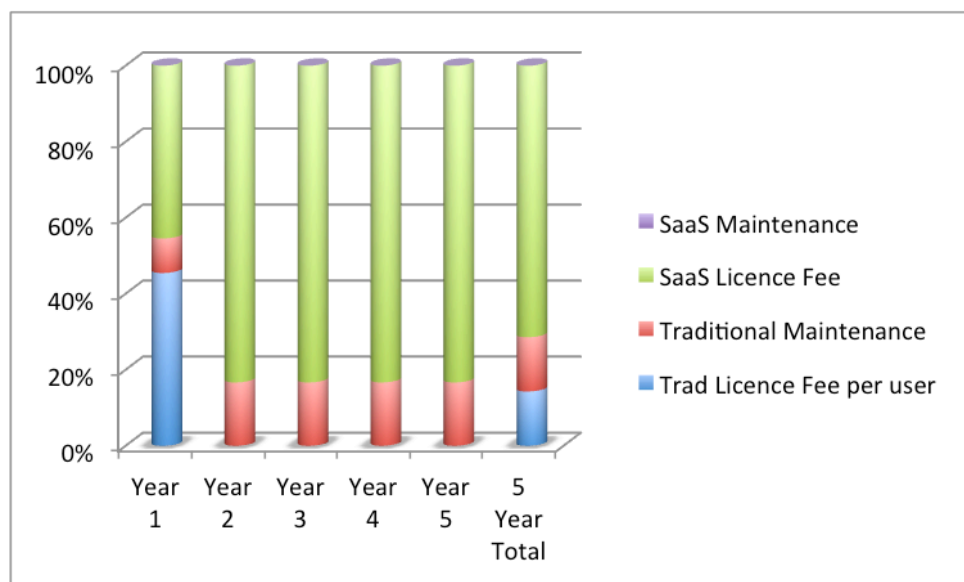


Figure 1: SaaS Licence Revenue Model

As can be seen in figure 1 above, the total revenue to the software providers may not be vastly different in either model over a typical extended license period. The financial markets have responded well to this model, as evidenced by the industry growth predications (Meeker et al. 2010; Morgan Stanley, 2011). Principally, a Cloud Company’s deferred revenue is more predictable (Sääksjärvi et al. 2005), and is

therefore more favourable from a financial market perspective. Nonetheless the ability to recognize (collect) the revenue is significantly different (Fader and Hardie, 2007). For the traditional software provider, the license revenue comes as a single large payment, which is front-loaded and recognized immediately. This provides the safety of being able to recognize all of the revenue up front with no financial exposure to the non-deployment of the licenses purchased, or what is typically known in the classic software industry as ‘shelf ware’ (Motley, 2004). In other words, the successful sale of the license is, broadly speaking, the successful conclusion of the revenue transaction, paving the way for an opportunity to provide separately an on-going maintenance service for an annual fee paid for the lifetime of the software use.

In the case of the SaaS or Cloud Computing provider, the number of application or system-user licenses provided to the customer may well be the same but typically the per user fee paid will be a fraction of the perpetual per user license fee. This is because in the case of the Cloud service the license provided is not a perpetual one but, instead, a right to use for a fixed period of time typically renewed on a monthly or annual basis. The actual fee paid may well be enhanced through the addition of an extended term contract, e.g. 36 months, with the fees often paid in advance. This will typically give the SaaS provider a similar cash flow position as the traditional software provider, but the major difference is that, for the SaaS provider, this revenue cannot be recognized (collected), and thus cannot be made available to the business, until the Cloud Company has successfully delivered the service at the user level contracted for the duration of the license period. As can be seen from figure 1 above, this SaaS need to continually successfully deliver the service for the contracted period moves the licensing from that of the upfront revenue model of the traditional software industry towards the consumption model of a utility (Buyya et al. 2009).

In keeping with the utility comparison (Buyya et al. 2009), this perspective firmly positions the Cloud subscription service provider in the revenue expectation arena of any other utility or subscription (Skilton and Director, 2010; Turner, Budgen and Brereton, 2003). The SaaS company is exposed in two ways; (1) the need to provide on-going service delivery, plus (2) the exposure of customer churn (Strømmen-Bakhtiar et al. 2011). In the first instance there is the simple risk of failure to deliver the software service successfully such that it may be consumed as contracted, while for the second there is the requirement that the consumer/ user base must continually be protected or

grown so as to maintain or expand the overall company revenue. Just as any other subscription-based service is subject to churn, so too is the Cloud Computing industry (Fouquet et al. 2009).

Based on the foregoing, this study considers the revenue expectation of the Cloud Computing (CC) industry and its dependency on renewal subscriptions, while the study focuses on software as a service (SaaS) in the Business-to-Business (B2B) domain, delivered through the CC channel. This research does not deal with any exposure resulting from the failure for the Cloud Computing or SaaS provider in not technically delivering the service subscribed for. Instead it focuses exclusively on the risk for the Cloud Company in not protecting its subscriber base and, in doing so, seeks to build out a recurring revenue framework for the delivery of SaaS through a Cloud Computing channel. I acknowledge that the need for, and costs of, providing the SaaS continues throughout the life of the SaaS subscription contract and that any failure to deliver this service, and its resultant revenue failure could quickly become catastrophic for the Cloud Computing company. However, this element of SaaS provision is dealt with elsewhere (Mell and Grance, 2011) and is beyond the scope of this research study.

The decision to renew or cancel a subscription may be influenced by any manner of item or opinion (McLauchlin, 2010). In keeping with this perspective and to help explore the different dimensions of the customer/ respondent's experiences as set out by Sproull (2002), this research project asks: *'what is the B2B recurring revenue framework for the delivery of SaaS through a Cloud Computing channel?'* In particular, the concept of objective/ subjective influences contributing to the SaaS renewal decision is, in my opinion, an important factor in the consideration of the research aim and the research objectives. The ability to manage churn is key to the survival of the SaaS company (Burez and Van den Poel, 2007). From the outset of this research undertaking, I sought to establish, initially through the literature and subsequently through the research undertaking, that subscription renewal is the fundamental exposure to the successful and continued delivery of SaaS through the Cloud Computing channel (Fader and Hardie, 2007).

ORIGINS OF THE RESEARCH STUDY

In seeking to place the study in its correct context, the researcher deliberately chooses to focus on the attrition of Software as a Service (SaaS) subscriptions rather than their renewal. Either lens might be considered valid (McLauchlin, 2010) but in this instance the researcher sought insight into the subscriber contributed reasons for non-renewal rather the data collected from renewing subscriber patterns. In doing so, this study can provide insight into the decision of conscious attrition, which requires considered action prior to its being effective. The opposite is true of SaaS subscription renewals, which require no such action, with most contractually available for automatic renewal ‘rolling over’ without intervention from the subscription user (Walther et al. 2013). For these reasons attrition, or the churn described by Kim & Yoon (2004), is the more appropriate lens to apply in this instance.

In their Cloud Computing guise, SaaS subscriptions are a recent phenomenon. However, although manifesting as a unique and previously lightly researched topic, several existing and robust theory bases are valid lens for application in this study. Customer Relationship Management (CRM) theory, as exemplified by Verhoef (2003), sets out the suppliers attempt to enhance customers’ relationship perceptions. This was one of the key lens through which the researcher viewed the research question yet, in doing so, for all its seeming appropriateness CRM theory was not considered by the researcher as being sufficiently complete to merit its acceptance as the sole theoretical basis on which to conduct the research study. CRM’s premise that the customer is open to management through a quantifiable and finite set of relationship enhancing actions is tested by the customer empowerment that SaaS offers. The democratisation of purchasing, ease of exit and constantly enhanced competitive offerings which SaaS routinely makes available to its customer base challenge the existing CRM theory and the researcher considers that while this a valid foundational theory, it should be considered as one aspect rather than as the single theoretical building block.

So too with the Relationship Marketing Theory base, where Rust, Zeithaml and Lemon (2000) speak of the customers’ evaluation of a subscribers’ offerings shaping the customer behaviour. Again, this theory base is a valid and applicable foundation to this research undertaking but like the CRM theory discussed above, it falls somewhat short as being the sole theory base on which this research undertaking could be built.

Particularly in the area of its approach to customer, or subscriber, acquisition Relationship Marketing theory does not fully facilitate the Cloud Computing SaaS environment. The SaaS customer is empowered and, as Tyrväinen and Selin (2011) point out, this empowerment both challenges the service provider and enhances the choice options of the service or subscription consumer. Like CRM theory, this unique shifting of supplier/ subscriber power, makes the use of the Marketing theory knowledge base valid but not all encompassing in terms of its foundational basis for this researcher study.

Finally, much has been made of Competition Theory, particularly as set out by Porter (2008a). Whether, as Porter argues, the threat to competitive advantage comes from the availability of substitute offerings or from the relatively low barrier to entry (Porter, 2008b) which the Cloud offerings of Platform as a Service (PaaS) and Infrastructure as a Service (IaaS) offer, it is a valid basis for examining the rise in customer power which is a key tenant of this theory base. However, more than just giving increased power to the customer or subscriber, SaaS stretches and challenges this theory by the new level of democratisation that it brings to the end user consumption choice. By its nature, the pervasive nature of Cloud Computing offers the subscription service consumer a level of choice far beyond the local market segmentations previously available to that consumer. This researcher believes that the scale up, scale down, pay as consumed nature of the SaaS offering means that the balance of power in the market place has now swung so favourably in the direction of the subscription user as to redefine the forces and influences of the competitive landscape. Based on the foregoing assessment of the prevalent theories in context, the researcher proposes a mix of these theories (CRM, Relationship Marketing theory and Competition theory) as a basis on which to build the current research study.

RESEARCH QUESTION AND OBJECTIVES

This research considers the revenue expectation of the CC industry and its dependency on renewal subscriptions (Skilton and Director, 2010; Turner, Budgen and Brereton, 2003), while the study will focus on SaaS in the Business-to-Business (B2B) domain, delivered through the CC channel. Therefore, the research question is:

What is the B2B recurring revenue framework for the delivery of SaaS through a Cloud Computing channel?

Of note is that any significant attrition, i.e. cancellation or reduction of the service, can have a significant impact on the financial viability of any business based on this model.

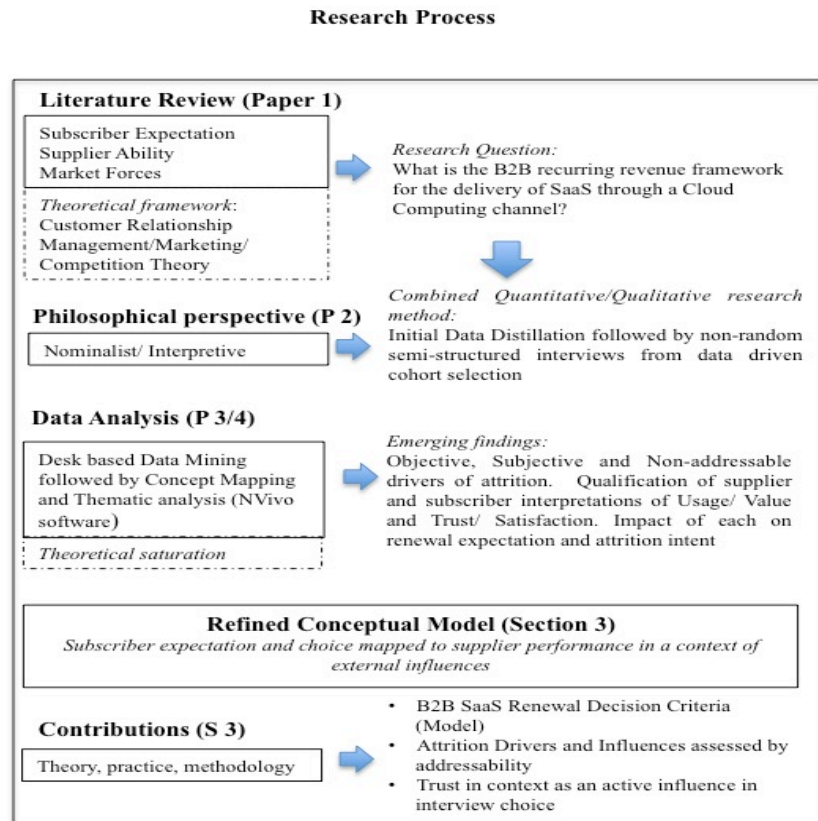
The research objectives are to:

1. Examine the existing software distribution and revenue models and assess their applicability to CC SaaS provision.
2. Identify the drivers, risk factors and subscription renewal influences in CC SaaS B2B renewals.
3. Explore the reasons why customers renew, reduce or attrit their software as a service, or CC subscription, services.
4. Analyze the renewal criteria applied by B2B clientele.
5. Propose a B2B recurring revenue framework for delivery of SaaS through a CC channel.

OVERVIEW OF THE RESEARCH PROCESS

This study engaged in a number of stages in pursuit of the research question and objectives (figure 2).

Figure 2: Research Process



The first stage of the research undertaking sought to engage with the literature in order to expose the research aim and objectives and to contemplate existing software distribution and revenue models in pursuit of the development of a literary based B2B recurring revenue framework for delivery of SaaS through a CC channel. Although not articulated as such until later in the research process, this activity fulfilled research objective 1.

A contemplation of the optimum primary research approach was followed by a distillation of a data set provided by a leading Cloud Computing company, for the analysis of the renewal and attrition habits of the research cohort. This dataset of previously attrited customer information contained a listing of the Reasons for Loss

(RFLs) provided by the subscribers to the SaaS service at the time of the attrition/reduction action. Phase one of the primary research study sought to explore the groupings of these RFL's such that supported the exploration of objectives 2 and 3 (identification of the drivers, risk factors and subscription renewal influences in CC SaaS B2B renewals and exploration of the reasons why customers renew, reduce or attrit their software as a service, or CC subscription, services).

Objective 4 (analysis of the renewal criteria applied by B2B clientele) directed me to a possibility that there existed both objective and subjective influences on the renewal decision and to contemplate a second phase in the data collection activity. While the original expectation was for the design, development and distribution of a survey instrument in pursuit of this objective, it transpired as the research evolved that a qualitative approach was more appropriate. Specifically, within phase two of the research undertaking, the SaaS subscriber user expectations of Quality, Satisfaction, Loyalty, Trust and Adoption identified in the first phase were deemed to require detailed examination and were considered to fall firmly into the subjective category, identified by Taylor and Hunter (2002).

The subjective influences identified at phase one of the primary research and confirmed at the cusp of phase two became the themes used for the interview stage of the research. Each theme was considered as part of the interview template applied in a series of semi-structured interviews. Each interview sought to test these influences (themes) with a series of random and purposively selected interviewees from both the Cloud SaaS customer and service provider communities. My perception of trust, as influenced by Burez and Van den Poel (2007), was one where the relationship between the SaaS provider and their subscription customer was one of both trusted customer success coupled with respect and a mutual business partnership. This perception not alone influenced my approach to the research methodology and design but also significantly impacted upon both the final research cohort and my preconceived idea of the relationship the business had with that cohort. Specifically, Burez and Van den Poel (2007) view that the trust that exists between the customer-focused SaaS provider and their end user subscribers was particularly challenged during phase two of the research and this challenging became in its own right a significant outcome of the research undertaking. The output from these interviews was used to test, confirm or disprove the

user expectations identified in the earlier phase (one), such as then underpinned the final outcome of the research and its recommendations to both theory and practice.

THESIS STRUCTURE

This thesis consists of four sections and is structured as follows:

Section One: Research Overview and Study Context, provides an introduction to the research study aims and its objectives. It also provides an overview of the Cloud Computing industry and the prevailing business model, comparing and contrasting this with the traditional business model of the classic software industry. The Cloud Computing Software as a Service (SaaS) delivery context in which the study was carried out over a twelve-month period is also set out here.

Section Two: The Cumulative Paper Series provides a bound copy of the four papers produced and examined during the Doctorate in Business Administration (DBA) programme;

1. Paper 1 looks at how Cloud Computing is creating a new paradigm for the distribution of computer software applications. Within this context Cloud Computing enabled Software as a Service (SaaS) fundamentally changes the revenue expectations and business model for the application software industry where in this new world securing the SaaS subscription renewal is critical to the survival and prosperity of the Cloud SaaS business. This paper set out to examine the drivers behind the business to business (B2B) SaaS subscription renewal decision and, in doing so, to explore a recurring revenue framework for the Cloud SaaS business. The presented conceptual framework offered a literary basis from which to contemplate the research environment.
2. Paper 2 discusses the chosen research method as the basis for the analysis of the renewal subscription habits of a subset of the renewals cohort of the subscriber base for a leading Cloud Computing software company. The research includes an examination of the existing software distribution and revenue models and assesses their applicability to the Cloud SaaS provider. It focuses on the revenue attrition risks inherent in the B2B SaaS business model and proposes a revenue renewal framework where the Cloud SaaS subscription renewal risks are

identified, quantified and analysed such that any patterns or trends in the data will allow the Cloud SaaS service provider to build awareness, and commercial exploitation, of these trends into their business model and planning strategy.

3. Paper 3 presents the research design, phase one research findings and phase two data collection protocol, all of which are applied in this study. The phase one data set supports the analysis of the attrition performance of a subset of the renewals cohort of the subscriber base of a leading Cloud Computing software company. Phase two of the study focuses on the drivers and influences of the attrition performance, particularly those influences that might be viewed as being of a subjective nature.
4. Paper 4 presents the phase two research findings and the initial discussion relating to all the findings. Phase two focused on the revenue attrition risks inherent in the B2B SaaS business model with the aim of allowing the exploration of the different dimensions of the customer/ respondent's experiences (Sproull, 2002) while uncovering and understanding any subjective influences on the reduction or attrition decision, thereby establishing the intent behind the soft or subjective reason for loss data.

These papers were assessed at agreed intervals by the DBA examiners and each was recommended by the examination panel, based on an acceptable standard being reached. The papers document the business drivers that influenced the research journey, while the preface prior to each paper offers reader insight into the evolution of this research study and the application of reviewer recommendations at each juncture.

Section Three: Conclusion and Recommendations, provides the detail of the findings from the research. It looks at the key insights from the research project as well as the refinement of the conceptualised *recurring revenue framework for the delivery of SaaS through a Cloud Computing channel* based on these findings and in interaction with the reviewed literature. It makes recommendations on the impact and influence that the renewal event can have for the Cloud Computing business service provider and adds to the existing body of knowledge by providing insight into the elements, influences and barriers that can inform the renewal decision.

Section Four: Research Log extracts. In keeping with the ethos of reflective practice (Coghlan and Brannick, 2010), I maintained a reflective log throughout the research. My dual roles of practitioner-researcher were interdependent as my research role informed my executive role and vice versa. I have used my research log as a means of both validating the research approach and documenting the changes in directional thinking which evolved throughout the research period. The writing of the cumulative paper series was a reflective process in itself and extracts from my reflective diary are displayed within each of the prefaces and the papers in the cumulative paper series as well as within section four (reflective log extracts) as I consider these as pivotal points in the choices I made. Each offers insight into my theoretical exploration and my evolution as a practitioner- researcher during this research journey.

References

- Armbrust, M., Fox, A., Griffith, R., Joseph, A., Katz, R., Konwinski, A., Lee, G., Patterson, D., Rabkin, A., Stoica, I., Zaharia, M. 2010. "A view of cloud computing". *Communications of the ACM*, 53(4), 50-58.
- Boss, G., Malladi, P., Quan, D., Legregni, L., Hall, H. 2007. "Cloud computing". *IBM White Paper* 321, IBM Corporation, pp. 224-231.
- Burez, J. and Van den Poel, D. 2007. "CRM at a pay-TV company: Using analytical models to reduce customer attrition by targeted marketing for subscription services". *Expert Systems with Applications*, 32(2), 277-288.
- Buyya, R., Yeo, CS., Venugopal, S., Broberg, J., Brandic, I. 2009. "Cloud computing and emerging IT platforms: Vision, hype, and reality for delivering computing as the 5th utility". *Future Generation computer systems*, 25(6), 599-616.
- Childers, T.L. and Rao, A.R. 1992. "The influence of familial and peer-based reference groups on consumer decisions". *Journal of Consumer Research*, 19(2), 198-211.
- Coghlan, D. and Brannick, T. 2010. *Doing Action Research in Your Own Organization*, (3rd ed.), London, Sage.
- Cusumano, M. A. 2008. "The changing software business: Moving from products to services." *Computer*, 41(1), 20-27.
- Dawar, N. and Frost, T. 1999. "Competing with giants: Survival strategies for local companies in emerging markets". *Harvard Business Review*, 77, 119-132.
- Fader, P.S. and Hardie. B. 2007. "How to project customer retention." *Journal of Interactive Marketing*, 21(1), 76-90.
- Fan, M., Kumar, S., Whinston, A.B. 2009. "Short-term and long-term competition between providers of shrink-wrap software and software as a service". *European Journal of Operational Research*, 196(2), 661-671.
- Forbes. 2015. "Roundup of cloud computing forecasts and market estimates." [Internet] Available at: <http://www.forbes.com/sites/louiscolumnbus/2015/01/24/roundup-of-cloud-computing-forecasts-and-market-estimates-2015/>. (Accessed April 2015).

- Fouquet, M., Niedermayer, H. and Carle, G. 2009. "Cloud computing for the masses." *Proceedings of the 1st ACM workshop on User-provided networking: challenges and opportunities*, 31-36.
- Fox, A. 2009. *Above the Clouds: A Berkeley view of Cloud Computing*. CA: UC Berkeley.
- Green, M.L. and Miller, R. 2003. "Grid computing in Buffalo, New York." *Annals of the European Academy of Sciences*, 191-218.
- He, R., Niu, J., Yuan, M., Hu, J. 2004. "A novel cloud-based trust model for pervasive computing". *Fourth International Conference on Computing and Information Technology proceedings*, Wuhan, China, Sept 14-16.
- Keh, H.T. and Xie, Y. 2009. "Corporate reputation and customer behavioral intentions: The roles of trust, identification and commitment". *Industrial Marketing Management*, 38(7), 732-742.
- Kim, H-S. and Yoon, C-H. 2004. "Determinants of subscriber churn and customer loyalty in the Korean mobile telephony market". *Telecommunications Policy*, 28(9), 751-765.
- Lavigne, D. and Kavis, M. 2010. "Editorial: Cloud Services". *Open Source Business Resource*, April. [Internet] Available at: <http://timreview.ca/article/338> (Accessed Aug 2013).
- Leiner, B.M., Cerf, V.G., Clark, D.D., Kahn, R.E., Kleinrock, L., Lynch, D.C., Postel, J., Roberts, L.G., Wolff, S.S. 1997. "The past and future history of the Internet". *Communications of the ACM*, 40(2), 102-108.
- McLauchlin, J. 2010. "Retaining Customers: It's Not Just About the Renewal". *The Marketer*, 17(1).
- Meeker, M., Pitz, B., Fitzgerald, B. 2010. *Internet Trends*. US: Morgan Stanley Research. Private Paper. June. [Internet] Available at: http://211.157.29.42/F10Data/HYBG_NEW/DOC/180.pdf (Accessed Aug 2013).
- Mell, Peter, and Tim Grance. "The NIST definition of cloud computing." (2011).

- Morgan Stanley. 2011. "Cloud Computing Takes Off: Market set to boom as migration accelerates", Morgan Stanley Blue Paper, May 23. [Internet] Available at: http://www.morganstanley.com/views/perspectives/cloud_computing.pdf (Accessed Aug 2013).
- Morwitz, V.G. and Fitzsimons, G.J. 2004. "The Mere-Measurement Effect: Why Does Measuring Intentions Change Actual Behavior?" *Journal of Consumer Psychology*, 14(1-2), 64-74.
- Motley, R. 2004 "How fast software becomes shelfware." *American Shipper: International Trade and Logistics*, March.
- Peppard, J. 2000. "Customer relationship management (CRM) in financial services". *European Management Journal*, 18(3), 312-327.
- Pfeifer, P. E. 2005. "The optimal ratio of acquisition and retention costs." *Journal of Targeting, Measurement and Analysis for Marketing*, 13(2), 179-188.
- Porter, M.E. 1996. "What is strategy?" *Harvard Business Review*, 74(6), 61-78.
- Porter, M. E. 2008a. *On competition*. Boston: Harvard Business Press.
- Porter, Michael E. 2008b. "The five competitive forces that shape strategy.". Special Issue on HBS Centennial. *Harvard Business Review* 86(1), 78–93.
- Porter, M.E. and Millar, V.E. 1985. "How information gives you competitive advantage." *Harvard Business Review*, July-Aug, 149-174.
- Rust, R., Zeithaml, V. and Lemon, K. 2000. *Driving Customer Equity: How Customer Lifetime Value Is Reshaping Corporate Strategy*. NY: The Free Press.
- Sääksjärvi, Markku, Aki Lassila, and Henry Nordström. "Evaluating the software as a service business model: From CPU time-sharing to online innovation sharing." *IADIS international conference e-society*. Qawra, Malta, 2005.
- Shapin, P.G. 1982. "Guidelines for Deciding between Micros, Minis, Mainframes, and Timesharing." *Proceedings of the Annual Symposium on Computer Application in Medical Care*. American Medical Informatics Association.

- Sheth, J.N. 1973. "A model of industrial buyer behavior". *The Journal of Marketing*, 37(4), 50-56.
- Skilton, M. and Director, C. 2010. "Building Return on Investment from Cloud Computing". *White Paper*, Cloud Business Artifacts Project, Cloud Computing Work Project, The Open Group.
- Sproull, N. 2002. *Handbook of research methods: A guide for practitioners and students in the social sciences*. Scarecrow Press, Maryland.
- Strømmen-Bakhtiar, A. and Razavi, A.R. 2011. "Cloud computing business models." *Cloud Computing for Enterprise Architectures*, 43-60.
- Taylor, S.A. and Hunter, G.L. 2002. "The impact of loyalty with e-CRM software and e-services". *International Journal of Service Industry Management*, 13(5), 452-474.
- Thain, D., Tannenbaum, T. and Livny, M. 2005. "Distributed computing in practice: The Condor experience." *Concurrency and Computation: Practice and Experience*, 17(2-4), 323-356.
- Turner, M., Budgen, D. and Brereton, P. 2003. "Turning software into a service". *Computer*, 36(10), 38-44.
- Tyrväinen, P. and Selin, J. 2011. "How to sell SaaS: A model for main factors of marketing and selling software-as-a-service." *Software Business*, 2-16.
- Verhoef, P.C. 2003. "Understanding the effect of customer relationship management efforts on customer retention and customer share development". *Journal of Marketing*, 67(4), 30-45.
- Walther, S., Sarker, S., Sedera, D., Eymann, T. 2013. "Exploring Subscription Renewal Intention Of Operational Cloud Enterprise Systems- A Socio-Technical Approach." *ECIS Conference Proceedings*, Utrecht, Netherlands.
- Weinhardt, C., Blau, B., Stober, J. 2009. "Cloud computing—a classification, business models, and research directions." *Business & Information Systems Engineering* 1(5), 391-399.
- Weiss, A. 2007. "Computing in the clouds." *Networker*, 11(4), 16-25.

Werstein, P. Situ, H. and Huang, Z. 2006. "Load Balancing in a Cluster Computer." *7th International Conference on Parallel and Distributed Computing, Applications and Technologies*, IEEE Computer Society, Taipei, 343-347.

Zineldin, M. 2006. "The royalty of loyalty: CRM, quality and retention." *Journal of Consumer Marketing* 23(7), 430-43.

SECTION TWO:
CUMULATIVE PAPER SERIES

PAPER 1

PREFACE

In this first paper in the cumulative paper series, I have set out the context of my research in exploring a Business-to-Business Recurring Revenue Framework for the Delivery of Software as a Service through a Cloud Computing Channel. As an executive who has been involved in the software industry for many years, I have seen this industry evolve from its early manifestation of a series of technical advances that were used to support and enhance the productivity of an industry or business sector to a position where today not alone can it enhance a business but, in many cases, it has become the business itself. In parallel to this growth and the maturity of the software industry itself, has come an equal or greater growth of the breadth and depth of the software product functionality such that it now stands as an ubiquitous, sophisticated business and life enhancing part of our commercial and consumer worlds.

I entered a software business world that was unknown, confusing and often intimidating to the average consumer and business user. Now a little over a generation later we have gone from a world where computers were seen as some sort of magical calculating engine to a position where almost everyone is touched or empowered by them. The productivity and social enhancements brought about by the industry have changed how many live their lives, perhaps best illustrated by the fact that we are now on the cusp of the entry into the workforce of Generation Z, a generation who have never known a world without the internet and all its social connectedness. At a very simplistic, and somewhat removed level, this is the backdrop to my research undertaking – a practical examination of change empowered by the advent of Cloud Computing and, particularly, of the potential of this change to both disrupt and empower an entire industry.

My research is primarily concerned with the expectation that the customer, or consumer, of Cloud Computing (CC) Software as a Service (SaaS) subscriptions is empowered like never before to pick and choose both their SaaS service infrastructure and their service provider. This empowerment, combined with the ever increasing array of supplier choice, means the commercial software developer is now presented with both an unprecedented opportunity and an unbounded exposure in this new democratic software distribution, consumption and monetization world.

In paper one, and within this context, I set out to explore the notion of a democratization of both the software distribution and consumption worlds. Using the historical evidence of subscription users as my conceptual lens, I set out to build a model which supports the delivery and consumption of application software as a service rather than as a traditional business asset. In doing so I found the use of this approach enabled me to explore the world beyond that of the traditional software vendor to a new place where software is consumed democratically through the use of online access and interactions. This approach forms part of a process enabling me to examine the reasons why a SaaS Business to Business subscriber might be encouraged not alone to initially consume the software offered but to continue to want to use it as it becomes more and more tailored to meet his business values and needs.

In exploring and seeking to define the SaaS Distribution and consumption conceptual framework in the forthcoming paper, I also discuss the philosophical underpinnings used to support it. As Pitt et al. (2002) point out the advent of the Internet has empowered consumers with undreamt of leverage over suppliers and vendors. Just as Mell and Grance (2011) articulate, the SaaS business user has the ultimate democratic power in that the decision to renew or attrit the SaaS subscription has empowered subscription consumers like never before.

Following on from this, I go on to define a B2B SaaS business model and consider the fundamental notion of software distribution and its continued monetization, particularly as it refers to SaaS or Cloud Computing. I explore the technological advances that empower this new means of software distribution and consider whether, in their latest guises, the availability and distribution of software through subscription services now validly positions Cloud Computing as the 5th Utility envisioned by Kleinrock (1969, as cited in Leiner et al. 1997) and enhanced by Buyya et al. (2009). If so, just like any of the other four utilities of Gas, Electricity, Telephony and Water, the complexity and technical infrastructure needed to successfully enable and deliver Cloud Computing must be buffered from the end service consumer such that the subscriber can simply consume the service without any knowledge of, or interaction with, the huge complexity needed to actually deliver it.

I also look at the Freemium model in its various guises and highlight how, for all its many forms, it still lacks the true ability to map itself as a real business model. The

Freemium model is a successful model for rapid rollout and market share growth, but in the long term it does not maximise, or even protect the monetized software product. As they currently exist, neither Freemium (Wilson, 2006) nor Opensource software (Riehle, 2009) have a combined market strength sufficient to create a compelling business model, such as would threaten the attraction, or bankability, of true Cloud Computing Software as a Service.

Using the renewal event as the catalyst, I explore the many definitions of the Business to Business (B2B) Cloud Computing service and I offer the industry the practical learning from a trawl through the attrited customer base data, such as will allow the new SaaS provider both to identify and maximise the business responses necessary to offset the subjective reasons given for the non renewal of the SaaS agreement. Likewise, I go on to consider the potential of subjectivity in its influence on the renewal decision makers' mind-set, while in the final part of the study I concern myself with identifying a means to potentially legislate for this subjective influence through the objective measuring of its influences. I also go on to explore the potential for using revenue renewal as a catalyst for expansion or growth of the business relationship, particularly as it relates to the SaaS influencing factors identified by the renewal business taxonomy.

As part of this early stage of the research process I considered, both from the user and provider viewpoints, the many criteria that have potential to influence the renewal decision and, in doing so, looked at how each of these criteria acted as a motivator, or otherwise, of the renewal decision. Finally, I outline the next stages of the research project and propose the future steps for the research in the context of the refined cohort and data segmentation learnings from the literature and data sampling review.

References

- Buyya, R., Yeo, C.S., Venugopal, S., Broberg, J., Brandic, I. 2009. "Cloud computing and emerging IT platforms: Vision, hype, and reality for delivering computing as the 5th utility". *Future Generation computer systems*, 25(6), 599-616.
- Leiner, B.M., Cerf, V.G., Clark, D.D., Kahn, R.E., Kleinrock, L., Lynch, D.C., Postel, J., Roberts, L.G., Wolff, S.S. 1997. "The past and future history of the Internet". *Communications of the ACM*, 40(2), 102-108.
- Mell, P. and Gance, T. 2011. "The NIST definition of cloud computing." National Institute of Standards and Technology, U.S. Department of Commerce, Special Publication 800-145.
- Pitt, L.F., Berthon, P.R., Watson, R.T., Zinkhan, G.M. 2002. "The Internet and the birth of real consumer power." *Business Horizons*, 45(4), 7-14.
- Riehle, D. 2009. "The commercial open source business model." *Value Creation in E-Business Management*. Springer, Berlin Heidelberg, pp.18-30.
- Wilson, F. 2006 "The freemium business model." *A VC Blog*, March 23.

Paper 1: Conceptual Framework

Exploring a Business to Business Recurring Revenue Framework for the Delivery of Software as a Service through a Cloud Computing Channel

**Paper 1 – Conceptual Framework
DBA Cumulative Paper Series
Waterford Institute of Technology
October 3rd – 4th 2013**

Author: David Dempsey, DBA Candidate, WIT

Supervisor: Dr Felicity Kelliher, School of Business, WIT

Examiner panel result: Recommended

ABSTRACT

Cloud Computing is creating a new paradigm for the distribution of computer software applications. Within this context Cloud Computing enabled Software as a Service (SaaS) fundamentally changes the revenue expectations and business model for the application software industry. In this new world securing the SaaS subscription renewal is critical to the survival and prosperity of the Cloud SaaS business. This paper sets out to examine the drivers behind the B2B SaaS subscription renewal decision and, in doing so, to explore the recurring revenue framework for the Cloud SaaS business.

The research includes an examination of the existing software distribution and revenue models and an assessment their applicability to the Cloud SaaS provider. It focuses on the revenue attrition risks inherent in the Business to Business (B2B) SaaS business model and proposes a revenue renewal framework where the Cloud SaaS subscription renewal risks are identified, quantified and analysed such that any patterns or trends in the data will allow the Cloud SaaS service provider to build awareness, and commercial exploitation, of these trends into their business model and planning strategy.

Keywords:

Cloud Computing, Software as a Service, SaaS, Subscription Renewals, Software Licence, Recurring Revenue, Attrition, B2B, Freemium

INTRODUCTION

Cloud Computing (CC) has created a new paradigm for the distribution of computer software applications and service. This is an industry whose business model has traditionally been based around the expectation of heavy up-front research, development and distribution costs, followed by the expectation of large, up-front software licence revenues (Brereton et al. 1999; Osterwalder and Yves, 2010). An alternative approach to how software delivers its functionality to users is the software as a service (SaaS) model, which “*composes services dynamically, as needed*” thereby allowing the industry to overcome the “*limitations that constrain traditional software use, deployment, and evolution*” (Turner, Budgen and Brereton, 2003, 38). CC-enabled SaaS has fundamentally changed the business model for the industry, with revenue now typically flowing to the industry on a subscription basis after the delivery of the application service (Osterwalder and Yves, 2010).

This research considers the revenue expectation of the CC industry and its dependency on renewal subscriptions. Within this context, this study will focus on SaaS in the Business-to-Business (B2B) domain, delivered through the CC channel. This is a relatively new software licensing model which brings a new revenue stream to the software industry (Marston, Li, Bandyopadhyay, Zhang and Ghalsasi, 2011). Specifically, as SaaS “*focuses on separating the possession and ownership of software from its use*” (Turner et al. 2003, 38), this paper explores a B2B recurring revenue framework for the delivery of SaaS through a CC Channel. This paper sets out to examine the drivers and reasoning behind the subscriber renewal decision and to enhance the knowledge of the renewal habits of the Cloud Computing subscriber by building on those of other subscription services. In doing this, the objective logic of the renewal event is separated from the subjective reasoning of the subscriber decision, producing a conceptual framework setting out the decision criteria which can influence the likelihood of renewal (Brannen and Nilsen, 2005). While there have been several laudable previous projects which have examined and researched building resilience into the business models for the traditional computing industry (Bonaccorsi, Giannangeli and Rossi, 2006; Chesbrough and Rosenbloom, 2002) this is a broad remit to support the new Cloud Computing SaaS paradigm.

The remainder of this paper is structured as follows. The author begins with an overview of the cloud computing concept and the service options available through the CC channel. The different licence and distribution models that exist within this service channel are then described. The paper goes on to describe the B2B relationship and how this impacts on the SaaS delivery mechanism, revenue stream and renewal motivation. Finally, the author proposes a B2B revenue renewal framework where the decision criteria that motivate and influence the renewal expectation are set out in detail, prompting the research question: what is the B2B recurring revenue framework for the delivery of SaaS through a Cloud Computing channel?

The research objectives include the exploration of the reasons why customers renew, reduce or attrit their software as a service, or cloud computing subscription services. Relevant decision criteria include the identification of the renewal habits, and their predictability, of B2B SaaS commercial end users. Subsequently, the research objective is to identify, quantify and analyse the renewal criteria applied by B2B clientele so that any patterns or predictors emerging from the data will allow the researcher to consider the subscription renewal tendencies and to seek out trends or patterns in the data such that will allow the aspiring or existing Cloud SaaS provider to build both an awareness and commercial exploitation of these trends into their business modelling and planning strategy.

CLOUD COMPUTING – AN OVERVIEW

In much of the existing literature around the emergence of Cloud Computing there is a struggle to identify exactly what Cloud is (Skilton and Director, 2010) and whether it is actually a technical or business innovation (Fan, Kumar and Whinston, 2009). For all its innovativeness, it can be argued that CC is not itself ‘new’ (Parkhill, 1966 as cited in Amburst et al. 2009). For the most part, the existing literature sees cloud computing as a technology not a business model (Amburst et al. 2009) with some stating that it is merely an extension of previous technical computing advances (He, Niu, Yuan and Hu, 2004) such as grid computing (Buyya, Yeo, Venugopal, Broberg and Brandic, 2009). Research has shown how Cloud Computing has emerged over the last five decades, morphing from Mainframe Timeshare, Cluster Computing and Grid Computing to the position where computing service provision is emerging as the ‘computer utilities’

predicted by Leonard Kleinrock, from the original ARPANET team back in 1969³ (Leiner et al. 1997) when he said that ‘once computer networks grow up and become sophisticated we will see the spread of computer utilities’. Buyya et al. (2009) refer to this evolution as the ‘Fifth Utility’ where computing services can now be made available on demand and can be paid for as used, similar to the utility model that is applied to consumers when charging for Water, Electricity, Gas and Telephone services.

In seeking to create a technical classification of Cloud Computing, Weinhardt, Blau and Stober (2009) build on a useful comparison between Cloud and Grid Computing. In particular they examine whether Cloud is simply ‘Grid’ under a different name or if it really is a new enhanced paradigm, which does in fact “*pave the way for a commercially wide-spread usage of large-scale IT resources*” (p.391). Like Weinhardt et al. (2009), Fox (2009) and Armbrust et al. (2010), Weiss (2007) and Boss, Malladi, Quan, Legregni and Hall (2007) also see Cloud Computing as merely an enhancement built on previous technologies. However, where they differ is that the latter researchers primarily examine and view the enhancements that come with CC as bringing principally technical improvements rather than fundamentally changing the business model. In contrast, the key premise of Weinhardt et al.’s (2009) findings is that CC is different from Grid and the previous technical enhancements in that the paradigm shift is driven by a genuine commercial acceptance and take up. This view is reinforced by Armbrust et al. (2010) who profess that CC has emerged as a “commercial reality” (p.2). Both research teams point out that previous enhancements and improvements have been driven primarily by a desire for a technical improvement which was also the main constraint preventing the technical enhancements becoming commercially desirable or widely adopted.

This question is key to the debate as to the value of the Cloud model and particularly as a guidance as to why Cloud might really be different from the many other technical shifts and enhancements observed over the decades. These challenges are compounded by the lax use of the term ‘cloud computing’. Most are false Clouds i.e. traditional software and hardware offerings masquerading as the new paradigm. These offerings are not engineered in a manner that is compatible with the CC utility delivery model (Lavigne and Kavis, 2010) and many application vendors have sought to manoeuvre the CC concept to support their own constrained models while still desiring to be seen as

³ The APRANET project team is credited with designing the platform on which today’s Internet is built.

part of the cloud revolution. This has led to some suppliers offering different flavours of the same product or ‘tweaking’ the product so that it is offered to the purchaser as a hosted solution. This can be via a private cloud⁴, an ‘on premise’ cloud or some combination of same, which results in a version of the application software hosted by the licensee but pushed out to the end user community through an internal Cloud-like infrastructure. The issue with these false Clouds is that they do not fulfil the fifth Utility criteria set out by Buyya et al. (2009), in that there is no ‘scale as required’ capability or none of the shared infrastructure of the utility model presented by Lavigne and Kavis (2010).

Notwithstanding the challenges presented above, true CC service provision is proliferating as the industry matures. Although initially seen as merely a technical innovation, CC has since moved to become a much more acceptable and commercial software delivery platform (Buyya et al. 2009). In parallel with this transition has come a huge new market opportunity for cloud delivered services (Morgan Stanley Inc., 2011). This opportunity has driven a significant shift of application software delivery to the Cloud (Gartner Inc. 2013) as evidenced by the number and value of applications, which the cloud delivery vehicle now offers. One of the fundamental tenants of CC in its true form is the ease of upgrade and maintenance perceived by the end user (Buyya et al. 2009). This is driven by the expectation that any upgrades or application enhancements or changes are made once to a central system with the new functionality then being instantly made available to all of the users of that application, across all the different licenced tenants who use the single virtual Cloud, rather than having different versions of the application available to different users sets as is the case with an on premise or private cloud environment (Linthicum, 2010). Based on this premise, CC *“lets the set of services a business uses evolve”* and allows that business negotiate *“suitable terms for its use”* (Turner et al. 2003, 38). This single version maintenance is key to the utility business model of the cloud industry (Buyya et al. 2009) as discussed below.

⁴ A Private Cloud is a hosted, single tenant, infrastructure that, although allowing the end-user to access the application service as if it were a Cloud Service, is managed and delivered through a single, unique, hosted environment licenced in a model closer to the traditional industry licence than that of the Utility Cloud (Sotomayor, Montero, Llorente and Foster, 2009)

Service Options through the Cloud Computing Channel

Cloud Computing is a catch-all phrase which encompasses all of the many, varied, complexities of delivering computing services as a utility service. For some it is seen as a means of distributing the infrastructure of the industry (Vacquero, Rodero-Marino, Caceres and Lindner, 2008). Others see it as a mechanism for allowing a single, cohesive, platform which will allow the industry to develop its applications in a universally accepted way based on a single agreed set of delivery and support criteria (Wu, Garg and Buyya, 2011). A third cohort considers that Cloud Computing is about the delivery of application software through a new utility process (Buyya et al. 2009). In reality all three are correct (Linthicum, 2010). Linthicum (2010) and Wu et al. (2011) propose that Service (IaaS), Platform as a Service (PaaS) and Software as a Service (SaaS) are the three tenants of Cloud Computing (figure 1).

Figure 1: Cloud Computing Jigsaw

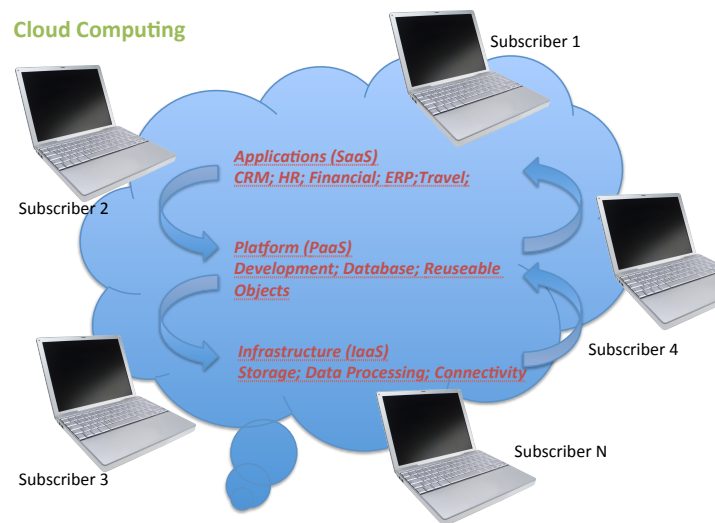


Figure 1 shows a hierarchical depiction linking the three fundamental parts of the Cloud Computing jigsaw - SaaS, PaaS and IaaS (Wu et al. 2011). These three distinct areas of technical innovation combine to make up Cloud Computing as it is now seen (Vacquero et al. 2008). In doing so, they create the new business dynamic which offers the democratisation and utilisation of computing power by which those seeking to use the power are buffered from technical difficulties required to deliver it. In the same way as most of western society now expects to receive water by turning on a tap rather than digging a well, electricity by flicking a switch rather than building a generating station,

gas by turning a valve rather than building a pipeline and telephony by using a handset rather than building an exchange network, so too do computing service users expect to access computing power and applications by ‘logging on’ rather than worrying about hardware, operating systems, networks, security and storage locations (Buyya et al. 2009). This is the fundamental paradigm shift of CC into the utility domain.

The core infrastructure requirements are set out by Wu et al. (2011) as being service time, service quality and service level agreement (SLA)⁵ commitments (figure 1). Vacquero et al. (2008) explains the requirement for a universal platform delivery system as offering flexible sizing in a transparent manner. Similarly, Fan et al. (2009) define the application software requirements as being lower implementation and maintenance costs, coupled with reduced upfront spend. Looking at the interlinking of these elements, IaaS is the foundation stone upon which the other two (PaaS and SaaS) are built in the Cloud Computing Pyramid. As cited previously, the utility-based business model “*composes services dynamically, as needed*” (Turner et al. 2003, 38) and is therefore concerned with instant and constant service availability. Without the availability of an elastically consumable infrastructure it would be very difficult to create an elastic and flexible basis for delivery and consumption of B2B and business to consumer (B2C) applications at scale. IaaS service providers such as Amazon, EC2 and Microsoft Azure make it possible for software service providers and consumers alike to flexibly access software functionality at scale.

Likewise with the second part of the Cloud pyramid, PaaS provides the application service provider with a robust and scalable platform on which they can build their functionality, buffered from the complexities of making their application available to all potential users and without having to consider connective elements. For example, this platform should be sufficiently robust to accommodate the end-user device used to access it, the operating system used to work it and the language used to communicate with it. The provision of a single utility platform on which the application can be easily built, rolled out and maintained is a key part of Cloud Computing (Vacquero et al. 2008; Buyya et al. 2009) and its provision by companies such as Google and Salesforce.com have allowed the rapid growth of the existing Cloud market (Linthicum, 2010).

⁵ Service Level Agreements are an amalgamate of the ‘Quality of Service’ guarantees when contracting for IT services (Keller and Ludwig, 2003).

Finally, at the top of the Cloud pyramid sits the application software layer SaaS. To most CC consumers this is how the Cloud manifests itself. As highlighted by Buyya et al. (2009), Turner et al. (2003) and others, whether B2C or B2B, the Cloud end-user simply expects to switch on any device, over any network and access any application software package on a 'Pay as Consumed' subscription service. The level of technical infrastructure and complexity (IaaS) and the platform device and its operating system complexity (PaaS) are completely buffered from the end user through the delivery of the software as a subscription service (SaaS) via the conduit of the Internet (Figure 1). While all are valid research areas in their own right, the focus in this instance is on SaaS and how it influences the business models of the Application Software industry as provided to B2B end users through the CC channel.

CLOUD COMPUTING SOFTWARE AS A SERVICE

In their 2010 work, Osterwalder and Pigneur set out some of the many business models that are seen as being appropriate for the application software delivery marketplace. While comprehensive, the models exclude or ignore the option of the model where the application service provider seeks more than revenue from their business proposition. Specifically, while Osterwalder and Pigneur successfully argue that a robust, protected revenue stream is key to the on-going commercial success of the provider, it is this researcher's opinion that the paper does not adequately address the marketplace where the software provider is not solely motivated by immediate revenue but is equally focussed on market share. In these instances the focus is not merely, or not even, on the revenue but in securing a maximum number of end-users in order to capture as high a share of the new/ addressable market as possible via early adopter enticement. In this context, early adopters are those who embrace new technology ahead of the majority of users/ consumers. As early adopters often bear substantial costs simply from being part of a small technological network – costs that later adopters can often avoid (Fichman and Kemerer, 1997, 49), providers often seek out strategies that compensate these users sufficiently in order to entice them to use their software. In a SaaS context, this strategy may be facilitated through applying a freemium⁶ business model (Niculescu and Wu, 2011), with the intent of either eventually moving these early adopters to full fee paying users or by engaging these users as a barrier to entry (Porter, 1980) by removing them

⁶ Freemium, a term merging the terms 'free' and 'premium' is a business model that works by offering cloud services for free, while charging a premium for advanced features.

from the addressable market available to a possible competitor. The alternative is an ‘OpenSource’ offering (Niculescu and Wu, 2011), through which the end user can use software freely (Wu and Lin, 2001). In its current guise CC would position Open Source as most suitable and appropriate to the PaaS space, and open sourced platforms already exist in forms like Apache and Linux. While OpenSource can have a price tag (for example Ruby on Rails and Red Hat), it is argued that these commercial positions come about as an opportunistic market positioning rather than being built into the business model from the start. For this reason, OpenSource is excluded from the detail of this research project.

Freemium, on the other hand, is a business model built on future revenue expectation (Niculescu and Wu, 2011). With the Freemium business model, the application provider offers the application to its users as either a free service or as one with a lower charge than might be expected to travel with the service level provided, all of which is done with the intention of increasing the numbers of initial users, whether they are paying for the service or not (Niculescu and Wu, 2011). The attraction of this strategy is that it allows the service provider to own a certain part of the market but this comes at the cost of having to maintain a costly infrastructure capable of supporting the growing, non-fee paying, customer base which can put the application service provider under significant financial pressure (Murphy, 2011).

Traditionally there have been two Freemium price models that the contemporary information and communications technology (ICT) industry has used: Time Limited Freemium (TLF) and Feature Limited Freemium (FLF), both of which seek to attract the maximum numbers of end-users (Niculescu and Wu, 2010). Once introduced, or enticed, to the initial product offering by the ‘free’ model, the intent is then to convert these free users to ‘premium’ paying customers, hence the term ‘freemium’. There is an additional business model, that of Resource Limited Freemium (RLF) which includes a free consumption level after which the user moves to a premium (billable) service. Although the business model for all three freemium price models is similar, the free offer for each is different in that in the TLF model, the user is offered the full featured application for free but for a limited time only, after which it would need to be renewed on a fee paying basis. In a similar vein, but with a different premium catalyst, the FLF model offers the free users a subset of the features of the full application functionality as an enticement or teaser with the full set of features only becoming available on upgrade

to the full cost model (Niculescu and Wu, 2011) while in RLF, the free service becomes chargeable when a certain consumption limit has been reached.

All these models are in current widespread use in the commercial Cloud Computing marketplace (e.g. Angry Birds, Microsoft Office, and Heroku) with Freemium still seen as the near-standard market entry strategy for the industry (Murphy, 2011). However, not all see this as the panacea for the SaaS industry. Murphy (2011) cautions that freemium is a high risk strategy for an industry where the service provision costs continue to grow as the free user base does; irrespective of whether the free to billable conversion efforts are successfully growing at the same pace. Niculescu and Wu (2011) confirm this perspective, stating that the cost of maintaining the service while at the same time seeking to convert these to fee paying can overwhelm the revenue expectation of a service provider. These authors point to the reality that Freemium is not a strategy with long-term sustainability for commercial providers as it does not embrace the renewal concept. As Murphy (2011) asks, why would you need to renew something that is offered for free? Therefore, this research seeks to move beyond the customer acquisition phase of SaaS in order to explore the potential for a B2B recurring revenue framework in the delivery of SaaS through a CC channel. This study will therefore focus on the propensity of those B2B customers who are already acquired, continuing to renew their SaaS licence subscription.

B2B Recurring Revenue Framework for Delivery of Cloud-based SaaS

The definition of Cloud Computing has been clearly set out elsewhere (Linthicum, 2010) although Buyya et al. (2009) point out that Cloud as it is now defined has many different interpretations, both business and technical. Specifically, this research project is focused only on the software delivery aspect of CC and within this paradigm, relates to the commercial expectation of the renewal of the software subscription. Within the SaaS confines of the Cloud paradigm, application software sales constitute a significant segment of the marketplace, with a commercial value expected to be in the region of \$22.1B in 2015 (Gartner Inc. 2013). The SaaS marketplace primarily represents a switchover from traditional software sales models, with their expectation of significant initial licence fees followed by predictable on-going support and maintenance revenue (Fan et al. 2009) to the new cloud computing SaaS business model (Skilton and Director, 2010) which will see the revenue stream change completely to where the software is

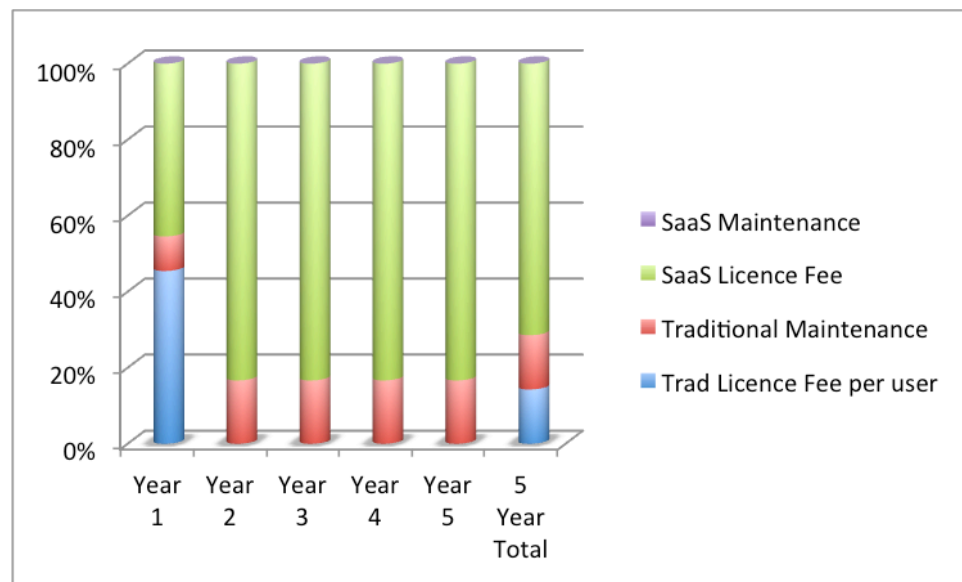
licenced and paid for on a subscription basis. While over the application system lifetime the licence revenue under both service models may well be the same, figure 2 demonstrates how different the flow of these revenue streams are to the software provider.

Figure 2 (a): SaaS v. Traditional Licence Revenue Model

	Traditional License Fee per user	Traditional Maintenance	SaaS License Fee	SaaS Maintenance
Year 1	1000	200	1000	0
Year 2	0	200	1000	0
Year 3	0	200	1000	0
Year 4	0	200	1000	0
Year 5	0	200	1000	0
5 Year Total	1000	1000	5000	0

Source: Fan et al. 2009

Figure 2 (b): SaaS Licence Revenue Model



As can be seen from the illustrations (figure 2), in the first instance (a), under the traditional software licence model, the bulk of the revenue is made available to the software provider in the stages immediately following the finalisation of the contracts with a lesser, but still significant on-going support and maintenance revenue stream continuing to flow for the remainder of the application lifecycle. This figure shows the software licence costs only and excludes any additional set-up, installation and

implementation costs which are often estimated to be as high as four times the initial licence fee (Fan et al. 2009). The other stream highlighted by figure 2 is the revenue flow from the Cloud SaaS application model. In this it can be seen that the upfront licence revenue is significantly less but that it is generally expected to provide a perpetual revenue stream which will continue to grow over the life of the application service, as more and more small, but perpetual revenue flows are licenced and added to the overall revenue stream flowing from the software application. This stream also excludes any implementation, or additional services revenue which might accrue from the SaaS application product, although as Fan et al. (2009) point out such a stream will be significantly less in the case of the SaaS application.

As highlighted in figure 2 (b), once the SaaS application reaches its ‘tipping point’ (Gladwell, 2000) in year two, it clearly has the most robust and predictable revenue stream. However, as highlighted by Osterwalder and Pigneur (2010), there is one major caveat or weakness in this simplistic version of the revenue model in that, as presented in its basic form, it is built on the assumption of the continuous SaaS subscriptions. In doing so, the model fails to recognise what Murphy (2011) sees as SaaS’s biggest business risk; failure to renew the initial or subsequent subscription term and value. Murphy (2011) highlights this renewal dependency is unique to the SaaS business. Without renewal, the SaaS application provider can neither grow nor expect to protect its revenue stream and over time the business will either fail or continue to be loss making. For visualisation purposes, think of non-renewal as a leaking bucket, where the water it contains is the revenue stream/ expectation of the SaaS company. The bucket is continually filled from a flowing tap of new SaaS subscriptions added but is also continually leaking water from a hole, which equates to the attrition, or non-renewal, of previous licenced subscriptions. When the net new revenue flow falls equal to, or less than, the existing subscription revenue, the business either stagnates or shrinks (Kim and Yoon, 2004). This researcher labels this as the ‘Subscription Law of Churn’ in the current research study. A continuance of this situation over time will eventually lead to the business failing or at least requiring continuous subsidy from external sources (Osterwalder and Pigneur, 2010) culminating in an unsustainable business model. For this reason, Renewals or Attrition management is key to the health, success and growth of the Cloud SaaS business (Fan et al. 2009). This is true for both B2C and B2B SaaS companies, but in this instance the research is focused on the B2B Cloud SaaS marketplace.

CC and the SaaS end-user motivation for subscription renewal

What makes a subscriber renew? Burez and Van der Poel (2006) set this out as being aligned to the service provided and the trust the subscriber has for the service provider. However, with the advent of online services, the SaaS purchaser/ renewal agent may be a business or consumer, although the end-user is likely to be an individual in either case. For the purposes of clarity, Business to Consumer (B2C) is a commercial transaction that occurs between a company and a consumer while Business-to-Business (B2B) describes commercial transactions between businesses. The literature struggles to differentiate B2C and B2B in terms of possible SaaS business models, therefore it is of value to further differentiate, refine and segment each end-user cohort in the Cloud world. From an interaction perspective, B2B applications “*refer to the use of computerized systems (e.g. Web servers, networking services, databases) for conducting business among different [business] partners*” for the purposes of “*procurement, customer relationship management, billing, accounting, human resources, supply chain, and manufacturing*” (Medjahed, Benatallah, Bouguettaya, Ngu and Elmagarmid, 2003, 59). In contrast, B2C applications include virtual malls, customized news delivery, traffic monitoring and route planning for the purposes of engaging with private consumers. The focus of this study is to consider the needs and motivations of the B2B user and to explore these motivations in light of the subscription business model, which is needed to sustain the SaaS industry, as set by Osterwalder and Pigneur (2010).

When considering these needs and motivations, the expectation is that the B2B end-user licensee and the purchase or renewal decision-maker may not be the same person. Specifically, the SaaS may be bought or licenced for the end-user by the business they are employed by and may then be presented to the end-user as a business tool of the company’s choice rather than their own. Therefore, the SaaS provider should be aware of who the renewal decision-maker is and be cognisant of the criteria through which subscribers are likely to renew their subscriptions (Taylor and Hunter, 2002):

- Disconfirmation or user expectations
- Product Quality
- Satisfaction Levels

- Customer Loyalty
- Purchase Intention, Adoption Levels
- Word of Mouth, Recommendations

It can be argued that these reasons for renewal are common to all subscription services because these services all carry an expectation of trust, service quality and value for money (Burez and Van den Poel, 2005). Furthermore, renewal criteria are common across sectors. For example, Verhoef (2003) sets out the expectations around service delivery in their paper on customer retention, covering data from market segments as varied as retailing and telecommunications. These are similar to those set out by Peppard (2000) when showing the values expected by a renewing financial services customer.

Of note in the highlighted research is that customer churn, or subscription attrition or reduction, is not a new phenomenon. Regardless of sector, SaaS providers' sustained success is dependent on the principles of near full subscription renewal. Therefore, while the advent of Cloud Computing brings huge market and revenue expectations (Meeker, 2009), its commercial Achilles heel is failure to (fully) renew a subscription, resulting in either partial reduction or full attrition (McLauchlin, 2010). With the new SaaS business model, there is a heightened commercial exposure to the failure of the renewal of the subscription licence.

PROPOSING A B2B SaaS REVENUE RENEWAL FRAMEWORK

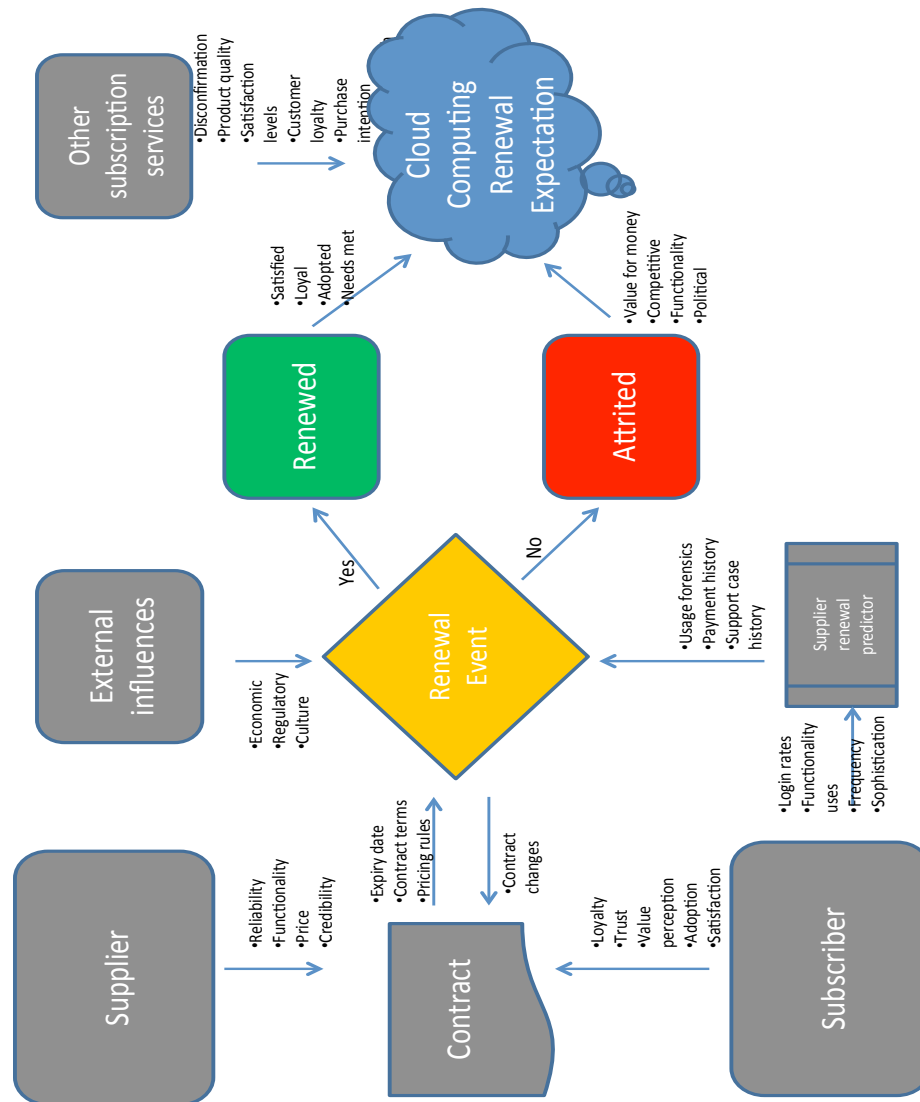
Having considered the literature in context, the researcher proposes that the decision criteria, which may influence the renewal process are those set out in the taxonomy (table 1) below. Each criterion can have a significant impact on the propensity to renew but the direction of influence for each is most appropriately viewed from the separate and distinct lens of either the Subscriber or the Supplier. For this reason the criteria have been grouped to reflect both perspectives (table 1).

Table 1: B2B SaaS Revenue Renewal Taxonomy via a CC channel

Role	Criteria	Description	Supporting Literature
Subscriber	Previous Performance	Quality of Service Delivery	Verhoef (2003)
	Fulfilment of User Expectations	Previous Experience, Adoption Levels	Taylor and Hunter (2002)
	Contracted Terms	Cost, Credit Terms, Billing Frequency, Timing of Renewal, Value	McLauchlin (2010)
	Peer Influence	Market Acceptance, Existing Installed Base, User Case Studies	Childers and Rao (1992)
Supplier	Alternative Offerings	Competitor Suppliers	Porter and Millar (1985)
	External Influences	Regulatory, Network Robustness	Kim and Yoon (2004)
	Localisation	Language, Business Culture fit	Dawar and Frost (1999)
	Supplier Reputation	Market Perception	Keh and Yi (2009); Sheth (1973)
	Trust	Earned Relationship, Perception	Burez and Van den Poel (2007)
	Loyalty	Earned Brand Commitment	Moritz and Fitzsimons (2004); Zineldin (2006)
	Relationship Management	Proactive Programmatic Adoption	Peppard (2000)

Leveraging from the taxonomy (table 1), this researcher presents the identified renewal decision criteria in an initial conceptual framework (figure 3).

Figure 3: B2B SaaS Renewal Decision Criteria – Initial Conceptual Framework



There are significant influences weighing on the renewal event (figure 3). Some are objective and easily quantified (e.g., cost, feature, function); others are subjective and influenced by perception (e.g., trust, experience). Equally some decision criteria move across both perspectives dependant on the paradigm from which they are considered (e.g., adoption, value). Of note is that perception of performance is a key determinant of the renewal event and ultimately weighs significantly on its outcome direction.

The framework also highlights the independent/ dependent elements of the renewal event. Each has a weighting, which differs in influence for each unique renewal event. It is this influence and its impact on the subscription renewal, which poses the business risk for the SaaS supplier. McLauchlin (2010) sets out the dependency of the SaaS business on the successful renewal of the previous contract, yet how can the supplier predict the outcome with so many external subjective influences capable of impacting its outcome?

When considering the proposed framework (figure 3), the researcher included the following criteria, forthcoming from the literature review and the presented taxonomy (table 1).

- a) A key tenet of a subscription is that one is never the owner of software but rather has the right to access, use or reference the knowledge it contains. It also implies that this service access is time-bound which means that on-going, updated, access to the subscription or service has to be renewed periodically if the B2B user is to continue to have an updated and maintained service level.
- b) The fundamental difference between a Cloud Computing subscription and any other service or subscription is that the knowledge or value added data created or owned by the user no longer rests with them on a failed renewal. This remote placement of the data adds an extra dimension to the cloud computing SaaS renewal and could therefore also be considered as an additional variable not present in the analysis of more traditional subscriptions.
- c) In developing the framework of SaaS revenue renewal, it is important to also consider the timing of the renewal. Should the research be based on a snapshot of the subscription renewal data at a particular point in time? Or should it be

based on a particular cycle in the business or a point in time in the calendar of the user? These are important considerations, which could easily influence the renewal outcome.

- d) The framework considers the democratisation which is positioned as one of the strengths of 'true' cloud computing. One of the tenets of cloud computing is that one product is offered across many user segments, ranging from the smallest single user to the multinational business with many thousands of users (Marston et al. 2011). The functionality offered may vary across editions of the subscription product but the fundamental question of a subscription expiry and renewal is applicable to all. However, the renewal decision in one segment will have fundamentally different objectives and subjective judgements from the renewal decision in another. Therefore, the framework is focused on the B2B user cohort only.
- e) There is also the question of the location of the subscription user. This brings many influences on the usage and adoption of the product set, all of which will impact on the likelihood of it being renewed. The attractiveness of a software offering and its subsequent renewal propensity are very different in its home and remote markets.
- f) As Burrell and Morgan (1979) set out, one can view the world as either nominalist or realist. The realist position might seem to be the obvious approach to a research undertaking with the intent to measure something as straightforward as a series of reasons for not renewing. The reality is that each of these reasons is a single dimensional view of the data and, stand-alone, provides little meaningful insight into the subscription renewal decision process. For this reason a more subjective approach is called for through which the decision process itself is considered.

CONCLUSION AND NEXT STEPS IN THE RESEARCH PROCESS

In preparing this research paper, the researcher has set out both the technical and commercial evolution of the Cloud Computing industry. In doing so, he has sought to differentiate CC from the previous technical advances and commercial progressions in

support of the positioning of CC as the fifth Utility (Buyya et al. 2009), supported by its own renewal subscription model (Osterwalder and Pigneur, 2010). Within this new paradigm, different market strategies exist to secure market share and adoption (Niculescu and Wu, 2011). For all their uniqueness in customer acquisition strategy, each shares a common business exposure to failed renewal subscriptions (Murphy, 2011). Therefore, this researcher has taken this business risk as a basis to build a framework (figure 3) which seeks to support the CC SaaS business in both quantifying the risk factors and subscription renewal influences such that the research will lead to a robust renewals' framework for the CC SaaS B2B industry. The successful delivery of such a framework has very significant practical implications for the Cloud industry. Its commercial applicability will be particularly important as the industry incumbents mature to a stage where the attrition losses from their existing subscriber base revenue have the potential to overwhelm their ability to acquire additional replacement customers at an equal or greater level.

The next steps in the proposed research will be to study historic data, collected from the subscription renewal habits of the Cloud SaaS subscriptions of Company A, a company acknowledged by (Gartner Inc. 2013) as the market leader in the Cloud Sales and Service subsection segment with \$4 billion dollars of Cloud SaaS subscription revenue (Company A, 2013). Company A has a laser commercial focus on the renewal of its customer subscriptions. Through his personal executive involvement with the revenue protection of Company A, this researcher will examine the company's full and partial attrition data over a period of two years and will seek to establish the reasons proffered for cancellation or reduction of the existing subscribers via the exit surveys provided by these subscribers.

Many subscription renewal decisions happen in a completely unstructured and subjective world swayed by many interconnected influences (Burez and Van den Poel, 2007). In exploring a B2B Recurring Revenue Framework for the Delivery of SaaS through a Cloud Computing channel, the researcher believes that the findings from the research proposed will add to the professional body of knowledge around the value and strengths of the renewal revenue expectation within the CC SaaS industry. Furthermore, these insights should prove to be of value to the Cloud Computing practitioner and to the theory on which the renewal revenue model is built.

References

- Armbrust, M., Fox, A., Griffith, R., Joseph, A., Katz, R., Konwinski, A., Lee, G., Patterson, D., Rabkin, A., Stoica, I., Zaharia, M. 2010. "A view of cloud computing". *Communications of the ACM*, 53(4), 50-58.
- Bonaccorsi, A., Giannangeli, S., Rossi, C. 2006. "Entry strategies under competing standards: Hybrid business models in the open source software industry". *Management Science*, 52(7), 1085-1098.
- Boss, G., Malladi, P., Quan, D., Legregni, L., Hall, H. 2007. "Cloud computing". *IBM White Paper* 321, IBM Corporation, pp. 224-231.
- Brannen, J. and Nilsen, A. 2005. "Individualisation, choice and structure: a discussion of current trends in sociological analysis". *The Sociological Review*, 53(3), 412-428.
- Brereton, P., Budgen, D., Bennett, K., Munro, M., Layzell, P., McCauley, L., Griffiths, D., Stannett, C. 1999. "The future of software". *Communications of the ACM*, 42(12), 78-84.
- Burez, J. and Van den Poel, D. 2007. "CRM at a pay-TV company: Using analytical models to reduce customer attrition by targeted marketing for subscription services". *Expert Systems with Applications*, 32(2), 277-288.
- Burrell, G. and Morgan, G. 1979. *Social paradigms and organizational analysis-elements of the sociology of corporate life*. London: Heinemann Educational.
- Buyya, R., Yeo, CS., Venugopal, S., Broberg, J., Brandic, I. 2009. "Cloud computing and emerging IT platforms: Vision, hype, and reality for delivering computing as the 5th utility". *Future Generation computer systems*, 25(6), 599-616.
- Chesbrough, H. and Rosenbloom, R.S. 2002. "The role of the business model in capturing value from innovation: evidence from Xerox Corporation's technology spin-off companies". *Industrial and corporate change*, 11(3), 529-555.
- Childers, T.L. and Rao, A.R. 1992. "The influence of familial and peer-based reference groups on consumer decisions". *Journal of Consumer Research*, 19(2), 198-211.

- Dawar, N. and Frost, T. 1999. "Competing with giants: Survival strategies for local companies in emerging markets". *Harvard Business Review*, 77, 119-132.
- Fan, M., Kumar, S., Whinston, A.B. 2009. "Short-term and long-term competition between providers of shrink-wrap software and software as a service". *European Journal of Operational Research*, 196(2), 661-671.
- Fichman, R.G. and Kemerer, C.F. 1997. "Object technology and reuse: Lessons from early adopters". *Computer*, 30(10), 47-59.
- Fox, A. 2009. *Above the Clouds: A Berkeley view of Cloud Computing*. CA: UC Berkeley.
- Gartner Inc. 2013. "SaaS market will be \$14.5bn this year - Gartner", Gartner Symposium ITxpo ©, Barcelona, Spain, Nov 10-14. [Internet] Available at: [http://www.information-age.com/technology/cloud-and-virtualisation/2095578/saas-will-be-\\$145bn-market-this-year---gartner](http://www.information-age.com/technology/cloud-and-virtualisation/2095578/saas-will-be-$145bn-market-this-year---gartner) (Accessed Sept 2013).
- Gladwell, M. 2000. *The tipping Point: How little things can make a big difference*, US: Little, Brown & Company.
- He, R., Niu, J., Yuan, M., Hu, J. 2004. "A novel cloud-based trust model for pervasive computing". *Fourth International Conference on Computing and Information Technology proceedings*, Wuhan, China, Sept 14-16.
- Keh, H.T. and Xie, Y. 2009. "Corporate reputation and customer behavioral intentions: The roles of trust, identification and commitment". *Industrial Marketing Management*, 38(7), 732-742.
- Keller, A. and Ludwig, H. 2003. "The WSLA framework: Specifying and monitoring service level agreements for web services". *Journal of Network and Systems Management*, 11(1), 57-81.
- Kim, H-S. and Yoon, C-H. 2004. "Determinants of subscriber churn and customer loyalty in the Korean mobile telephony market". *Telecommunications Policy*, 28(9), 751-765.

- Lavigne, D. and Kavis, M. 2010. "Editorial: Cloud Services". *Open Source Business Resource*, April. [Internet] Available at: <http://timreview.ca/article/338> (Accessed Aug 2013).
- Leiner, B.M., Cerf, V.G., Clark, D.D., Kahn, R.E., Kleinrock, L., Lynch, D.C., Postel, J., Roberts, L.G., Wolff, S.S. 1997. "The past and future history of the Internet". *Communications of the ACM*, 40(2), 102-108.
- Linthicum, D.S. 2010. *Cloud Computing and SOA Convergence in Your Enterprise: A Step-by-Step Guide*. U.S.: Addison-Wesley Information Technology Series.
- Marston, S., Li, Z., Bandyopadhyay, S., Zhang, J., Ghalsasi, A. 2011. "Cloud Computing - The business perspective". *Decision Support Systems*, 51(1), 176-189.
- Medjahed, B., Benatallah, B., Bouguettaya, A., Ngu, A.H.H., Elmagarmid, A.K. 2003. "Business-to-business interactions: issues and enabling technologies." *The VLDB Journal—The International Journal on Very Large Data Bases*, 12(1), 59-85.
- Meeker, M., Pitz, B., Fitzgerald, B. 2010. *Internet Trends*. US: Morgan Stanley Research. Private Paper. June. [Internet] Available at: http://211.157.29.42/F10Data/HYBG_NEW/DOC/180.pdf (Accessed Aug 2013).
- McLauchlin, J. 2010. "Retaining Customers: It's Not Just About the Renewal". *The Marketer*, 17(1).
- Morgan Stanley. 2011. "Cloud Computing Takes Off: Market set to boom as migration accelerates", Morgan Stanley Blue Paper, May 23. [Internet] Available at: http://www.morganstanley.com/views/perspectives/cloud_computing.pdf (Accessed Aug 2013).
- Morwitz, V.G. and Fitzsimons, G.J. 2004. "The Mere-Measurement Effect: Why Does Measuring Intentions Change Actual Behavior?" *Journal of Consumer Psychology*, 14(1-2), 64-74.
- Murphy, L. 2011. "Reality of Freemium in SaaS". Sixteen Ventures. [Internet] Available at: <http://pdf.edocr.com/d0406d707a354e842138dfa0383141331b8edb3e.pdf> (Accessed Sept 2013).

- Niculescu, M.F. and Wu, D.J. 2011. "When should software firms commercialize new products via freemium business models." *Under Review*, [Internet] Available at: https://www.misrc.umn.edu/workshops/2011/fall/MariusFlorinNiculescu_2.pdf (Accessed Sept 2013).
- Osterwalder, A. and Pigneur, Y. 2010 *Business model generation: a handbook for visionaries, game changers, and challengers*. New Jersey: John Wiley & Sons Inc.
- Peppard, J. 2000. "Customer relationship management (CRM) in financial services". *European Management Journal*, 18(3), 312-327.
- Porter, M.E. 1980. "Industry structure and competitive strategy: Keys to profitability." *Financial Analysts Journal*, 36(4), 30-41.
- Porter, M.E. and Millar, V.E. 1985. "How information gives you competitive advantage." *Harvard Business Review*, July-Aug, 149-174.
- Salesforce.com. 2013. "About Us". [Internet] Available at: <http://www.salesforce.com/eu/company/> (Accessed July 2013).
- Sheth, J.N. 1973. "A model of industrial buyer behavior". *The Journal of Marketing*, 37(4), 50-56.
- Skilton, M. and Director, C. 2010. "Building Return on Investment from Cloud Computing". *White Paper*, Cloud Business Artifacts Project, Cloud Computing Work Project, The Open Group. [Internet] Available at: http://www.mladina.si/media/objave/dokumenti/2010/5/31/31_5_2010_open_group_building_return_on_investment_from_cloud_computing.pdf (Accessed Sept 2013).
- Sotomayor, B., Montero, R.S., Llorente, I.M., Foster, I. 2009. "Virtual infrastructure management in private and hybrid clouds." *Internet Computing IEEE*, 13(5), 14-22.
- Taylor, S.A. and Hunter, G.L. 2002. "The impact of loyalty with e-CRM software and e-services". *International Journal of Service Industry Management*, 13(5), 452-474.
- Turner, M., Budgen, D. and Brereton, P. 2003. "Turning software into a service". *Computer*, 36(10), 38-44.

- Vacquero, L.M., Roderio-Marino, J., Caceres, J., Lindner, M. 2008. "A break in the clouds: towards a cloud definition". *ACM SIGCOMM Computer Communication Review* 39(1), 50-55.
- Verhoef, P.C. 2003. "Understanding the effect of customer relationship management efforts on customer retention and customer share development". *Journal of Marketing*, 67(4), 30-45.
- Weinhardt, C., Blau, B., Stober, J. 2009. "Cloud computing—a classification, business models, and research directions." *Business & Information Systems Engineering* 1(5), 391-399.
- Weiss, A. 2007. "Computing in the clouds". *Networker* , 11(4), 16-25.
- Wu, L., Garg, S.K. and Buyya, R. 2011. "SLA-based resource allocation for software as a service provider (SaaS) in cloud computing environments." *11th IEEE/ACM International Symposium on Cluster, Cloud and Grid Computing (CCGrid)* IEEE Proceedings, Newport Beach CA, May 23-26, pp. 195-204.
- Wu, M-W. and Lin, Y-D. 2001. "Open source software development: an overview." *Computer* 34 (6), 33-38.
- Zineldin, M. 2006. "The royalty of loyalty: CRM, quality and retention." *Journal of Consumer Marketing* 23(7), 430-43.

PAPER 2

PREFACE

This study is not simply about value creation but also about value maintenance, so when first approaching this research project one of the early issues to be resolved was the segmentation of the research cohort into meaningful research sample sizes. The renewal or attrition decisions are different across different segments and for that reason it made sense to select a narrower segment at this point in the research process. The segment chosen should be one that is mature, to ensure there is sufficient valid historical data (Wedel and Kamakura, 2000; Dickson & Ginter, 1987). It also should be made up of sufficient individual account data to ensure that the renewal decision is a meaningful business decision rather than the simple non-renewal of a consumer product or service. The issues of location, language and culture, all of which will have different effects on different markets, need to be considered too.

Based on the above, this research is being undertaken from the point of view of the Business to Business (B2B) subscriber, based in the United States (US) as a relevant geographic boundary; with an annual subscription revenue value of between \$25,000 - \$100,000. This segment was chosen in that it offered a very clearly delineated group of B2B Cloud SaaS subscribers, with both a single currency and a single business language. It is also considered to be ‘tech-savvy’, with an open and technologically supported business culture. The average contract value is equally important in that it indicates that the SaaS subscription is most likely to have been contracted on the expectation that it would be a business value-enhancing productivity tool. The decision to purchase, reduce or attrit the subscription is therefore likely to have been given more consideration than would, say, the addition or reduction of a consumer product.

Equally for the Cloud provider, this also means that measurement of the segment and its addition or reduction of subscriber counts and revenue is also likely to be more tightly controlled, tracked and measured in that this is seen as a key addressable market segment for the CC SaaS provider (Tyrväinen and Selin, 2011). Within the selected consumer segment ‘user lock-in’ is also considered to be a critical element of the subscription model (Ma, 2007) and again this contributes to the attractiveness of this segment for the research study as it combines both that level of ‘stickiness’ needed to ensure the attrition business decision is a considered one, and a sufficient market share

size that the overall attrition calculations aren't skewed by single, high value, events which might be the case in the higher end segments.

Philosophically, I gave careful consideration to developing my philosophical/epistemological stance to ensure it was consistent with the requirements of the proposed study. By nature, and particularly by professional training (I started my professional career as a Systems Analyst), I would have been quick to label myself very much as a positivist - very comfortable with the belief that all things could and should be measured rather than interpreted. As such, at the outset of this research I felt strongly that it would best be undertaken from the positivist, quantifiable, point of view. It was, after all, about measuring past SaaS subscription behaviours and using these measurements to extrapolate and predict future behaviour. However, a deeper review of the philosophical literature prompted me to question my immediate beliefs. As Polanyi (2012) points out, what first manifests as irrefutable fact might well turn out, on deeper consideration, to be a result of an influence not obviously connected with the first event. So it was with my measurement of the reason for loss data, particularly when it was considered from the lens of the subscription taxonomy produced at table 1 of the forthcoming paper. From Verhoef's (2003) view of the influences of previous performance right through to Peppard's (2000) thought on the impact of Relationship Management, it slowly became clear to me the positivist philosophical lens was not robust enough to withstand the epistemological probing prompted by the literature. Were the attrition decisions acquired in the positivist sense of Hussey and Hussey (1997) or were they driven by something that was personally experienced (Husserl, 1965). Much as I initially found it hard to admit, the reality was that the second, nominalist, viewpoint had to be considered to be at least as much of a reality influence as my more comfortable, realist, lens.

Having eventually come to the realisation that, as Burrell and Morgan (1979) point out, the uniqueness of each situation requires consideration without preconceptions, I stood back and looked at what exactly it was that I was proposing to research and why. Was it to measure the statistical performance of the renewal events or was it to understand why they happened? My moment of clarity came when I finally saw that it was neither one nor the other but both. Once, epistemologically, I became comfortable with this reality – and this happened over time, through osmosis rather than as a sudden realisation – then I became very comfortable with the philosophical underpinnings of my research. As can

be seen from my reflective log extracts (Section 4 of this thesis), this period did cause me some considerable angst but the certainty and comfort which came with the decision gave me confidence that my philosophical conversion from positivist to interpretivist was both correct and complete... for this research undertaking at least!

So here I was – the realist turned nominalist – about to embark on the design of my research project, fresh in the knowledge that the search for the true reasons for the renewal or otherwise of the Cloud Software as a Service subscription needed to be driven from the subjective, nominalist, interpretation. I started to relook at my approach and particularly at the research cohort and the data points which this offered. To my surprise, and as somewhat of a disappointment following my philosophical conversion, I quickly realised that my interpretivist approach wouldn't fully deliver the research either because I still had to deal with having to measure and analyse the real life attrition data. And so I settled into the mixed method approach, dismissed by Teddlie and Tashakkori (2003) but eloquently championed by Gioia and Pitre (1990). The use of the combined methodologies, the positivist approach to the objective attrition data and the interpretivist to the subjective Reasons for Loss (RFL) offered by the attriting customers, allowed the meaningful and complete analysis and interpretation of the research findings encouraged by Brannick and Roche (1997).

With my philosophical underpinnings now clear in my mind, I gave my attention to the design of the data collection instruments. Firstly, I had the issue of the existing, company provided, real attrition RFL data. The design of the data collection instrument for this, exit surveys, was beyond my influence. However, on deep review of both the collection process and the data outputs, I was happy that it was sufficiently robust and close to my own thinking to be acceptable as an input to this study. From this dataset, patterns emerged which allowed me to make groupings of the RFLs collected from the attriting Cloud SaaS subscribers. From these it was clear that some Reasons for Loss – like price and economic conditions – were very definitely objective and, as such, not influenced by other subjective forces. However, others of the RFLs - like trust and satisfaction – were very much subjective and that for a complete understanding of the factors which influenced this decision, I would have to reach out directly to the decision-maker to understand what informed their attrition.

Because of the size of the attriting customer dataset, the only meaningful way in which I thought I could do this was through the use of an open ended survey instrument of which Erickson and Kaplan (2000) were strong proponents, believing that this approach allowed the respondents sufficient anonymity to be open and frank with regard to the subjective influences of their final decisions. This would allow me to address both the volume and dispersion of the research cohort, in that all respondents could potentially be selected for survey, thereby delivering the purposive sampling that Teddlie and Yu (2007) believe to be appropriate and desirable. It would also facilitate both the management and sampling of the data in that the data collection could be both automatically captured online (a format that the research cohort were already comfortable with) while being meaningfully analysed for trends and patterns through the use of the Concept Mapping survey analysis tool championed by Jackson and Trochim (2002).

Considering the research methodology in this level of detail also forced me to relook at what the practical outcomes of the research project might be. What exactly would be my contribution to knowledge, both practice and theory? The consideration of the contribution to practice was both quick and definite; as a practitioner with involvement in the real world of B2B Cloud Computing SaaS renewals, I know that this level of detail on the renewal habits of the subscriber pools simply doesn't exist anywhere outside the private domains of those Cloud SaaS companies with the wherewithal to fund its collection and interpretation. To make the findings available across the industry would be a significant practical contribution. Likewise with the contribution to knowledge; the speed of change in the real business world is in stark contrast with the pace of the academic development around the Cloud Computing paradigm because there exists very little theoretical knowledge on the habits of the Cloud SaaS subscriber. I believe the outcome of this research will go some way towards laying the foundation for the future rectification of this knowledge deficit.

References

- Brannick, T. and Roche, T. (eds.). 1997. *Business Research Methods: Strategies, techniques and sources*. Oak Tree Press, Dublin.
- Burrell, G. and Morgan, G. 1979. *Social paradigms and organizational analysis-elements of the sociology of corporate life*. London, Heinemann Educational.
- Dickson, P.R. and Ginter, J.L. 1987. "Market segmentation, product differentiation, and marketing strategy." *The Journal of Marketing*, 1-10.
- Erickson, P. and Kaplan, C. 2000. "Maximizing qualitative responses about smoking in structured interviews." *Qualitative Health Research*, 10(6), 829-840.
- Gioia, D.A. and Pitre, E. 1990. "Multi-paradigm perspectives on theory building", *Academy of Management Review*, 15(4), 584-602.
- Husserl, E. 1965. "Philosophy as a rigorous science." In: *Phenomenology and the Crisis of Philosophy* (Lauer Q. trans.), Harper and Row, New York, pp. 71–147. Originally published as *Philosophie als strenge Wissenschaft*.
- Hussey, J. and Hussey, R. 1997. *Business Research: A practical guide for undergraduate and post-graduate students*. London, MacMillan Press Ltd.
- Jackson, K. and Trochim, W. 2002. "Concept mapping as an alternative approach for the analysis of open-ended survey responses." *Organizational Research Methods*, 5(4), 307-336.
- Ma, D. 2007. "The business model of 'software-as-a-service'." *IEEE International Conference on Services Computing*, Salt Lake City, Utah, July 9-13.
- Peppard, J. 2000. "Customer relationship management (CRM) in financial services". *European Management Journal*, 18(3), 312-327.
- Polanyi, M. 2012. *Personal knowledge: Towards a post-critical philosophy*. University of Chicago Press, USA.
- Teddlie, C. and Tashakkori, A. 2003. "Major issues and controversies in the use of mixed methods in the social and behavioral sciences." *Handbook of Mixed Methods in Social & Behavioral Research*, UK, Sage, pp. 3-50.

- Teddlie, C. and Yu, F. 2007. "Mixed methods sampling a typology with examples." *Journal of Mixed Methods Research*, 1(1), 77-100.
- Tyrväinen, P. and Selin, J. 2011. "How to sell SaaS: A model for main factors of marketing and selling software-as-a-service." *Software Business*, 2-16.
- Verhoef, P.C. 2003. "Understanding the effect of customer relationship management efforts on customer retention and customer share development". *Journal of Marketing*, 67(4), 30-45.
- Wedel, M. and Kamakura, W. 2000. *Market segmentation: Conceptual and methodological foundations*. USA, Springer Science & Business Media.

Paper 2: Research Methodology

Exploring a Business to Business Recurring Revenue Framework for the Delivery of Software as a Service through a Cloud Computing Channel

**Paper 2 – Research Methodology
DBA Cumulative Paper Series
Waterford Institute of Technology
March 6th – 7th 2014**

Author: David Dempsey, DBA Candidate, WIT

Supervisor: Dr Felicity Kelliher, School of Business, WIT

Examination Panel Result: Recommended

ABSTRACT

Cloud Computing is creating a new paradigm for the distribution of computer software applications. Within this context Cloud Computing enabled Software as a Service (SaaS) fundamentally changes the revenue expectations and business model for the application software industry. In this new world securing the SaaS subscription renewal is critical to the survival and prosperity of the Cloud SaaS business. This study seeks to examine the drivers behind the B2B SaaS subscription renewal decision and, in doing so, to explore the recurring revenue framework for the Cloud SaaS business. The aim of this paper is to discuss the chosen research method as the basis for the analysis of the renewal subscription habits of a subset of the renewals cohort of the subscriber base for a leading Cloud Computing software company. The research includes an examination of the existing software distribution and revenue models and assesses their applicability to the Cloud SaaS provider. It focuses on the revenue attrition risks inherent in the Business to Business (B2B) SaaS business model and proposes a revenue renewal framework where the Cloud SaaS subscription renewal risks are identified, quantified and analysed so that any patterns or trends in the data will allow the Cloud SaaS service provider to build awareness, and commercial exploitation, of these trends into their business model and planning strategy.

Keywords:

Cloud Computing, Software as a Service, SaaS, Subscription Renewals, Recurring Revenue, Attrition, B2B

INTRODUCTION

The provision of a single utility platform on which the application can be easily built, rolled out and maintained is a key part of Cloud Computing (Vacquero et al. 2008; Buyya et al. 2009) and its provision by companies have allowed the rapid growth of the existing Cloud market (Linthicum, 2010). The Cloud Computing (CC) enabled software as a service (SaaS) model has created a new paradigm for the distribution of computer software applications and service (Skilton and Director, 2010), with revenue now typically flowing to the industry on a subscription basis after the delivery of the application service (Osterwalder and Yves, 2010). This represents a switchover from traditional software sales models, with their expectation of significant initial licences fees followed by predictable on-going support and maintenance revenue (Fan et al. 2009) to the new CC SaaS business model (Skilton and Director, 2010) which will see the revenue stream change completely to where the software is licenced and paid for on a subscription basis. This research considers the revenue expectation of the CC industry and its dependency on renewal subscriptions (Skilton and Director, 2010; Turner, Budgen and Brereton, 2003), while the study will focus on SaaS in the Business-to-Business (B2B) domain, delivered through the CC channel. Therefore, the research question is: What is the B2B recurring revenue framework for the delivery of SaaS through a Cloud Computing channel? Of note is that any significant attrition, i.e. cancellation or reduction of the service, can have a significant impact on the financial viability of any business based on this model.

The research objectives are to;

1. Examine of the existing software distribution and revenue models and assess their applicability to CC SaaS provision;
2. Identify the drivers, risk factors and subscription renewal influences in CC SaaS B2B renewals;
3. Explore the reasons why customers renew, reduce or attrit their software as a service, or CC subscription services;
4. Analyse the renewal criteria applied by B2B clientele;
5. Propose a B2B recurring revenue framework for delivery of SaaS through a CC channel.

Relevant decision criteria include the identification of renewal habits, and their predictability, of B2B SaaS commercial end-users. The research seeks to analyse the renewal criteria applied by B2B clientele so that patterns or predictors emerging from the data will allow the researcher to consider the subscription renewal tendencies and to seek out trends or patterns in the data such that will allow the aspiring or existing Cloud SaaS provider to build both an awareness and commercial exploitation of these trends into their business modelling and planning strategy.

The author begins with an overview of the philosophical underpinnings of the research undertaking, followed by consideration of the proposed research method. The design of the proposed data collection instrument is set out in detail, as is the creation of the draft survey instrument to be used in stage two of the data collection process. The selection criteria for the respondents is also considered, as is the intended management and analysis of the research data collected, including an overview of the proposed concept mapping methodology. Finally, limitations of the research are set out, prior to a reflection on the proposed research approach and an outline of the next steps to be taken on the research journey. Appendices provide more detail on the open data set and its contents, the format to be used for the proposed survey instrument and reflections on possible gaps in the research data.

PHILISOPHICAL UNDERPINNINGS

In order to pursue the research question, it is necessary to understand the overriding approach to be taken in this study.

From a philosophical standpoint, social research incorporates a number of assumptions relating to the social world and how that world can be investigated (Burrell and Morgan, 1979). Firstly, when we consider “what *might* exist” (Smith, 2003, 155) we could view our world as either a nominalist or realist. The nominalist is one who denies the existence of universal entities or objects, but accepts that particular objects or entities exist. In contrast, the realist believes that reality exists independent of observers. The realist position would seem to many as the obvious ontological approach to a research undertaking of this nature, which is to quantify and measure the software renewal decision process. On the face of it, this could be measured through the straightforward categorisation of a series of reason codes (Linstone, 1985) and relating these to a

quantifiable number based on the analysis of previous performance. However, the reality is that each of these coded decisions is a single dimensional view of the data, which provides little meaningful insight into the renewal decision, suggesting a nominalist approach is the optimum in this study. On consideration, it is this researcher's contention that this renewal decision cycle can only be measured through the subjective analysis of a series of qualitative values. For this reason, the researcher believes that a more nominalist approach than might first be expected is called for with this proposed research project, as it is concerned with the uniqueness of each particular situation (Burrell and Morgan, 1979).

When considering what can be regarded as 'true' or 'false' in a research study, one should refer to the assumptions about knowledge and how it can be obtained (Hirschheim, 1992). As a researcher, the debate rests on whether knowledge can be acquired (*positivism*) or is it something that has to be personally experienced (*interpretivism*)? The primary issue in this research is whether one can ever achieve knowledge that is truly independent of subjective construction, creating a divide between positivist and interpretive categories. Positivists assume that a single, unchanging and objective reality exists and view the social world as a concrete structure and emphasise empirical analysis of concrete relationships measured in terms of social 'facts' (Pugh and Hickson, 1976), which are observable and value-free (Easterby-Smith et al. 1991; Gill and Johnson, 1997; Hussey and Hussey, 1997). Thus, growth of knowledge is essentially a cumulative process in which new insights are added to the existing stock of knowledge and false hypotheses eliminated (Burrell and Morgan, 1979). In contrast, interpretivists accept that reality is not objectively determined, but is socially constructed (Husserl, 1965), a perspective which appears poised to come into the limelight and to speak in a stronger and more independent voice (Prasad and Prasad, 2002). Drawing conclusions relevant to this study, although initially working with company-collated renewal performance data in pursuit of objectives one and two, the research is interested in what each respondent personally experienced, as highlighted in objectives three and four. These criteria are grouped into what the researcher calls the 'soft influence' on renewal decisions. The commonality across this subscriber grouping is that the 'Reasons for Loss' provided by the subscriber to the initial data collection process is subjective rather than objective and, as such, is most appropriately analysed through an Interpretivist lens (Holden and Lynch, 2004). This perspective positions the researcher as an interpretivist, whose primary focus is based on the production of

qualitative, rich and subjective data from small, focused sample sets (Hussey and Hussey, 1997).

In summary, the ontology of the proposed study is fundamentally different to that of a quantitative research study (Usunier, 1998) as it is this researcher's contention that this renewal decision cycle can only be measured through the subjective analysis of a series of qualitative values. Its epistemology looks at the social science world not as a world of pre-defined, immutable, rules and influences but as a world where the paradigm of the subject is paramount and the goal is to interpret what is observed in a small, focused sample set (Hussey and Hussey, 1997). Rosenau (1992) highlights the fact that for this researcher, all outcomes are shaped not by the permanent laws of nature but are influenced, formed and shaped by the world of choices, which is the paradigm and lens of the subjectivist. Thus, while there may be strong influencing guidelines at work, these are not the ultimate shaper, as is the case in this research study, where the intent is to comprehend the subscription criteria in CC SaaS B2B renewals.

APPLIED RESEARCH METHOD

Having established a sense of 'self' in the research, the methodology is the "*overall strategy for conceptualising and conducting research*" (Trauth, 1999, 279). Thus, the researcher must understand the implications of their chosen research perspective (the purpose behind developing a philosophical stance), and act in ways that reflect that knowledge (Orlikowski and Baroudi, 1991). The implication of the chosen subjective interpretive stance in this study is that the research instrument should pursue rich data from the sample set (Hussey and Hussey, 1997). As the research question in this study pursues the B2B recurring revenue framework for the delivery of SaaS through a Cloud Computing channel and a primary objective is to identify the risk factors and subscription renewal influences in CC SaaS B2B renewals; the goal of the research instrument is to pursue deep insight into the respondent's subscription renewal criteria.

The initial intention was to pursue the research question by analysing historic data in a desk-based research study, collected from the subscription renewal habits of the Cloud SaaS subscriptions of a company acknowledged by Gartner Inc. (2013) as the market leader in the Cloud Sales and Service market. This researcher has access through his executive involvement with the database of attrition and renewal exit reasons (see

appendix 1), which encompass the company's full and partial attrition data gathered from over 10,000 customers over a period of one year. This is highly sensitive commercial data, which is not publically available. Therefore, prior to being approved for research access all renewal performance and customer identification will be removed from the data provided.

On first review and with an untested, positivist, ontology the proposed research approach appeared to sit very comfortably as a quantitative research project, with little or no requirement for qualitative interpretation. The research data (pre-collected historic company data relating to customer attrition and renewals) appeared as 'hard fact' and looked straightforward to analyse, utilising a real life set of renewals data collected longitudinally from a clearly defined market segment. However, the grouping of subscriber reasons for renewal or attrition provides only a one-dimensional view of the renewal data (Bernstein, 1983). It captures the quantitative snapshot, or the fact of what the actual outcome was, but it provides no qualitative insights. Therefore, while this approach could establish the reasons proffered for cancellation or reduction of the existing subscribers via the exit data provided by these subscribers, the decision to renew is fundamentally a subjective one, with many free choice variables in play as influencers of the decision (Morgan and Hunt, 1994).

Having contemplated the research question and objectives in light of the philosophical underpinnings discussed in this paper, the subjective reasoning behind the subscription renewal decision is key to creating the true value of this research so as to acknowledge the awareness that the decision to purchase or subscribe is a decision of choice and free will (McLauchlin, 2010). This emphasis on subjectivity dictates that the social world must be understood from within rather than explained from outside (Winch, 1958); thus interpretive researchers interact with people and immerse themselves in the research environment to enable them to see the phenomena from the perspective of the subjects involved. Of note is that deduction may well still play a significant part in the armoury of the social scientist but Weber (1947) points out that equally important are the variables of human nature and the uncertainty that is by necessity a central composite of the subjective world. Thus observing and measuring are key to validating real knowledge in the social science world because the social scientist deals with the variances and vagaries of human nature and all the uncertainty that this can bring (Morgan and Smircich, 1980).

These subjective choices mean that to drive this research purely from the positivist paradigm would be inherently flawed and would exclude what Berger and Luckmann (1996) describe as organisational realities. Cherwitz and Hikins (1986) point out that comprehensive understanding occurs only when many relevant perspectives have been discovered, evaluated and juxtaposed. This subjectiveness is a key influencer in any optional choice made in a free will, or free market, world. Analysis of the reasons given for non-renewal cannot be explained from a quantitative paradigm only but must be also rigorously subjected to a deeper analysis and research of the subjective reasoning applied by the subscriber to the renewal event (Noblett and Hare, 1998). Because of the nature of these choices and the fact that many are external to the numerical renewal process it is critical that the interpretive lens be applied to the research undertaking.

In consideration of the balance highlighted in the preceding argument, this research study will pursue a two-phased process incorporating a mixed method approach. This 'multi-paradigm perspective offers a comprehensiveness stemming from different world views' (Gioia and Pitre, 1990) thereby proffering meaningful and accurate social science research through the use of combined methodologies. Brannick and Roche (1997) show this methodology will support utilising the data collected from the pre-existing historic company renewals and attrition data as the basis for the second phase of the research study. Based on the attrition categorisations identified in this research, the researcher will then select a subset of the attrition/ renewal data for deeper qualitative analysis of the drivers and reasoning behind the attrition or renewal decision (phase 2). This approach acknowledges that the epistemology of the renewing user is of more importance than their view of price. Their renewal/ attrition lens and what subjective reasons guided the renewal or attrition decision are also key criteria when considering the research question. The key is to establish whether the subscriber decision process was as objective as the 'price being too high, too low or just right', or, as Morgan and Hunt (1994) believe, that the subscriber decision process was a much more personally subjective issue like the level of trust placed in the service supplier.

For these reasons, the researcher supports the reasoning of Brannick and Roche (1997) and believes that the most appropriate methodology will be one combining a quantitative approach in phase 1 of the study and the application of qualitative research methods in phase 2 of the research. Although this combined ontological approach might

have been dismissed previously by proponents of either extreme objectivism (Gill and Johnson, 1997) or extreme subjectivism (Hughes and Sharrock, 1997); there is ample credible peer reviewed academic material to support the counter argument as to its validity (Morgan and Smircich, 1980; Sapir, 1949). This combination of both ontologies delivers a more rounded research approach, with the risk of objective and subjective bias better balanced through a more holistic, triangulated, lens with an initial desk-based sampling reduction of the renewals data to provide a random sample which will support meaningful extraction of data patterns (Ritchie and Spencer, 2002) and identified renewal themes in phase two of the study.

Selecting respondents

While the functionality offered to its customer base may vary across editions of the product, the fundamental question of a subscription expiry and its ultimate renewal is applicable to all. For the researcher this poses the question – which of these segments are most appropriate for research? Should it be one or all? To be meaningful, can it really look at any more than a single segment? Based on the premise that the renewal decision in one segment will have fundamentally different objectives and subjective judgements from the renewal decision in another, this researcher believes not. Thus it is the belief of this researcher that the segmentation of the research data is key to the value and clarity of the research. Influenced by this thought process, the researcher has decided to confine the proposed research to the lower mid-market segment of the subscription base only, specifically a customer base with an Annual Contract Value (ACV) of between \$25,000 and \$100,000.

There is also the data segmentation issue dealing with the location of the subscription user. This is important as the location factor brings many influences on the usage and adoption of the product set, all of which will impact on the likelihood of the subscription being renewed (Hossenli and Tarokh, 2011). The attractiveness of a product and its subsequent renewal propensity are very different in its home and remote markets (Khajvand and Tarokh, 2010). In the home market the product will have attributes, positive or negative, which are uniquely tied to the market in which it is being promoted. These renewal attributes can differ significantly in a remote market, where subjective influences like language and culture alter the renewal landscape. Again, this poses the dilemma for the researcher as to whether to generalise the research

findings for all geographies or to consider a smaller, tighter, cohort where the renewal reasoning and data is more constrained and appropriate to measure and analyse. This researcher considers that the tighter and closer aligned single geography and single segment size research cohort is the most appropriate for this research. For this reason the research data segment was further narrowed to being of a \$25,000 - \$100,000 annual contract value for only those subscribers located in the US market geography.

Phased data collection approach

Creation of the research instrument is approached from these two different paradigms – the quantitative view which takes as its variables the attrition reason codes captured from the data sample used and the qualitative which will look at the more subjective reasons driving those decisions. From the positivist researcher's paradigm, the renewal performance is a straightforward and easily measured process driven by a quantitative ontology (Holden and Lynch, 2004) where the renewal research is eminently quantifiable. But a deeper, more fundamental look shows that it is not that straightforward, warranting the pursuit of a multi-stage methodology (Gioia and Pitre (1990). Therefore, the initial phase of this research study involves desk-based analysis of CC SaaS renewal/ attrition customer exit data. Confirming the influencing factors when renewing a contract will follow this process via a follow-up open-ended data collection cycle (phase 2).

Phase 1 – Desk-based quantitative analysis

The researcher has access to a significant bank of renewal/ attrition data of a leading CC SaaS provider and will analyse one year's worth of existing historical company renewal and attrition performance data (appendix 1) in phase 1 of the study. It should be noted that while this data was gathered at the time of consumer renewal / attrition, the data collection instrument was not designed by the researcher. However, as this instrument is focused on the renewal influencing factors based on the comparative exercise carried out on the taxonomy criteria (table 1), it is sufficiently close in its design to the research objective to be of value in this study.

Table 1: B2B SaaS Revenue Renewal Taxonomy via a CC channel

Role	Criteria	Description	Supporting Literature
Subscriber	Previous Performance	Quality of Service Delivery	Verhoef (2003)
	Fulfilment of User Expectations	Previous Experience, Adoption Levels	Taylor and Hunter (2002)
	Contracted Terms	Cost, Credit Terms, Billing Frequency, Timing of Renewal, Value, Economic	McLauchlin (2010)
	Peer Influence	Market Acceptance, Existing Installed Base, User Case Studies	Childers and Rao (1992)
Supplier	Alternative Offerings	Competitor Suppliers	Porter and Millar (1985)
	External Influences	Regulatory, Network Robustness	Kim and Yoon (2004)
	Localisation	Language, Business Culture fit	Dawar and Frost (1999)
	Supplier Reputation	Market Perception	Keh and Yi (2009); Sheth (1973)
	Trust	Earned Relationship, Perception	Burez and Van den Poel (2007)
	Loyalty	Earned Brand Commitment	Moritz and Fitzsimons (2004); Zineldin (2006)
	Relationship Management	Proactive Programmatic Adoption	Peppard (2000)

Source: Current Study

The taxonomy (table 1) pursued an understanding of the subscription user's perspective and considered the factors that influence the renewal process (Burez and Van den Poel, 2006; Taylor and Hunter, 2002; Verhoef, 2003; Peppard, 2000) thereby providing the basis for the research instrument design independent of the pre-existing data (appendix 1).

The data collected from the online survey instrument will be collated and structured into the groupings set out on table 2.

Table 2: Company Provided Reason for Loss (RFL) Codes

RFL Code	Criteria	Paradigm	Supporting Literature
Economic	Reduction in Force (RIF), Suspended, Chapter 11	Objective	McLauchlin (2010)
Adoption	Unused Licenses, Never Deployed, Light Functional Use	Subjective	Childers and Rao (1992); Taylor and Hunter (2002)
Political	Merger & Acquisition, Sponsorship, Policies	Objective	Burez and Van den Poel (2007); Keh and Yi (2009); Sheth (1973); Moritz and Fitzsimons (2004); Zineldin (2006)
Price Concession	Product Price Change, New Corporate Price, Tiered Pricing	Objective	Porter and Millar (1985); Verhoef (2003)
Limited Life	LL – Licences, Support, Data, Sandbox	Objective	McLauchlin (2010)
Oversold	Transfer of Users, wrong product	Objective	Taylor and Hunter (2002)
Business Practices	Consulting, Services, Support, Sales, Partners,	Subjective, Objective	Peppard (2000); Kim and Yoon (2004); Dawar and Frost (1999)

Source: Current Study

As seen from the Reason for Loss (RFL) codes provided in table 2, the RFL codes map to two distinct and very different paradigms – the soft qualitative measures tracked by the Adoption and Business Practice RFLs and the harder objective RFL measures like Price and Limited Life which are more appropriately measured in their quantitative form.

The quantifiable variables exposed through the phase 1 process are identified as hard measures, objective and numerically quantifiable. For example, for the subscription product to have attraction or value consideration to the subscriber it must have certain fundamental objective or quantitative attributes (Porter and Millar, 1985). At its most simplistic level it must be accessible, usable and reasonably fit for purpose (Verhoef, 2003). Thus, from the positivist viewpoint the renewal process starts with a number, ends with a different one and the performance is measured by the difference and the

customer decision to renew or cancel a subscription is simply a ‘yes’ or ‘no’ process (Whitney, 1996). By their nature, these ‘statistics’ are measured in the research data through ‘after the fact’ exit surveys, ensuring that the number of customers renewing or attriting is well captured. However, this approach does not necessarily allow the researcher to ‘see what is there’ in the form of words rather than numbers, creating a research deficit regarding the reasons for such trends, an insight that can be pursued through phase 2 of this study.

Phase 2 - Constructing the Qualitative Research Template

For the subjective subset, the intent behind the qualitative RFL requires a more thorough interpretive analysis. If one considers the subjective paradigm of the Cloud SaaS B2B subscriber or service user, it must also be functionally attractive, empowering and provide sufficient core functionality at a reasonable price (McLauchlin, 2010). Childers and Rao (1992) and Taylor and Hunter (2002) each propose that behind every reason description, or in this case subscription renewal, is a completely unstructured and subjective world, swayed by many interconnected influences, all of which guide the ‘free will’ renewal behaviour of the service subscriber. Table 2 sets out these subjective RFL codes and using the existing RFL groupings within this template (appendix 3) the researcher will sample the data from this subjective cohort only when preparing the final subscriber subset for the detailed open-ended survey (phase 2).

The renewal, or a conscious decision to cancel a subscription, may not be as simple as the binary ‘yes’ or ‘no’ that Whitney (1996) believes it is. Contrarily, McLauchlin (2010) believes the decision to renew a subscription may be influenced by any manner of item or opinion, such as customer service or perceived value. While the final decision communicated may well be an objective binary decision, this researcher cautions that this may be a flawed premise and that the thought process and influencers leading into the renewal decision are open to, and best examined by, a subjectivist interpretation. These are subjective values and, as such, much less likely to be correctly mapped by a positivist approach. This means the phase 2 data will be more subjective, softer and open to interpretation, for example perceptions of value, trust and integrity of service supplier. These are attributes which are not first obvious to the researcher but which must be teased out and interpreted through the use of an instrument such as the open-ended survey proposed and championed by Erickson and Kaplan (2000) and Miles and

Huberman (1994). The use of an open-ended survey instrument in phase 2 of this study will allow the researcher to explore different dimensions of the respondent's experiences (Sproull, 1998) while allowing the respondent to provide details of the experience in their own words (Jackson and Trochim, 2002).

Erickson and Kaplan (2000) believe that open-ended surveys elicit more honest responses through the greater anonymity offered to the respondents than interviews or focus groups might offer. The researcher uses the groupings of the company RFLs driving the SaaS subscription non-renewal, or partial attrition, to inform the initial design of an open-ended survey (appendix 2) to be distributed to a select sub-set of subscribers in order to elicit their perception of the service offerings. This should allow an understanding of the qualitative drivers behind their decisions. It will also provide the researcher with a rich overview of the subjective criteria influencing the non-renewal decision.

The proposed themes are identified through engagement with the taxonomy criteria (table 1) and the phase one exit data template (table 2 and appendix 1) and are grouped into what the researcher has labelled the 'soft influence' on renewal decisions in interaction with RFL data codes (appendix 3). The commonality across this subscriber grouping is that the 'Reasons for Loss' provided by the subscriber in the company exit data is subjective rather than objective and, as such, is most appropriately analysed through an interpretivist lens (Prasad and Prasad, 2002). Within these themes, the proposed open-ended survey instrument (appendix 2) will focus on the subscriber's perception of value (Peppard, 2000), delivery of (Burez and Van den Poel, 2007), quality (Verhoef, 2003), loyalty (Moritz and Fitzsimons, 2004), adoption and satisfaction (Taylor and Hunter, 2002).

The phase 2 survey instrument (appendix 2) will focus on questions grouped around these five themes, with the questions structured so as to allow the respondents to provide open, rich descriptions of their renewal experience in their own words. This approach should allow for what Jackson and Trochim (2002) describe as a 'rich description of respondent reality', unconstrained by the segment diversity or geographic dispersing of the sample cohort.

Because of its RFL self-groupings, a random sampling methodology is not appropriate (Neyman, 1934). Instead purposive sampling is both appropriate and desirable (Teddle and Yu, 2007) and it is proposed that the phase 2 open-ended survey be applied to a sub-sample of the actionable attrition cohort. It is intended that the survey data will be gathered anonymously using an online survey tool incorporating keystroke responses.

DATA MANAGEMENT AND ANALYSIS

Within the segmented and de-sensitised dataset outlined above, there is a need to reduce the 10,000+ record set initially provided, as to work with a sample size this large is untenable for the two-phase methodology proposed. The data values highlighted at table 2 show that the first phase of the research is a quantitative self selection of the non-renewing/ reducing CC customers. This grouping will in itself provide a significant research outcome in that it will create a practical, reality based, coding of all non-actionable attrition types, which may impact on the CC renewing subscriber base. The second qualitative phase will study the remaining actionable attritions impacting the customer base. This should produce a data subset where the attrition reason is subjective and from a practical research viewpoint actionable and/ or recoverable. It is also the data that is of the greatest value to CC SaaS companies and the aspect that these companies struggle most to understand.

It is proposed to use Concept Mapping for the detailed survey response analysis of the open-ended surveys. Concept Mapping presents an alternative approach for the analysis of open-ended survey responses (Jackson and Trochim, 2002), allowing respondents to provide details of their subjective renewal drivers in their own words rather than in a pre-described format. In doing so it captures diversity in responses, offering alternative answers to those that might be captured by closed end survey instruments (Miles and Huberman, 1994). It also provides more anonymity to the survey respondent, thus often extracting more authentic responses (Erickson and Kaplan, 2000) and offers a strong defence to what Kelliher (2011) refers to as the research legitimisation criticism of Interpretivism. By providing a 'rich description of respondent reality' (Jackson and Trochim, 2002) it seeks to address the Reliability, Validity and Generalizability concerns, which Kelliher (2011) highlights in relation to interpretive research. Additionally, when combined with the phase one data segmentation process it meets the Eisenhardt (1989) recommendation that the researcher create strong triangulated measures to achieve

greater reliability which Denzin (1970) believes will come through using multiple and independent methods.

Kriddendorf (1980) believes that open-ended surveys are limited by the risk that researcher' coding decisions can pose a threat to the dependability and legitimacy of the results. There is also potential for non-coverage, sampling and measurement errors in the survey instrument (Dillman, 1991), while trade-offs in the type of inference may be drawn from this type of survey data (Fine and Elsbach, 2000). In contrast, Jackson and Trochim (2002) believe that Concept Mapping offers the Interpretivist researcher the capability to represent the diversity and dimensionality in meaning offered by thematic and word-mapping approaches that have been the traditional analysis tools for open-ended survey response offerings. In their words a 'methodological blend' that offers the benefits of using both in concert, a benefit which they and this researcher believe significantly outweighs the research concerns. The proposed approach also delivers what Kvale (1983) sees as the opportunity to delve deeper into the psychology of the interviewee and, in this case, the subjective influencer of their renewal behaviour.

RESEARCH BENEFITS AND LIMITATIONS

This research undertaking is one of the first academic research projects to look at the commercial, rather than the technical, drivers of a world-class Cloud Computing business. In doing so it creates a focus on the robustness and resilience of the business model and, in particular, on the sustainability of the industry's recurring revenue subscription framework. This repeatable revenue dependency is both a strength and a weakness (Ma and Seidmann, 2008) to a marketplace, which in itself is a disintermediation threat (Christensen, 2013) to the traditional software industry model (Osterwalder and Yves, 2010). Because of the expected growth and attraction of the Cloud Computing market (Meeker, 2010), there is much interest and aspiration to be part of its growth. As such, the practical outputs from this research are likely to find easy access to implementation across industry aspirants worldwide. For this reason, the researcher is cautious that its applicability might be measured for its appropriateness to every industry incumbent and aspirant. The company data provided here has been earned not only through a long apprenticeship within the industry but also through being present in the industry when it was in its infancy. Its growth has been phenomenal and fast – so too will its data points be produced and morph at an equally furious pace.

Sometimes, the academic research and publication fail to keep pace with the industry it examines so this research may already well be dated by the industry even before the research is completed and published.

While pursuit of the research question requires deep understanding of the subjective influences at play among the subscriber renewals cohort, placing the proposed research squarely and comfortably on ‘the inside’ (Evered and Louis, 1981), this may also raise the question of bias. Specifically, by the researcher’s closeness to the research topic, it can also be validly argued that the research undertaking will include an element of researcher subjectiveness. This closeness to the research topic may also raise ethical considerations for the research. In the opinion of Bell and Bryman (2007) these factors will need to be rigorously tested and applied to ensure the research is not influenced/biased by the researcher’s connections to the subscriber base. Thus, in the interests of transparency, the researcher acknowledges that he is currently employed by the company providing the data to be used as the research sample in this study. Additionally, the researcher’s management role in this company means that he is closely aligned to the business function responsible for the management and protection of the subscription renewal customer base. He acknowledges that this means that any potential influence or outcome bias must be carefully assessed and mitigated at the outset (Bell and Bryman, 2007). Equally, this ‘inside’ closeness may be a factor in the collection of the more subjective, qualitative, research data and could, in worst case scenario, result in guarded interviewee responses, hence the researcher’s choice of the IS-enabled online open-ended survey data collection tool which, as Erickson and Kaplan (2000) point out, offers the respondent the guarantee of anonymity in their response.

Reflections on the proposed research approach

By nature, I⁷ have a positivist outlook, most comfortable in the belief that “real knowledge is only acquired through direct observation and experimentation” (Quinton and Smallbone, 2005). My initial thinking on the research philosophy that would shape and drive this research project would have been very much towards the positivist paradigm as defined by Gioia and Pitre (1990), whereby the renewal outcome would be consistently predictable based on the firm measurement of the historical actual renewal performance of the section of subscriber renewals examined. In the interim, I have come

⁷ The author has applied the first-person convention in this reflective extract

to agree with Holden and Lynch (2004) that the epistemology of the true positivist means there is no free will influence and that man is simply a responder but, on deeper reflection, how can this be true for the social scientist, or in this specific case the analysis of the subjective renewal habits of the CC SaaS subscriber?

As Noblett and Hare (1998) point out, to the positivist all things may appear to be universal but the interpretivist will look more subjectively at the outcomes, with a view to seeing what influenced them. Instead of an unwavering belief in the pre-deterministic outcome, the subjectivist will question the result based on the variable influences. Rather than simply measure, analyse and quantify the results, the subjectivist will search for the casual influences, asking what phenomena or subjective forces were at play to bring about the specific result being measured (Chen and Hirschheim, 2004). For the subjectivist the key is not a question of what the right answer is as predetermined by the irrefutable laws of science but rather the inductive research process of establishing which qualities influenced and caused the final outcome. Challenged by this perspective, I was moved to reflect deeply on my own ontology and question my previous functionalist paradigm, in much the same as Burrell and Morgan (1979) position the nature of society versus the nature of science. This reflection has moved me to the realisation that for this research to be meaningful it must look beyond the numbers and be viewed from the interpretivist paradigm.

This apparent conflict, where seemingly hard objective data are in fact often driven and shaped by subjective reasoning, was troublesome for my believed view of the world but, over the course of the research journey, I have come to believe that reality really is socially constructed (Husserl, 1965) rather than, as I thought before, objectively determined. Interestingly it was my familiarity with the research data which ultimately brought this home to me. In my professional capacity I spend my working time measuring renewal and attrition trends and using this historic data to attempt to predict future outcomes. This works well where the decision is influenced by external (objective) variables like price or competition. Where it doesn't work is when the renewal/ attrition decision is driven, influenced or interpreted by the subscriber's subjective paradigm. It was this discrepancy which finally brought me to the belief that the social sciences are less about explanation and control than about understanding (Prasad and Prasad, 2002).

CONCLUSION AND NEXT STEPS

This paper set out the philosophical underpinnings of the research undertaking, followed by consideration of the proposed multi-phased mixed method. The design of the proposed data collection instruments is set out in detail, as are the intended management and analysis of the research data collected. The potential benefits and limitations of this approach are outlined prior to a reflection on the proposed research approach. The next step in the research journey is to commence phase 1 primary data analysis and consider the refinement of the phase 2 instrument design and the incumbent survey in light of these findings. The researcher believes the findings from the research will advance the body of knowledge around the value and strengths of the customer relationship within cloud computing companies and that these outcomes will prove to be a valuable and significant contribution to the current body of knowledge in this area.

References

- Barbour, R.S. 1999. "The case for combining qualitative and quantitative approaches in health services research." *Journal of Health Services Research & Policy*, 4(1), 39-43.
- Bell, E. and Bryman, A. 2007. "The ethics of management research; an exploratory content analysis." *British Journal of Management*, 18, 63 -77.
- Berger, P.L. and Luckmann, T. 1966. *The Social Construction of Reality*. New York: Anchor Books.
- Bernstein, R. 1983. *Beyond Objectivism and Relativism: Science, Hermeneutics and praxis*. US: University of Pennsylvania Press.
- Brannick, T. and Roche, T. (eds.). 1997. *Business Research Methods: strategies, techniques and sources*. Dublin: Oak Tree Press,.
- Burrell, G., and Morgan, G. 1979. *Social paradigms and organizational analysis-elements of the sociology of corporate life*. UK: Heinemann Educational Books.
- Burez, J. and van den Poel, D. 2007. "CRM at a pay- TV company: Using analytical models to reduce customer attrition by targeted marketing for subscription services." *Expert Systems with Applications*, 32(2), 277-288.
- Buyya, R., Yeo, C.S., Venugopal, S., Broberg, J., Br, I. 2009. "Cloud computing and emerging IT platforms: Vision, hype, and reality for delivering computing as the 5th utility." *Future Generation Computer Systems*, 25(6), 599-616.
- Chen, W.S. and Hirschheim, R. 2004. "A paradigmatic and methodological examination of information systems research from 1991 to 2001." *Information Systems Journal* 14(3), 197-235.
- Cherwitz, R. and Hikins, J. 1986. *Communication and Knowledge: An Investigation in Rhetorical Epistemology*. Columbia: University of South Carolina Press.
- Christensen, C. 2013. *The innovator's dilemma: when new technologies cause great firms to fail*. US: Harvard Business Review Press.
- Childers, T. and Rao, A. 1992. "The influence of familial and peer-based reference groups on consumer decisions." *Journal of Consumer Research*, 19, 198-211.

- Dawar, N. and Frost, T. 1999. "Competing with giants: Survival strategies for local companies in emerging markets." *Harvard Business Review*, 77, 119-132.
- Denzin, N. 1970. *The research act: A theoretical introduction to sociological methods*. New Jersey: Transaction Publishers.
- Dillman, D. 1991. "The design and administration of mail surveys." *Annual Review of Sociology*, 17, 225-249.
- Eisenhardt, K.M. 1989. "Building theories from case study research." *Academy of Management Review*, 14(4), 532-550.
- Erickson, P. and Kaplan, C. 2000. "Maximizing qualitative responses about smoking in structured interviews." *Qualitative Health Research* 10(6), 829-840.
- Evered, R. and Louis, M. 1981. "Alternative Perspectives in the Organisational Sciences; 'enquiry from within' and 'enquiry from the outside'." *Academy of Management Review*, 6(3), 385-395.
- Fan, M., Kumar, S., Whinston, A. 2009. "Short-term and long-term competition between providers of shrink-wrap software and software as a service." *European Journal of Operational Research*, 196(2), 661-671.
- Fine, G. and Kimberly, D. 2000. "Ethnography and experiment in social psychological theory building: Tactics for integrating qualitative field data with quantitative lab data." *Journal of Experimental Social Psychology*, 36(1), 51-76.
- Gartner. 2013. "Market Share: All Software Markets Worldwide, 2012." [Internet] Available at: <https://www.gartner.com/doc/2398815/market-share-software-markets-worldwide> (Accessed July 2013).
- Gill, J. and Johnson, P. 1997. *Research Methods for Managers*. London: PCP.
- Gioia, D.A. and Pitre, E. 1990. "Multi-paradigm perspectives on theory building", *Academy of Management Review*, 15(4), 584-602.
- Hirschheim R. and Klein, H. 1992. "Paradigmatic influences on information systems development methodologies: Evolution and conceptual advances". In: M. Yovits (ed.). *Advances in Computers*, New York: Academic Press.

- Holden, M.T. and Lynch, P. 2004. "Choosing the appropriate methodology: understanding research philosophy." *The Marketing Review* 4(4), 397-409.
- Hosseini, M. and Mohammad J. 2011. "Interval type-2 fuzzy set extension of DEMATEL method." *Computational Intelligence and Information Technology*, 157-165.
- Hughes, J. and Sharrock. W. 1997. *The philosophy of social science research* (3rd ed.). London and New York: Longman.
- Husserl, E. 1965. "Philosophy as a rigorous science." In: *Phenomenology and the Crisis of Philosophy* (Lauer Q. trans.), Harper and Row, New York, pp. 71–147. Originally published as *Philosophie als strenge Wissenschaft*.
- Hussey, J. and R. Hussey. 1997. *Business Research: A practical guide for undergraduate and post-graduate students*. London: MacMillan Press Ltd.
- Jackson, K. and Trochim, W. 2002. "Concept mapping as an alternative approach for the analysis of open-ended survey responses." *Organizational Research Methods*, 5(4), 307-336.
- Keh, H.T. and Yi, X. 2009. "Corporate reputation and customer behavioral intentions: The roles of trust, identification and commitment." *Industrial Marketing Management*, 38(7), 732-742.
- Kelliher, F. 2011. "Interpretivism and the pursuit of research legitimisation: an integrated approach to single case design." In: A. Bryant (ed.). *Leading Issues in Business Research Methods*, Academic Publishing International Limited, Reading. pp. 45-63.
- Khajvand, M. and Mohammad, J. 2011. "Estimating customer future value of different customer segments based on adapted RFM model in retail banking context." *Procedia Computer Science* 3, 1327-1332.
- Kim, H-S. and Yoon, C-H. 2004. "Determinants of subscriber churn and customer loyalty in the Korean mobile telephony market." *Telecommunications Policy* 28(9), 751-765.

- Krippendorff, K. 1980. *Content Analysis: An Introduction to its Methodology*. Newbury Park: Sage Publications.
- Kvale, S. 1983. "The qualitative research interview: A phenomenological and a hermeneutical mode of understanding." *Journal of Phenomenological Psychology*, 14(2), 171-196.
- Linstone, H. 1985. "Multiple perspectives: overcoming the weaknesses of MS/OR." *Interfaces*, 15(4), 77-85.
- Linthicum, S. 2010. *Cloud Computing and SOA Convergence in Your Enterprise: A Step-by-Step Guide*. US: Pearson Education.
- Ma, D. and Seidmann, A. 2010 "The pricing strategy analysis for the "Software-as-a-service" business model." *Grid Economics and Business Models: 5th International Workshop, GECON*.
- Meeker, M. 2010. *Internet Trends*. Private Paper, Morgan Stanley.
- McLauchlin, J. 2010. "Retaining Customers: It's Not Just About the Renewal." *The Marketer*, 17(1).
- Miles, M. and Huberman, A. 1994. *Qualitative data analysis: An expanded sourcebook*. (2nd ed.). UK: Sage Publications Ltd.
- Morgan, G. and Smircich, L. 1980. "The case for qualitative research." *Academy of Management Review*, 5(4), 491-500.
- Morgan, R. and Hunt, S. 1994. "The Commitment-Trust Theory of Relationship Marketing." *Journal of Marketing*, 58, 20-38.
- Morwitz, V. and Fitzsimons, G. 2004. "The Mere-Measurement Effect: Why Does Measuring Intentions Change Actual Behavior?" *Journal of Consumer Psychology*, 14(1-2), 64-74.
- Neyman, J. 1934. "On the two different aspects of the representative method: the method of stratified sampling and the method of purposive selection." *Journal of the Royal Statistical Society*, 558-625.

- Noblitt, G. and Hare, R. 1988. *Meta-ethnography; Synthesising Qualitative Studies*, London: Sage.
- Osterwalder, A. and Yves, P. 2010. *Business model generation: a handbook for visionaries, game changers, and challengers*. Self published. [Internet] Available at: www.businessmodelgeneration.com (Accessed Jan 2014).
- Orlikowski, W. and Baroudi, J. 1991. "Studying information technology in organizations: Research approaches and assumptions." *Information Systems Research*, 2(1), 1-28.
- Peppard, J. 2000. "Customer relationship management (CRM) in financial services." *European Management Journal*, 18(3), 312-327.
- Porter, M. and Millar, V. 1985. "How information gives you competitive advantage." *Harvard Business Review*, 63(4), 149-160.
- Prasad, A. and Prasad, P. 2002. "The coming of age of interpretive organisational research." *Organisational Research Methods*, 5(1), 4-11.
- Pugh, D. and Hickson, D. 1976. *Organizational structure in its context: The Aston Programme* (vol. 1). US: Saxon House Studies/ Lexington Books.
- Prasad, A. and Prasad, P. 2002. "The coming of age of interpretive organizational research." *Organizational Research Methods*, 5(1), 4-11.
- Quinton, S. and Smallbone, T. 2005. "The Troublesome Triplets; issues in teaching reliability, validity and generalisation to business students." *Teaching in Higher Education*, 10(3), 299-311.
- Ritchie, J. and Spencer, L. 2002. "Qualitative data analysis for applied policy research." *The Qualitative Researcher's Companion*, 305-329.
- Rosenau, R. 1992. *Post-Modernism and the Social Sciences, Insights, Inroads and Intrusions*. USA: Princeton.
- Sapir, E. 1949. *Selected Writings in Language, Culture and Personality*. Berkeley: University of California Press.

- Skilton, M. and Director, C. 2010. "Building Return on Investment from Cloud Computing." *White Paper*. The Open Group. [Internet] Available at: <http://www.opengroup.org/cloud/whitepapers/ccroi/> (Accessed Nov 2013).
- Smith, J. 2010. "Interpretative phenomenological analysis: a reply to Amedeo Giorgi" *Existential Analysis*, 21(2), 186-19.
- Sproull, N. 2002. *Handbook of research methods: A guide for practitioners and students in the social sciences*. Maryland: Scarecrow Press.
- Taylor, S. and Hunter, G. 2002. "The impact of loyalty with e-CRM software and e-services." *International Journal of Service Industry Management*, 13(5), 452-474.
- Teddlie, C. and Yu, F. 2007. "Mixed methods sampling a typology with examples." *Journal of Mixed Methods Research*, 1(1), 77-100.
- Trauth, E. 2001. "Choosing qualitative methods in IS research: Lessons learned." In: E. Trauth (ed.). *Qualitative Research in IS: Issues and Trends*, Idea Group Publishing, Hershey, PA, pp. 271-287.
- Turner, M., Budgen, D., Brereton, P. 2003. 'Turning software into a service.' *Computer*, 36(10), 38-44.
- Usunier, J-C. 1998. *International and cross-cultural management research*. London: Sage.
- Vaquero, L., Rodero-Merino, L., Caceres, J., Lindner, M. 2008. "A break in the clouds: towards a cloud definition." *ACM SIGCOMM Computer Communication Review*, 39(1), 50-55.
- Verhoef, P. 2003. "Understanding the effect of customer relationship management efforts on customer retention and customer share development." *Journal of Marketing*, 67(Oct), 30-45.
- Weber, M. 1947. *The theory of economic and social organization*. Trans. New York: AM Henderson and Talcott Parsons.
- Whitney, John O. "Strategic renewal for business units." *Harvard Business Review* 74.4 (1995): 84-98.

- Winch, P. 1958. *The Idea of a Social Science and its relation to philosophy*. (2nd ed.).
London: Taylor and Francis Routledge.
- Zineldin, M. 2006. "The royalty of loyalty: CRM, quality and retention." *Journal of Consumer Marketing* 23(7), 430-437.

Appendix 1: Existing Survey Instrument

Customer data:

- Opportunity Name
- Opportunity ID
- Account ID
- Region
- Shipping State/Province
- Market Segment
- Segment
- CFL Region
- Contract End Date

Customer Value:

- Prior Annual Contract Value
- License Renewal Status
- Auto Renewal y/n
- Opportunity Owner
- Prior Renewal Term
- Prior Contract Term
- # Licenses

Renewal Actions:

- Forecast Category
- Forecasted ACV Change \$
- Primary Competitor Contract Term
- EWS Usage License Utilization
- True Login Percent
- Next Steps
- Close Date
- Manager Notes
- Next Steps

Renewal Outcome:

- Renewal Stage

Outcome History:

- Reason for License/ACV Change (RFL)
- Reason Detail (RFL Sub-Reasons)
- Locked Employees
- 30 Day Extension

Appendix 2: Phase 2 –Survey Template Draft Design

1. Value

- a. Why subscriber did/ did not perceive value from service?
- b. How important was value to the subscriber?
- c. How subscriber quantifies value?
- d. Describe an event highlighting lack of/ insufficient value
- e. How could service have delivered sufficient value levels?

2. Trust

- a. Why subscriber did/ did not perceive trust from service?
- b. How important was trust to the subscriber?
- c. How subscriber quantifies trust?
- d. Describe an event highlighting lack of trust
- e. How could service have delivered sufficient trust levels?

3. Quality

- a. Why subscriber did/ did not perceive quality from service?
- b. How important was quality to the subscriber?
- c. How subscriber quantifies quality?
- d. Describe an event highlighting lack of quality
- e. How could service have delivered sufficient quality levels?

4. Loyalty

- a. Why subscriber did/ did not perceive loyalty from service?
- b. How important was loyalty to the subscriber?
- c. How subscriber quantifies loyalty?
- d. Describe an event highlighting lack of loyalty
- e. How could service have demonstrated sufficient loyalty levels?

5. Adoption

- a. Why subscriber did/ did not adopt the service?
- b. How important was adoption to the subscriber?
- c. How subscriber quantifies adoption?
- d. Describe an event highlighting non-adoption

- e. How could service have encouraged adoption by the subscriber?

6. Satisfaction

- a. Why subscriber was/ was not satisfied with the service?
- b. How important was satisfaction to the subscriber?
- c. How subscriber quantifies satisfaction?
- d. Describe an event highlighting lack of satisfaction
- e. How could service have delivered sufficient satisfaction levels?

7. Overall

- a. What did the subscriber like best about the service?
- b. What did the subscriber like least about the service?
- c. Why did they subscribe in the first instance?

Appendix 3: Analysis of Shortcomings in the existing RFL data codes.

- Self- inflicted, Lack of Customer Focus:
 - Price Concession
 - Limited Life (LL)
 - Oversold
 - Business Practices
 - LL - Licenses Sold Wrong Product
 - Product Price Change
 - LL – Support
 - New Corporation Price Established
 - Reverse License Ramp
 - Lack of Sponsorship
 - Bug/Product instability
 - Billing Frequency
 - Term Extension
 - LL - Data Pricing
 - Tier achievement
 - Multi-year Price Ramp
 - LL - Sandbox
- Self- inflicted, Poor Internal Policies:
 - Contract Transfer to Reseller
 - Transfer of Users
 - Management Change
 - Sales Process or Contract Terms
 - Product no longer Matches Needs
 - Consulting, Services, Support
 - Merger and Acquisition Corporate (M&A Corp) Pricing
 - Partner Dissatisfaction New Security Policies Analyst influence
 - Renewing Short Term Contract Foreign Exchange
- Non-addressable:
 - M&A Corp Standard
 - Suspended

- Reduction in Force (RIF)
 - Out of Business Unsuccessful Pilot Competitive Risk
- Addressable:
 - Unused Licenses
 - Low TLP
 - Light Functional use
 - High Usage limited business value
 - Never Deployed

PAPER 3

PREFACE

The primary purpose of this paper is to finalise the research design and complete both the phase one research findings and the phase two data collection protocol. As the input into phase one, the dataset provided included real attrition data offered by customers of the Cloud SaaS company who had either fully attrited or reduced their Cloud Software as a Service offering in the previous year. Providing information on actual performance, this data was then used in the first of two phases of the research study as the basis for analysing the real world subscription habits of the Cloud Computing SaaS subscriber. Building on the outputs from phase one, the second phase of the study used this data input as a focal point for the analysis of the revenue attrition risks inherent in the SaaS business, specifically in the Business to Business space. The patterns and trends from the initial dataset allowed me to segment the Reason for Loss (RFL) groupings into two distinct sets of objective, or hard RFLs, and subjective, or soft, groupings. These patterns told me that this approach will allow the Cloud SaaS service provider to build awareness, and commercial exploitation, of these trends into their business models and attrition management strategies.

Reflecting on the research approach, a standout concern of mine leading into the data collection was that of my dual role of researcher and practitioner. On a day-to-day basis my practitioner role means that I have constant involvement with the management and delivery of a substantial Cloud Computing SaaS renewal portfolio, including the forecasting and attempted minimisation of attrition against that portfolio. Being this close to both the area of research and the Cloud Computing subscription renewals cohort from which the research dataset was drawn meant that I had to be particularly careful to separate and manage the conflict between the two roles (Zeni, 2001). Being this close to the subject under research means that there is always the possibility of the study taking on an ethnographical approach to the research (Van Maannen, 2011), where I, as an insider researcher, could become part of the story. This was something that I was particularly anxious to avoid. In the same way as Connelly and Clandinin (1990) see the tendency of the researcher becoming part of the answer, I consciously took a number of steps to protect myself from these dual role risks.

From its first availability, I was careful to ensure the input dataset presented no previous relationships or biases. Guided by Clark (2006), I took early steps to ensure that the

dataset was presented in an anonymous fashion, with all customer details/ identification markers removed from the cohort to be analysed. I also had the separate concern of how to reach out to those subscribers who might be asked to participate in a more in-depth way at the second interview phase. I was working with company collated renewal performance data in pursuit of my first two research objectives: (1) to examine the existing software distribution and revenue models and assess their applicability to CC SaaS provision, and (2) to identify the drivers, risk factors and subscription renewal influences in CC SaaS B2B renewals.

In phase two, I was in pursuit of objectives three and four: to explore the reasons why customers renew, reduce or attrit their software as a service, or CC subscription services, and to analyse the renewal criteria applied by B2B clientele. In this phase, my research was also focused on what each respondent had personally experienced. My concern was that, wearing my dual role badges, if I were to contact those randomly selected, then the feedback the respondents might provide me through the interview process could be biased through the respondent using it as either an opportunity to influence the research or to inform that Cloud SaaS provider around some commercial unhappiness. This dual role conflict is well documented in the literature and although a valid concern, there was sufficient support (Coghlan and Brannick, 2010) for this being an acceptable and safe research approach once the risks are acknowledged early on by the researcher and steps are taken to mitigate them. Following discussion with my supervisor, I planned to mitigate this risk through using an executive assistant as a proxy to make the initial contact with the randomly selected customers and offering the intended participants the opportunity to participate, or not, in the doctoral research study without influence from myself. For those who agreed to participate, each would be presented with detailed terms of reference fully setting out the background to the study, including the researcher's role with the Cloud Computing company (see appendix 3, paper 4).

From my early reviews of the literature (Bryman, 2006; Merriam, 2002; Strauss and Corbin, 1990) my initial thoughts on the data collection protocol design were that this data would be best collected through the use of an online survey (Taylor, 2000), as documented in paper 2. My logic for this was the cohort – online SaaS subscribers – are comfortable with this type of remote, connected, access and, as such, could be expected to be open and comfortable to interacting with this as a data collection protocol. However, on mature reflection, and guided particularly by Bryman (2006) I

was concerned that this would provide too shallow an interaction to expose the subjective data I was seeking to unearth (Janesick, 2002). By their nature, subjective beliefs are deep and influenced (Dodds and Monroe, 1985) so to really feel their influences I came to realise that a direct conversation was a more appropriate data collection vehicle (Benbasat et al. 1987; Janesick, 2002). As such, instead, I sought to interview individuals selected randomly from the subset identified in phase one of the research study once I contemplated the appropriateness of this approach.

As well as the analysis of the phase one findings, the other major contribution from the forthcoming paper was the design of the second, detailed interview, research phase which was seeking to understand the customer decision process, not just the numbers that report and measure this decision. The real world attrition data is measured through ‘after the fact’ exit interactions, so the quantitative statistics are well captured and reportable, offering a baseline database as applied in this research study. But these hard data points are only part of the picture in that they don’t identify the influences that informed the attrition decision in all cases. Some are clearly objectively driven by factors like price but others are much more subjectively influenced, like the subscribers’ perception of a lack of trust or of a service dissatisfaction. To fail to adequately research these subjective drivers would have left a significant shortfall in the research and, I believe, a much weaker set of findings on which to base the research’s practical contribution to practice. The development of the interview template is the core of paper three in terms of what questions it should ask and how it should be constructed and now I can see that the open-ended survey of Taylor (2000), as reviewed and proposed in paper 2, would have struggled to prompt the depth of response necessary to allow for the rich description which Bryman (2006) correctly urges the qualitative researcher to seek.

References

- Benbasat, I., Goldstein, D.K., Mead, M., 1987. "The case research strategy in studies of information systems", *MIS Quarterly*, Sept., 369-386.
- Bryman, A. 2006. "Integrating quantitative and qualitative research: how is it done?." *Qualitative Research* 6(1), 97-113.
- Clark, A. 2006 "Anonymising research data." NCRM Working Paper. ESRC National Centre for Research Methods. (Unpublished)
- Coghlan, D. and Brannick, T. 2010. *Doing Action Research in Your Own Organization*, (3rd ed.), London: Sage.
- Connelly, F. M. and Clandinin, D.J. 1990. "Stories of experience and narrative inquiry." *Educational Researcher*, 19(5), 2-14.
- Dodds, W.B. and Kent B.M. 1985. "The effect of brand and price information on subjective product evaluations." *Advances in Consumer Research*, 12(1), 85-90.
- Janesick, V.J., 2002. "The choreography of qualitative research design". In: *Strategies of qualitative research* (2nd ed.), Denzin, N.K. and Lincoln, Y.S. (eds), CA, Sage Publications.
- Merriam, S.B. 2002. "Introduction to qualitative research." *Qualitative Research in Practice: Examples for Discussion and Analysis*, 1, 1-17.
- Strauss, A. and Corbin, J.M. 1990 *Basics of qualitative research: Grounded theory procedures and techniques*. U.K., Sage Publications Inc.
- Taylor, H. 2000. "Does Internet research work?" *International Journal of Market Research*, 42(1), 51-64.
- Van Maanen, J. 2011. *Tales of the field: On writing ethnography*. Chicago, University of Chicago Press.
- Zeni, J. 2001. *Ethical Issues in Practitioner Research*. Practitioner Inquiry Series. Teachers College Press, Williston, VT.

Paper 3: Research Design and Phase One Findings

Exploring a Business to Business Recurring Revenue Framework for the Delivery of Software as a Service through a Cloud Computing Channel

Paper 3 – Research Design and Phase One Findings
DBA Cumulative Paper Series
Waterford Institute of Technology
October 4th 2014

Author: David Dempsey, DBA Candidate, WIT
Email: ddempsey@salesforce.com
Supervisor: Dr Felicity Kelliher, School of Business, WIT

Examination Panel Result: Recommended

ABSTRACT

Cloud Computing is creating a new paradigm for the distribution of computer software applications. Within this context Cloud Computing enabled Software as a Service (SaaS) fundamentally changes the revenue expectations and business model for the application software industry. In this new world securing the SaaS subscription renewal is critical to the survival and prosperity of the Cloud SaaS business. This study seeks to examine the drivers behind the Business-to-Business (B2B) SaaS subscription attrition decision and, in doing so, to explore the recurring revenue framework for the Cloud SaaS business. The aim of this paper is to present the research design, phase one research findings and phase two data collection protocol, which will be applied in this study. The phase one data set acts as the basis for the analysis of the attrition subscription habits of a subset of the renewals cohort of the subscriber base for a leading Cloud Computing software company. Phase two of the study will focus on the revenue attrition risks inherent in the B2B SaaS business model. Any patterns or trends in the data will allow the Cloud SaaS service provider to build awareness, and commercial exploitation, of these trends into their business model and planning strategy.

Keywords:

Cloud Computing, Software as a Service, SaaS, Recurring Revenue, Attrition, B2B

INTRODUCTION

The provision of a single utility platform on which business applications can be easily built, rolled out and maintained is a key part of Cloud Computing (Vaquero et al. 2008; Buyya et al. 2009) and its provision by companies has allowed the rapid growth of the existing Cloud market (Linthicum, 2010). The Cloud Computing (CC) enabled software as a service (SaaS) model has created a new paradigm for the distribution of computer software applications and service (Skilton and Director, 2010), with revenue now typically flowing to the industry on a subscription basis after the delivery of the application service (Osterwalder and Yves, 2010). This represents a switchover from traditional software sales models, with their expectation of significant initial licence fees followed by predictable on-going support and maintenance revenue (Fan et al. 2009) to the new CC SaaS business model (Skilton and Director, 2010) which will see the revenue stream change completely to where the software is licenced and paid for on a subscription basis. This research considers the revenue expectation of the CC industry and its dependency on renewal subscriptions (Skilton and Director, 2010; Turner et al. 2003), while the study will focus on SaaS in the Business-to-Business (B2B) domain, delivered through the CC channel.

The implications of this change for the traditional software industry are very significant (Meeker, 2009). Altering how software purchasers acquire and fund their software licences means that many existing industry incumbents will be faced with Christensen's (2013) dilemma in their need to innovate quickly while facing massive disruption to their existing marketplace. For the software end user it also delivers a new democratisation whereby the levels of software application functionality previously only offered on a perpetual license basis, at a price point beyond the reach of many Small and Medium Enterprises (SMEs), are now made available on a pay as consumed monthly rental basis, affordable by all. As Armburst et al (2009) point out, this means that the business advantage these software applications can give now becomes available to all, rather than only to those businesses with the biggest budgets.

This paper focuses on the research design and initial findings relating to phase one of a two-phased research study. The phase one distillation of the data set acts as the basis for the analysis of the attrition habits of a subset of the renewals cohort of the subscriber

base for a leading Cloud Computing software company. Phase two of the study will focus on the revenue attrition risks inherent in the B2B SaaS business model (Fader and Hardie, 2007). Any patterns or trends in the data will allow the Cloud SaaS service provider to build awareness, and commercial exploitation, of these trends into their business model and planning strategy. Therefore, the researcher begins with an overview of the research design before contemplating the development and application of the research instrument for each phase of the project.

RESEARCH DESIGN

As Tull and Hawkins (1993) bluntly put it, unless the two questions “what is the purpose of this study?” and “what are the objectives of this research?” are clearly answered at the very outset, the study is likely to be poorly directed and likely to address confused and obscure goals. Therefore, the first step of the research process required the precise definition of the problem which the research is seeking to understand (Sekaran, 2003). In this instance, the research question is: What is the B2B recurring revenue framework for the delivery of SaaS through a Cloud Computing channel? Of note is that any significant attrition, i.e. cancellation or reduction of the service, can have a significant impact on the financial viability of the business (Burez and van den Poel, 2007; Khajvand and Mohammad, 2011). Therefore, there are two clear research problems to be investigated. The first is that little clear data exists on identifying the unique characteristics which influence the SaaS subscription renewal decision (Burez and van den Poel, 2007). The second is that no literature exists, to the best of the author’s knowledge, on the subjective influences which inform that decision. This is despite calls for research in this area since the 1970s (Monroe, 1973). Pursuit of subjective influences on the attrition/ renewal decision form the basis of the research objectives (Aaker and Day, 1990) which set out the statement of the information required to be collected as:

- 1) Examine the existing software distribution and revenue models and assess their applicability to CC SaaS provision;
- 2) Identify the drivers, risk factors and subscription attrition influences in CC SaaS B2B renewals;
- 3) Explore the subjective reasons why customers reduce or attrit their software as a service, or CC subscription services;

- 4) Analyse the attrition criteria applied by B2B clientele;
- 5) Propose a B2B recurring revenue framework for delivery of SaaS through a CC channel.

Brannick and Roche (1997) state that the research process “provides a systematic, planned approach to a research project and ensures all steps of the project are consistent with each other”. Therefore, having developed an understanding of the existing software distribution and revenue models and considered their applicability to CC SaaS provision (Dempsey, 2013), the purpose of phase 1 is the pursuit of research objective two. Having established the relevant research question and objectives, the researcher sought a specific ‘action plan’ (Yin, 2008), for controlling the study’s data collection and obtaining conclusions pertaining to these research questions, so as to avoid data accuracy problems later. This plan or framework is called the research design (Yin, 2008; Kelliher, 2011) and its primary function is to ensure that the required data is collected and collated both accurately and economically. The research design in this study pursues a two-phased process, within which both qualitative and quantitative methods of exploration are examined as part of the research design and delivery process (Flick, 2002).

In Phase 1, the researcher studied a pre-existing database of attrition ‘exit reasons’ from over 10,000 Cloud SaaS customers, collected by a company acknowledged by Gartner Inc. (2013) as the market leader in the global Cloud Sales and Service market. The raw data was then collated by the researcher (table 3.1).

Table 3.1: Raw Input Dataset Fields

Customer data	Customer Value	Renewal Actions	Renewal Outcome
Opportunity Name	Prior Annual	Forecast Category	<ul style="list-style-type: none"> Reason for License/ACV Change (RFL) Reason Detail (RFL Sub-Reasons) Locked Employees 30 Day Extension
Opportunity ID	Contract Value	Forecasted ACV	
Account ID	License Renewal	Change \$	
Region	Status	Primary	
Shipping	Auto Renewal y/n	Competitor	
State/Province	Opportunity Owner	Contract Term	
Market Segment	Prior Renewal	EWS Usage	
Segment	Term	License Utilization	
CFL Region	Prior Contract	True Login Percent	
Contract End Date	Term	Next Steps	
	# Licenses	Close Date	
		Manager Notes	

Based on the attrition categorisations identified in table 3.1, the researcher selected a subset of the attrition/ renewal data for deeper qualitative analysis of the drivers and reasoning behind the attrition or renewal decision (phase 2) in pursuit of research objectives three and four, and ultimately, the research question.

Design of the Research Instrument and the Data Collection Protocol

Creation of the research instrument is approached from two different paradigms, as supported by Gioia and Pitre (1990). The first is a quantitative view, which takes as its variables the attrition reason codes captured from the existing data sample (table 3.1) while the other offers a qualitative view, which will look at the more subjective reasons driving those decisions. Therefore, the initial phase of this research study involved desk-based analysis of CC SaaS renewal/ attrition customer exit data, while the exploration of the influencing factors when attriting a contract will follow this process via a follow-up open-ended data collection cycle (phase 2), targeting randomly selected customers from the cohort identified in phase 1. Having established the primary research question, the resultant objectives and the research design ethos, the researcher

prepared for data collection by developing a research protocol as recommended by Ivankova et al (2006)

Phase One: Database Collation and Analysis

Having gained access to a pre-existing database of attrition and renewal exit reasons from over 10,000 Cloud SaaS customers and considered the raw dataset fields (table 3.1), the researcher sought an appropriate approach to distil the data in order to identify those customers relating to the research objectives. When considering this process, the researcher took guidance from Weiss and Indurkha (1998), who set out that data mining allows a search for valuable information in large volumes of data. Liao, Chu and Hsiao (2012) list the major kinds of data mining techniques to include generalisation, classification and clustering, although this was not the optimum approach in this study. As an alternate to this formal, technical approach to data mining, Ngai, Xiu and Chau (2008) cite analytical customer relationship management (CRM) as the basis for identifying customer characteristics and behaviours, so as to support an organisation's customer management strategies, while Miles and Huberman (1994) describe data reduction as a form of analysis which sharpens, sorts, focuses, discards and organises data in such a way that final conclusions can be drawn and verified. In different ways, each of these latter approaches is applicable to this research undertaking and the pursuit of the research objectives, thus a combination has been applied in context.

It should be noted that while this dataset was gathered at the time of each consumer renewal / attrition decision relating to this company, the data collection instrument was not designed by the researcher. However, as this instrument is focused on the attrition/renewal influencing factors (appendix 1) that equate to the comparative exercise carried out on the taxonomy criteria established earlier in the research cycle (appendix 2), it is sufficiently close in its design to the research question and objectives to be of value in this study. Thus, the researcher examined the dataset in light of the current research question. Notably, the refined interview themes presented in this paper acknowledge specific criteria relating to loyalty and quality of service/ previous performance:

- Loyalty
 - Predictor of customer churn (Kim et al. 2004)
 - Deeply held commitment to rebuy (Oliver and Bearden, 1985)

- 'More important customer consideration than even price' (Reichheld and Schefter, 2000)
 - 'What I do' versus 'what I feel' (Morgan, 2000)
 - Key supplier side renewal influence (Zineldin, 2006)
- Quality of Service/ Previous Performance (Verhoef, 2003)
 - Objectively measured through product RFLs

As highlighted in Dempsey (2014) and discussed in Weiss and Indurkha (1998) and Liao et al.'s (2012) work, an initial desk based sampling reduction of the qualitative renewals data should provide a random sample, which will support meaningful extraction of data patterns (Ritchie and Spencer, 2002) and identify renewal themes in pursuit of the research question and objectives. As the pertinent database contained highly sensitive commercial data, which is not publically available, the first step was to remove all renewal performance and customer identification from the data provided. This was quite a formalised approach, predetermined by the research data (Hair et al. 2000) and thus afforded the listed customers and the participating company anonymity (Denscombe, 2010).

Based on the premise that the attrition or renewal decision in one segment of the database will have fundamentally different objectives and subjective judgements from the attrition or renewal decision in another, the researcher focused on the lower mid-market segment of the subscription base, specifically customers with an Annual Contract Value (ACV) of between \$25,000 and \$100,000 (step 2) and with a US based billing address (step 3). This distillation process, as recommended by Miles and Huberman (1994) resulted in a reduction in the initial dataset of over 10,000 customers down to a sample specific attriting customer subset of 4,159 separate customer accounts (step 3). The phase one data distillation process is summarised in table 3.2.

Table 3.2: Phase 1 Data Distillation Process

Stage	Description	Customer records
1.	Remove commercially sensitive information from the dataset	10,000+
2.	Reduce the annual attrition data down to identify only those customers where Annual Contract Value (ACV) is in the range of \$25k - \$100k	6,573
3.	Select only those attriting/ reducing customers located with the US business geography	4,159

Following the data refinement process detailed in table 3.2, the data, as it related to the identified subset (US-based, AVC \$25,000 - \$100,000), was collated based on the company provided ‘Reasons for Loss’ (RFL) data (appendix 1). The data headings (appendix 2) were examined to ensure that the RFL labels were consistent across the targeted customer records (table 3.3).

Table 3.3: Reasons For Loss (RFL)

Soft/ Subjective	Hard/ Objective	Non-addressable
<i>Usage/Value</i> <ul style="list-style-type: none"> • Never Deployed • Unused Licenses • Light Functional use • Low True Login Percentage • High Usage limited business value • Sales Process or Contract Terms • Poor perceived value • Partner Dissatisfaction <i>Trust/ Satisfaction</i> <ul style="list-style-type: none"> • Transfer to Reseller • Management Change • Competitive Risk • Lack of Sponsorship • Analyst influence 	<ul style="list-style-type: none"> • Price Concession • Limited Life (LL) • Oversold • Business Practices • Limited Life Licenses • Sold Wrong Product • Product Price Change • Limited Life Support • New Corporation Price Established • Reverse License Ramp • Bug/Product instability • Billing Frequency • Term Extension • Limited Life Pricing • Tier achievement • Multi-year Price Ramp • Transfer of Users • Product no longer Matches Needs • Consulting, Services, Support • Unsuccessful Pilot • New Security Policies • Renewing Short Term Contract • Foreign Exchange 	<ul style="list-style-type: none"> • Out of Business • Suspended • Reduction in Force (RIF) • Merger and Acquisition • Corporate Standard • Corporate Pricing

Although time consuming, this process provided a cluster (Liao et al. 2012) as a basis for analysis in phase two of the research study. These RFLs were further segmented into two distinct categories – those influenced by ‘hard’ or objective RFLs and those influenced by ‘soft’ or subjective RFLs, as set out in table 3.4 below.

Table 3.4: Reason for Attrition Dataset

Reason for Loss (RFL Code)	Number of Attritions	Percentage of Total	Hard/ Soft	Phase 2 inclusion
Usage/ Value	1068	26%	Soft	Include
Price Concessions	545	13%	Hard	Exclude
Data*	586	14%	Hard	Exclude
Economic/ Bad Debt	378	10%	Hard	Exclude
Failed Implementation	8	0%	Hard	Exclude
ISV (Partner) Failure	410	10%	Hard	Exclude
Trust/ Satisfaction	273	7%	Soft	Include
Product	7	0%	Hard	Exclude
Self-inflicted	598	14%	Hard	Exclude
Uncategorised/ No Reason	286	6%	N/A	Exclude
Total:	4,159	100%		

* Data cleansing product, with inherently lower propensity to renew

The attritions influenced by the hard RFLs are by their nature non-subjective, in that the decision to renew or attrit is based objectively on a hard, quantifiable measure such as performance against a price point. These RFLs are compared with the rationale behind the soft, subjective measures, in which the customer would look at the same price point data not as a binary objective decision, but through the more subjective lens of the perception of value. This data reduction step resulted in 2,818 attrition customer records that were classified as being driven by hard RFLs and the remaining 1,341 records driven by soft RFLs.

Having analysed the data collected from the pre-existing historic company renewals and attrition RFL data (appendix 1), the researcher focused on the subjective criteria relating to attrition and renewal (highlighted in bold/ red in table 3.4). This data subset is more subjective, softer and open to interpretation through the themes of perceptions of value, usage, trust and satisfaction with, and of, the SaaS service supplier. These are attributes which were not initially obvious to the researcher, but which were exposed through the analysis and study of the data produced from Phase 1. For this subjective subset to be explored successfully in pursuit of the latter research objectives, the intent behind the soft RFLs will require a more thorough qualitative analysis using the existing RFL groupings (appendix 2). Therefore, the researcher will seek to engage with a representative of this subscriber subset through the completion of detailed semi-structured interviews in phase 2 of study. In order to pursue a fair representative from this cohort of 1,341 customers, this soft RFL grouping will be used as the dataset input for the randomisation process in preparation for phase 2 of the research study.

Random selection of phase 2 participants

The researcher must understand the core phenomena being investigated in order to choose the most appropriate individuals to interview (Marshall and Rossman, 2010). Objectives three and four of this research study seek to: Explore the subjective reasons why customers reduce or attrit their software as a service, or CC subscription services, and analyse the attrition criteria applied by B2B clientele. Therefore, phase 1 reduced the data sample from over 10,000 clients to 1,341 individual customer attrition records, as the particular subgroup of interest to this study (Miles and Huberman, 1994). Having defined the unit of analysis (individual customers' reasons for attrition), the sampling strategy became important, as conducting qualitative research involves small samples, which are studied in-depth (Miles and Huberman, 1994; Creswell, 2007).

As this cohort of 1,341 customers illustrates characteristics of the particular subgroup of interest thereby "facilitating comparisons" (Miles and Huberman, 1994, p. 28), the stratified purposeful approach to sampling has been applied in this case. Eisenhardt (1989) sets out that for an acceptable and representative research undertaking, units of analysis should be added until such time as theoretical saturation is reached. In this study, the researcher ventures that up to 20 interviewees are the optimal number, although the ultimate number may be more or less; therefore interviewees' will be

added one or two at a time until saturation is reached (Eisenhardt, 1989). As such, every 67th customer will be contacted in the first instance and asked to participate in phase two of the study, as this number equates to a random selection of 20 interviewees from the 1,341 subset identified in phase 1 of the study.

Refinement of the Phase Two Instrument Design

The purpose of phase two is to allow the researcher to explore different dimensions of the customer/ respondent's experiences (Sproull, 2002) and to elicit the detailed subjective reasoning behind the SaaS attrition decision. Initially, it was anticipated that the researcher would develop an open-ended survey instrument (Erickson and Kaplan, 2000). However, following phase 1 data collection and analysis, the initial survey proposal (Dempsey, 2014) has been revisited to reflect these findings. Specifically, the researcher has concluded that use of a more in-depth semi-structured interview instrument would produce more meaningful insights due to the loosely structured nature of the interview (Sekaran, 2003) and thus help "accumulate sufficient knowledge to lead to understanding" (Lincoln and Guba, 1985) than would have been possible through the proposed open-ended survey.

As an interview is "a purposeful discussion between two or more people" (Saunders et al. 2003), phase 2 is no longer about numbers, rather it is about the insights gained from customers regarding an understanding of their decision process to leave or renew an SaaS contract. Therefore, the use of the semi-structured interview will allow the researcher to carry out 'real world' research in an inductive and iterative manner (Bryman and Bell, 2011) and in doing so, get to know the participants and gain knowledge of their experiences (Lincoln and Guba, 1985; Creswell, 2007), while allowing the respondent to provide details of the experience in their own words (Jackson and Trochim, 2002). The researcher will therefore use the groupings of the company RFLs (Tables 3.3 and 3.4) and RFL Data Codes (appendix 1) driving the SaaS subscription non-renewal, or partial attrition, to inform the design of a series of interview themes and inherent questions (table 3.5 below).

Table 3.5: Phase 2 Semi-Structured Interview Themes

1. Usage/ Value	2. Trust/ Satisfaction
a. Never Deployed	a. Trust
b. Unused Licenses	b. Transfer to Reseller
c. Light Functional use	c. Management Change
d. Low True Login Percentage	d. Competitive Risk
e. High Usage limited business value	e. Lack of Sponsorship
f. Sales Process or Contract Terms	f. Analyst influence
g. Poor perceived value	
h. Partner Dissatisfaction	

[The template questions are listed in detail at appendix 3].

The literature review allowed for a number of key themes to be derived and for a series of prompts to be compiled in advance in the form of an interview guide (Saunders et al. 2003). Specifically, the interview questions or prompts are grouped around themes identified as being influenced through the soft RFLs which emerged from the phase 1 data analysis (table 3.3 above) with the themes, prompts and questions structured so as to allow the respondents to provide open, rich descriptions of their experience ‘in their own words’ (Creswell, 2007; Pettigrew, 1990). From the phase 1 data, set out at tables 3.3 and 3.4, and the raw data RFL Data Codes set out at appendix 1, the interview template is structured around the themes in table 3.5. These themes reflect literary findings relating to each theme, and the likely impact the theme has on a customer’s decision to renew or attrit (Table 3.6).

Table 3.6: Literary insights relating to phase 2 interview themes

Usage/ Value	Trust/ Satisfaction
‘Learnt by customers’ (Niculescu and Wu, 2011)	Crucial for acceptance of cloud (Weinhardt et al. 2009)
Changes after sampling (Heiman and Muller, 1996)	Trust is subjective (He et al. 2004)
‘Value perception’ (Dick et al. 1995)	Most prominent influence on customer relationship (Morgan and Hunt, 1994)
Good predictor of switching and attrition (Chen and Hitt, 2002)	Antecedent of satisfaction and commitment (Verhoef, 2003)
‘Disconfirmation of expectations’ (Oliver and Bearden, 1985)	Satisfaction drives customer retention (Bolton et al. 2000)
Helps identify potential attrition issues (McLauchlin, 2010)	Satisfaction is an ‘emotional state’ (Verhoef, 2003)

The researcher used the groupings of the company RFLs (table 3.3), the literary insights relating to these themes (table 3.6) and RFL Data Codes (appendix 1) driving the SaaS subscription non-renewal, or partial attrition, to inform the design of a semi-structured interview template (table 3.5 and appendix 3). Specifically, the interview questions are grouped around themes identified as being influenced through the soft RFLs, which emerged from the literature review in the first instance, and were refined through phase 1 data analysis; with the themes, prompts and questions structured so as to allow the respondents to provide open, rich descriptions of their renewal experience ‘in their own words’ (Jackson and Trochim, 2002). Each theme has been shaped to guide the researcher through the data collection process to date (Miles and Huberman, 1994).

Interview Themes:

Niculescu and Wu (2011) categorise digital goods as being ‘experience’ goods whose value is learnt by customers. Heiman and Muller (1996) establish that customers change their prior (views) on the product value after sampling it. Therefore, the RFL data from the input dataset includes measures on attrition influenced and driven by the value perception change (Dick, Jain and Richardson, 1995). Value is a soft, subjective, judgement (Table 3.3) and will therefore be included as an interview theme (tables 3.5 and 3.6).

Combined with value, the reason for attrition input dataset (table 3.3) cites ‘usage’ as a major sectional theme for the RFL trends. Usage, or adoption, of the SaaS service provided are what Chen and Hitt (2002) call ‘good predictors of switching and attrition’. From the input RFLs (appendix 1) usage/ adoption and value account for 26% of the attrition recorded (table 3.4 above) but the reasons provided for the lack of use do not lend themselves to easy quantification. While McLauchlin (2010) found that leveraging customer usage analytics helps identify potential attrition issues, simply quantifying the values recorded contributes little to the reasons why the usage/ adoption is low. Is this low usage driven by the ‘disconfirmation of expectations’ (Oliver and Bearden, 1985) or the stochastic approach to customer retention outlined by Lilien et al. (1992)? The attriting users’ perspective is the key to unlocking this mystery and this theme is therefore incorporated into the interview schedule.

Weinhardt et al. (2009) believe that trust is a crucial point for the acceptance of cloud technologies by business. However, as He et al. (2004) point out, trust is regarded as subjective by many researchers and measuring trust has become an important question, one which they believe is not appropriate to quantify by deterministic values. The attrition dataset cites trust as one of the RFLs put forward as a driver of the attrition experienced (table 3.3) and, for this reason, it is important that its influences and impact on usage/ adoption and perceived value be teased out and recorded as part of the interview process. The view of Morgan and Hunt (1994) and Rust, Zeithami and Lemon (2000) that trust is amongst the most prominent influences on a customer’s relationship perception is countered by Verhoef (2003), who sees it as an antecedent of satisfaction and commitment. However, both agree trust is impactful on the customer decision, which, when combined with trust being recorded as a valid RFL in the input dataset, makes it another theme worthy of deeper exploration at the Phase 2 interview stage.

As ‘(dis)satisfaction’ relates to customer retention and customer share development, it is also included in the interview schedule. Satisfaction is defined by Verhoef (2003) as the emotional state which occurs from a customer interaction with a subscription or service over time. Equally, dissatisfaction is another of the RFLs recorded in the input dataset, also relating to customer interaction with a subscription or service over time. Bolton, Kannan and Bramlett (2000) believe that satisfaction drives customer retention (and that dissatisfaction leads to attrition) but the measure of emotion driving this RFL attrition

decision is subjective and, as such, it merits deeper investigation through the interview process, using the adoption/ value theme as a catalyst in context.

Much has been made of loyalty as a predictor of customer churn (Kim, Park and Jeong, 2004). Morwitz and Fitzsimons (2004) and Zineldin (2006) champion loyalty and earned brand commitment as key supplier side renewal influences, a factor which Oliver and Bearden (1985) define as a ‘deeply held commitment to rebuy’. While this might lead to the expectation that loyalty, or the lack of it, would manifest as a recorded Reason for Loss, its absence from the input dataset contradicts Reichheld and Schefter’s (2000) argument that loyalty is a more important customer consideration than even price. Yet, the fact that loyalty is not showing in the RFL’s proffered by the attriting customers (appendix 1) is one of interest within this study. Perhaps Morgan’s (2000) suggestion that loyalty might be measured as the objective behavioral loyalty of ‘what I do’ rather than the subjective loyalty of ‘what I feel’ is the appropriate defense, if one is needed, of the Dempsey (2013) inclusion of the theme in the SaaS Revenue Renewal Taxonomy (appendix 2). Equally so, loyalty is a theme incorporated into the interview schedule.

Also of note in building the interview themes is that the perception of Previous Performance and Quality of Service opined by Verhoef (2003) in the Renewal Taxonomy at Appendix 1 did not manifest itself as a valid RFL in the phase 1 output dataset. As no such measures, either objective or subjective, were highlighted by the data output; this research topic, which might be expected from the taxonomy, was excluded from exploration in the phase 2 interview schedule.

The research goal is for the interview template to guide discussions with the randomly selected subscribers on their perception of the service offerings and to afford the researcher an understanding of the qualitative drivers behind their attrition decisions (Saunders et al. 2003; Remenyi et al. 2005). In doing so, it is expected to provide the researcher with a rich overview of the subjective criteria influencing the non-renewal decision, creating what the researcher believes will be a unique and significant contribution to the understanding of the factors impacting the robustness of the SaaS Cloud Computing subscription model (Sosinsky, 2010).

Interview Process

As the research objectives are exploratory in nature (Marshall and Rossman, 2010), the proposed semi-structured interviews make it possible for the person being interviewed to bring the interviewer into his or her world (Creswell, 2007). For this phase of the research, up to twenty selected interviews will be carried out over two stages. The first stage of phase two will be to engage the themes set out in Table 3.4 with up to five interviewees. This will allow the researcher to refine the interview template (table 3.4) in conjunction with the second stage, applying the refined interview themes for the final set of up to fifteen interviews. In keeping with the guidance of Bryman and Bell (2011), the data collected from the initial five interviews will be excluded from the final research data and findings. Initial studies of this nature are an important part of any research endeavour as they act as a “... testing ground for both substantive and methodological issues, and can help the researchers develop more relevant lines of questioning” (Remenyi et al. 2005, p. 174), as is the goal in this study.

It is intended that the initial interviews will be conducted over October/ November 2014, with the analysis of these interviews being used to drive a refinement of the template. The enhanced template will be utilised for the remaining interviews during December/ January 2015. The primary choice is that the interviews will take place face to face. By placing people in their social contexts in this research study, there is greater opportunity to understand the perceptions they have of their own activities (Hussey and Hussey, 1997), which in this study relates to their renewal decision cycle. Where a face to face interview is not feasible, the researcher will propose an alternative of remote video-conference. For either face to face or video-conference it is planned to conduct all interviews on a one to one basis, with up to one hour of the interviewee’s time being requested in each case.

It will be necessary to transcribe, correct, extend and revise the field interviews and notes and to code, memo and link key words, data segments and reflective commentaries from the interview sequences (Miles and Huberman, 1994). This will be completed from October 2014 (when the initial interview collection commences) through to January 2015 (when it ends). The interview process will output significant amounts of data and it is anticipated that each hour of interviewing will take approximately seven hours to transcribe (Janckowicz, 2000). The researcher proposes to

use the Nvivo software package to map and group the interview themes emerging from each stage of phase 2 of the research process.

Using Concept Mapping, the researcher will analyse the interview data to identify, group and attempt to explain the subjective attrition drivers. When combined with the phase one data segmentation process (Eisenhardt, 1989; Denzin, 1970), this offers what Jackson and Trochim (2002) describe as an alternative approach for the analysis of open-ended interview responses, one which will allow respondents to provide details of their subjective renewal drivers in their own words rather than in a potentially biased prescribed mapping format, thus preserving what Marshall and Rossman (2010) describe as the ‘humanity of the participants’ in the study.

Interviewer challenges: securing participation, preserving anonymity and addressing potential bias

The researcher acknowledges that it is unlikely that all potential interviewees contacted using the random sampling criteria set out above (every 67th customer listed on the refined database) will agree to be interviewed. It is proposed that if the 67th customer declines to participate, that the researcher contact the 66th and 68th customer in each case. At the beginning of each interview, the researcher will seek to address the challenge of anonymity and receive consent (or not) to record the interview (Denscombe, 2010). This approach will allow the researcher to concentrate on questioning and listening while allowing for quotation and re-listening when necessary (Saunders et al. 2003). Should consent for recording not be forthcoming, the researcher will take detailed field notes. Respondents will be assured that the information they provide will be treated in the strictest confidence and that they will remain anonymous in the resultant cumulative paper series and bound copy of the research in thesis form.

The researcher acknowledges that he may be accused of interviewer bias in that he is a shareholder and is currently employed by the company from which the original data was sourced. However, to address any potential accusation of interviewer bias, the interviewer will seek to remain objective throughout the research process and will be particularly mindful not to introduce his company position into the interviews. In an attempt to address respondent bias, the researcher will assure the interviewees at all times that the responses are solely for the purpose of this research study and that the findings will be

treated with the strictest confidence and, in particular, that these responses will not be put into the public domain other than as is necessary, and permitted, to allow this research to meet its academic purpose (Holstein and Gubrium, 1997).

Reflections on the proposed research approach

Paper 3 of this research series reveals how the researcher reflected on his own initial qualitative biases to come full circle in his view of the lens through which this research undertaking is best viewed. In Dempsey (2014), the researcher set out that his initial expectation was for this research project to be driven completely through a quantitative review of the available customer attrition dataset. As the researcher stepped through the research stages, the resultant reflections influenced a decision to challenge this initial perception bias (Husserl, 1965) concluding in line with the guidance of Noblitt and Hare (1988) that the research contribution to practice would come not just from a quantitative collation of the attrition trends but equally from identifying the subjective influences which might guide a customer to perceive that qualitative success, or value exists in the acquired CC SaaS solution, which would eventually manifest itself as a subscription renewal or attrition.

Equally, this next stage along the research journey has prompted the further reflection on how best to truly capture the subjective driver of being able to influence the subscription attrition decision (Burez and van den Poel, 2007). In doing so, it questioned the capacity of the open-ended survey expounded by Erickson and Kaplan (2000) to capture sufficient depth of subjective response to truly understand the behavioural influences that Childers and Rao (1992) believe are so important in guiding the ‘free will’ of the subscriber. Perhaps it needed something more than this, something that can only come from what Saunders et al. (2003) describe as “a purposeful discussion between two or more people”. For this reason the researcher believes the decision to conduct the collection and interpretation of the detailed, subjective, reasoning of the attriting SaaS subscription customer will best be served not through the on-line survey instrument encouraged by Jackson and Trochim (2002) and proposed in paper 2, but through the interview methodology championed so well by Brannick and Roche (1997), Saunders et al. (2003) and Denscombe (2010), among others; and adopted in this paper. This change, the researcher believes, both further enhances his personal research journey and at the same time delivers a more rigorous and in-depth set of data findings which can be offered to a SaaS Cloud subscription

marketplace dependent on such insights to build a robust and thoroughly tested business model.

CONCLUSION AND NEXT STEPS

This paper set out how this research project was undertaken in accordance with the guidelines laid down by recognised and respected empirical research practitioners. As described above, phase 1 data analysis contributed to the refinement of the applicable data and of the optimum approach to be taken in phase 2 of the research. It also considers the construction of the phase 2 research instrument. The next steps will be to conduct the face to face semi-structured interviews in two stages and transcribe and analyse the findings. Output from this analysis will be used to identify key trends in the attrition habits and drivers of customers of the SaaS industry. Once these trends have been identified and cross-validated, it is then proposed to finalise them in terms of the principal traits and characteristics of a subjectively influenced attrition decision and to use this collation as a basis through which the Cloud Computing application software subscription industry can measure the robustness and likely renewability of its software subscription service.

References

- Aaker, D. and Day, S.G. 1990. *Marketing Research* (4th ed.). John Wiley & Sons, NY.
- Bolton, R., Kannan, P. and Bramlett, M. 2000. "Implications of loyalty program membership and service experiences for customer retention and value." *Journal of the Academy of Marketing Science* 28(1), 95-108.
- Brannick, T. and Roche, T. (eds.). 1997. *Business Research Methods: Strategies, techniques and sources*. Oak Tree Press, Dublin.
- Bryman, A. and Bell, M. 2011. *Business Research Methods 3e*. Oxford University Press, UK.
- Burez, J. and van den Poel, D. 2007. "CRM at a pay- TV company: Using analytical models to reduce customer attrition by targeted marketing for subscription services." *Expert Systems with Applications*, 32(2), 277-288.
- Buyya, R., Yeo, C.S., Venugopal, S., Broberg, J., Br, I. 2009. "Cloud computing and emerging IT platforms: Vision, hype, and reality for delivering computing as the 5th utility." *Future Generation Computer Systems*, 25(6), 599-616.
- Chen, P-Y and Hitt, L. 2002. "Measuring switching costs and the determinants of customer retention in internet-enabled businesses: a study of the online brokerage industry." *Information Systems Research*, 13(3), 255-274.
- Childers, T. and Rao, A. 1991. "The influence of familial and peer-based reference In: M. Easterby-Smith (ed.) 1991, *Management Research: An Introduction*, Sage Publications, London.
- Christensen, Clayton. *The innovator's dilemma: when new technologies cause great firms to fail*. Harvard Business Review Press, 2013.
- Creswell, J.W. 2007. *Qualitative inquiry and research design, choosing among five approaches*. Sage, London.
- Dempsey, D. 2013. "Exploring a Business to Business Recurring Revenue Framework for the Delivery of Software as a Service through a Cloud Computing Channel:

- Conceptual Framework”, *DBA Doctoral Colloquium*, Waterford Institute of Technology, Oct 3-4.
- Dempsey, D. 2014. “Exploring a Business to Business Recurring Revenue Framework for the Delivery of Software as a Service through a Cloud Computing Channel: Research Methodology”, *DBA Cumulative Paper Series*, Waterford Institute of Technology, March 6-7.
- Denscombe, M. 2010, *The Good Research Guide for Small-Scale Social and Research Projects*. (4th ed). McGraw-Hill Open University Press, NYC.
- Denzin, N. 1970. *The research act: A theoretical introduction to sociological methods*. Transaction Publishers, New Jersey.
- Dick, A., Jain, A. and Richardson, P. 1995. "Correlates of store brand proneness: some empirical observations." *Journal of Product & Brand Management* 4(4), 15-22.
- Eisenhardt, K.M. 1989. "Building theories from case study research." *Academy of Management Review*, 14(4), 532-550.
- Erickson, P. and Kaplan, C. 2000. "Maximizing qualitative responses about smoking in structured interviews." *Qualitative Health Research* 10(6), 829-840.
- Fader, P.S. and Hardie. B. 2007. "How to project customer retention." *Journal of Interactive Marketing*, 21(1), 76-90.
- Fan, M., Kumar, S., Whinston, A. 2009. "Short-term and long-term competition between providers of shrink-wrap software and software as a service." *European Journal of Operational Research*, 196(2), 661-671.
- Flick, U. 2002. "Qualitative research-state of the art." *Social Science Information*, 41(1), 5-24.
- Gartner Inc. 2013. “Market Share: All Software Markets Worldwide, 2012.” [Internet] Available at: <https://www.gartner.com/doc/2398815/market-share-software-markets-worldwide> (Accessed July 2013).
- Gioia, D.A. and Pitre, E. 1990. "Multi-paradigm perspectives on theory building." *Academy of Management Review*, 15(4), 584-602.

- Hair, J.F., Robert P.B. and Ortinau, D.J. 2000. *Marketing research: A practical approach for the new millennium*. Irwin Professional Publishing, UK.
- He, Rui, et al. "A novel cloud-based trust model for pervasive computing." *Computer and Information Technology, International Conference on*. IEEE Computer Society, 2004.
- Heiman, A. and Muller, E. 1996. "Using demonstration to increase new product acceptance: Controlling demonstration time." *Journal of Marketing Research*, 422-430.
- Holstein, J.A. and Gubrium, J.F. 1997. *The active interview*. Sage Publications, London.
- Husserl, E. 2002. "Philosophy as rigorous science." *New Yearbook for Phenomenology & Phenomenological Philosophy*, 2(1), 249-295.
- Hussey, J. and Hussey, R. 1997. *Business Research: A Practical Guide for Undergraduate and Post-graduate Students*. MacMillan, London.
- Ivankova, Nataliya V., John W. Creswell, and Sheldon L. Stick. "Using mixed-methods sequential explanatory design: From theory to practice." *Field Methods* 18.1 (2006): 3-20.
- Jackson, K. and Trochim, W. 2002. "Concept mapping as an alternative approach for the analysis of open-ended survey responses." *Organizational Research Methods*, 5(4), 307-336.
- Janckowicz, A.D. 2000. *Business Research Project* (3rd ed), Thompson Learning, London.
- Kelliher, F. 2011. "Interpretivism and the pursuit of research legitimisation: an integrated approach to single case design." In: A. Bryant (ed.). *Leading Issues in Business Research Methods*, Academic Publishing International Limited, Reading. pp. 45-63.
- Khajvand, M. and Mohammad, J. 2011. "Estimating customer future value of different customer segments based on adapted RFM model in retail banking context." *Procedia Computer Science*, 3, 1327-1332.

- Kim, M-K, Park, M-C and Jeong, D-H. 2004. "The effects of customer satisfaction and switching barrier on customer loyalty in Korean mobile telecommunication services." *Telecommunications Policy*, 28(2), 145-159.
- Liao, S-H., Chu, P-H. and Hsiao, P-Y. 2012. "Data mining techniques and applications—A decade review from 2000 to 2011." *Expert Systems with Applications*, 39(12), 11303-11.
- Lilien, G., Kotler, P. and Moorthy, K. 1992. *Marketing Models*. Prentice-Hall, Englewood Cliffs, NJ.
- Lincoln, Y.S. and Guba, E. 1985. "Establishing trustworthiness." *Naturalistic Inquiry*, 289-331.
- Linthicum, S. 2010. *Cloud Computing and SOA Convergence in Your Enterprise: A Step-by-Step Guide*. Pearson Education, USA.
- Marshall, C. and Rossman, G.B. 2010. *Designing Qualitative Research*. Sage, London.
- McLauchlin, J. 2010. *Retaining Customers: It's Not Just About the Renewal*. The Marketer, 17(1), 1-3.
- Miles, M. and Huberman, A. 1994. *Qualitative data analysis: An expanded sourcebook*. (2nd ed.). Sage Publications Ltd., UK.
- Monroe, K. 1973. "Buyers' subjective perceptions of price." *Journal of Marketing Research*, 70-80.
- Morgan, R. and Hunt, S. 1994. "The commitment-trust theory of relationship marketing." *The Journal of Marketing*, 20-38.
- Morgan, R.P. 2000. "A consumer-orientated framework of brand equity and loyalty." *International Journal of Market Research*, 42(1), 65-78.
- Morwitz, V. and Fitzsimons, G. 2004. "The Mere-Measurement Effect: Why Does Measuring Intentions Change Actual Behaviour?" *Journal of Consumer Psychology*, 14(1-2), 64-74.
- Niculescu, M. and Wu, D-J. 2011. "When should software firms commercialize new products via freemium business models?" Rady School of Management Seminar,

- [Internet] Available at: <http://rady.ucsd.edu/faculty/seminars/2011/papers/Niculescu.pdf> (Accessed July 2014).
- Ngai, E., Xiu, L. and Chau, D. 2009. "Application of data mining techniques in customer relationship management: A literature review and classification." *Expert Systems with Applications*, 36(2), 2592-2602.
- Noblitt, G. and Hare, R. 1988. *Meta-ethnography; Synthesising Qualitative Studies*, Sage, London.
- Oliver, R.L. and Bearden, W.O. 1985. "Disconfirmation processes and consumer evaluations in product usage." *Journal of Business Research*. 13(3), 235-246.
- Osterwalder, A. and Yves, P. 2010. *Business model generation: a handbook for visionaries, game changers, and challengers*. Self-published. [Internet] Available at: www.businessmodelgeneration.com (Accessed Jan 2014).
- Pettigrew, A.M. 1990. "Longitudinal field research on change: theory and practice." *Organization Science*, 1(3), 267-271
- Reichheld, F. and Scheffer, P. 2000. "E-loyalty." *Harvard Business Review*, 78(4), 105-113.
- Remenyi, D., Williams, B., Money, A. and Swartz, E. 2005. *Doing Research in Business and Management: An Introduction to Process and Method*. Sage, London.
- Ritchie, J. and Spencer, L. 2002. "Qualitative data analysis for applied policy research." *The Qualitative Researcher's Companion*, 305-329.
- Rust, R., Zeithaml, V. and Lemon, K. 2000. *Driving Customer Equity: How Customer Lifetime Value Is Reshaping Corporate Strategy*. The Free Press, NY.
- Saunders, M., Lewis, P. and Thornhill, M. 2003. *Research methods for Business Students* (3rd ed). Prentice Hall, London.
- Sekaran, U. 2003. *Research Methods for Business Students: A Skill Building Approach* (4th ed). John Wiley and Sons, USA.

- Skilton, M. and Director, C. 2010. "Building Return on Investment from Cloud Computing." *White Paper*. The Open Group. [Internet] Available at: <http://www.opengroup.org/cloud/whitepapers/ccroi/> (Accessed Nov 2013).
- Sosinsky, B. 2010. *Cloud Computing Bible*. Vol. 762. John Wiley & Sons, UK.
- Sproull, N. 2002. *Handbook of research methods: A guide for practitioners and students in the social sciences*. Scarecrow Press, Maryland.
- Tull, D. and Hawkins, D. 1993. *Marketing Research. Measurement and Method*. Prentice Hall, Upper Saddle River, NJ.
- Turner, M., Budgen, D., Brereton, P. 2003. "Turning software into a service." *Computer*, 36(10), 38-44.
- Vaquero, L., Roderio-Merino, L., Caceres, J., Lindner, M. 2008. "A break in the clouds: towards a cloud definition." *ACM SIGCOMM Computer Communication Review*, 39(1), 50-55.
- Verhoef, P.C. 2003. "Understanding the effect of customer relationship management efforts on customer retention and customer share development." *Journal of Marketing*, 30-45.
- Weinhardt, C., Anandasivam, A., Blau, B., Borissov, N., Meinel, T., Michalk, W., Stober, J. 2009. "Cloud computing—a classification, business models, and research directions." *Business & Information Systems Engineering*, 1(5), 391-399.
- Weiss, S.M. and Indurkha, N. 1998. *Predictive Data Mining: A practical guide*. The Morgan Kaufmann series in data mining systems, Morgan Kaufmann Publishers, San Francisco, CA.
- Zineldin, M. 2006. "The royalty of loyalty: CRM, quality and retention." *Journal of Consumer Marketing* 23(7), 430-437.

Appendix 1: Input Dataset RFL Data Codes.

These Reason for Loss (RFL) codes are an extraction from the commercial attrition dataset provided as initial input to the research project. They are listed here collated by the raw RFL data into +adjusted attrition/ retention themes based on the phase 1 data mining process.

Soft/ Subjective:

- Usage/Value
 - Never Deployed
 - Unused Licenses
 - Light Functional use
 - Low True Login Percentage
 - High Usage limited business value
 - Sales Process or Contract Terms
 - Poor perceived value
 - Partner Dissatisfaction
 - Trust
- Trust/ Satisfaction
 - Transfer to Reseller
 - Management Change
 - Competitive Risk
 - Lack of Sponsorship
 - Analyst influence

Hard/ Objective:

- Price Concession
- Limited Life (LL)
- Oversold
- Business Practices
- Limited Life Licenses
- Sold Wrong Product
- Product Price Change
- Limited Life Support
- New Corporation Price Established
- Reverse License Ramp

- Bug/Product instability
- Billing Frequency
- Term Extension
- Limited Life Pricing
- Tier achievement
- Multi-year Price Ramp
- Transfer of Users
- Product no longer Matches Needs
- Consulting, Services, Support
- Unsuccessful Pilot
- New Security Policies
- Renewing Short Term Contract
- Foreign Exchange

Non-addressable:

- Out of Business
- Suspended
- Reduction in Force (RIF)
- Merger and Acquisition Corporate Standard
- Corporate Pricing

Appendix 2: B2B Cloud Computing SaaS Revenue Renewal Taxonomy

Role	Criteria	Description	Supporting Literature
Subscriber	Previous Performance	Quality of Service Delivery	Verhoef (2003)
	Fulfilment of User Expectations	Previous Experience, Adoption Levels	Taylor and Hunter (2002)
	Contracted Terms	Cost, Credit Terms, Billing Frequency, Timing of Renewal, Value, Economic	McLauchlin (2010)
	Peer Influence	Market Acceptance, Existing Installed Base, User Case Studies	Childers and Rao (1992)
Supplier	Alternative Offerings	Competitor Suppliers	Porter and Millar (1985)
	External Influences	Regulatory, Network Robustness	Kim and Yoon (2004)
	Localisation	Language, Business Culture fit	Dawar and Frost (1999)
	Supplier Reputation	Market Perception	Keh and Yi (2009); Sheth (1973)
	Trust	Earned Relationship, Perception	Burez and Van den Poel (2007)
	Loyalty	Earned Brand Commitment	Moritz and Fitzsimons (2004); Zineldin (2006)
	Relationship Management	Proactive Programmatic Adoption	Peppard (2000)

Source: Current Research

Appendix 3: Semi-Structured Interview Template

- Usage/ Value
 - What did you use product for? Did it meet your usage needs? How do you measure successful usage
 - Never Deployed
 - Did you fully deploy it? Why not? How do you measure deployment?
 - Unused Licenses
 - Did you have any unused licences? Why were they not used?
 - Light Functional use
 - Did it meet functional needs? Fully or too much/little? What functionality was good/ bad/ missing/ overkill? Did you make functional asks of support?
 - Low True Login Percentage
 - How often did you use the system? All licenced users with same usage needs? How did the service provider help you to maximise the use?
 - High Usage limited business value
 - Did you get business value? How do you measure it? Did all business users perceive the value?
 - Sales Process or Contract Terms
 - How was the sales process? Was the contract acceptable? Would you change it – how/why? Who does it better/ how?
 - Poor perceived value
 - Did you consider you got value from the service? What does value mean to you in context of this service?
 - Partner Dissatisfaction
 - Were you satisfied with the service? Did you interact with any service implementation partners? How was this interaction?
- Trust/ Satisfaction
 - Trust

- Do you trust the service provider? How did they earn your trust? Did they keep it/ grow it/ lose it? Why is trust important to you? What is trust?
- Transfer to Reseller
 - Did you use reseller services? What were they? Did you move any of your licences over to the reseller product? Why was it better?
- Management Change
 - Did all of the management team feel the same about the service? Did the management team change during the lifecycle? Did the management team change its view on the service? How important was the management team PoV of the service? Why? How was the service provider team?
- Competitive Risk
 - Did you use a competing product? Were you tempted to? For what reasons? Why were you more satisfied with the competing product?
- Lack of Sponsorship
 - Did you have a business sponsor for the service? Why did they sponsor it? How influential/ important was this to the service? Why did it end?
- Analyst influence
 - Did you seek an external opinion on the service? Around which parts? Why was this important? Did it influence your initial purchase/ renewal decision? Do you use this external opinion for other, similar services? Why do you value/ trust this analyst? Would you pay for their recommendation? Would you buy a competing product if they recommended it?

PAPER 4

PREFACE

As this research considers the revenue expectation of the SaaS B2B CC industry and its dependency on renewal subscriptions (Skilton and Director, 2010; Turner et al. 2003), phase two of the study focused on the revenue attrition risks inherent in the B2B SaaS business model (Fader and Hardie, 2007). The research question in this study is: What is the B2B recurring revenue framework for the delivery of SaaS through a Cloud Computing channel? Thus, the data collection plan was to (a) identify the unique characteristics which influence the SaaS subscription renewal decision (Burez and van den Poel, 2007), and (b) consider the subjective influences which inform that decision. In doing so, the researcher sought to select randomly customers from the subset of 1,341 customers identified in phase 1 of the study as having given ‘soft’ reasons for loss (i.e. usage/ value; trust/satisfaction).

The researcher initially contacted every 67th customer via an executive assistant within the cloud computing company in which he works to facilitate distance between the researcher role and that of practitioner (Coughlan and Brannick, 2014) and asked them to participate in the study. The invitation to participate in the study is included in appendix 1 of the forthcoming paper. The response rate was 10% (two responses out of twenty). As described in the original primary data selection criteria (cumulative paper 3), this process was expected to yield a maximum of twenty interview candidates, a number that now proved unlikely, based on the response rate. Eighteen did not respond, even after three direct contact attempts. Of the two that did respond, one declined to take part, and one agreed to be interviewed. The invitation to participate in the study was subsequently expanded exponentially to five and then ten each side of the 67th entry, resulting in 420 direct requests from the company’s executive assistant to these customers or former customers requesting that they allow the doctoral researcher to contact them formally regarding participation. Again, the response was dismal, with only seven respondents of which only one committed to an interview.

This aspect of the data collection process proved to be an invaluable learning experience for the researcher. Professionally, the researcher is a senior and long tenured executive in this organisation, one of the world’s largest and most successful cloud computing companies, acknowledged as having a very customer centric focus. With this premise, the researcher-practitioner was confident that the customer cohort presented as suitable

for research would yield valued data and mutually help customer and supplier commitment and loyalty. If the yield was so poor, how could meaningful research data be obtained?

It became apparent that all 1,341 customers in the target database would need to be approached to provide close to the twenty participants originally sought. The researcher, in liaison with his supervisor, discussed the experiences to date and agreed to expand the invitation to the remaining clients in the database. The researcher asked that the remaining 921 former or reduced customers be contacted and asked to participate. These approaches were sent in batches of 100 requests by the executive assistant, emailed daily. Although authorised by the participating research company and sent, as approved, from within their organisational structure, the request to participate in the study quickly brought several objections from potential participants (see anonymised correspondence at Appendix 2). Some of these objections were directed by the former customers back into the customer support/ complaints channel within the company and quickly escalated across the customer security, data privacy and legal executive of the company, with the result that the researcher was approached by the company's Employee Service team, a subset of the human resource function. These interactions exemplified the dual role challenges of practitioner research (Coughlan and Brannick, 2014) as the researcher was approached in his role as a senior executive within the participating company and advised quite forcibly to stop all further contact with the customers included in the previously authorised dataset. So with 647 of the potential 1,341 cohort contacted, this avenue of data access was irrevocably closed. The data had yielded nine responses. Seven were negative, declining to be interviewed, and two agreed to participate and were interviewed in detail based on the previously devised interview template (see cumulative paper 3).

Where to next?

In light of these reluctant respondents, the researcher revisited the writings of Taylor and Hunter (2002) and Burez and Van den Poel (2007) each of whom studied attrition influences and the drivers of usage, value, trust and satisfaction. As someone very much 'in the field', the researcher also reflected on the experiential learning approach and underpinning ethnographic methodologies of Van Maannen (2011). Despite the evident challenges, the researcher was somewhat buoyed by Babbie (2013), who opined that the

mere observation and collection of empirical facts does not provide understanding. Nonetheless, when faced with poor customer responses, the researcher reflected deeply on the many alternative approaches to business research as championed by Sekaran and Bougie (2010). None, however, offered more appropriate alternatives than the researcher's original framework and, under Sekaran's (1992) North Star guidance, the researcher determined to carry on along the original research path, necessitating contemplation of additional interview sources. Based on a review of relevant literature, particularly the customer relationship management body of work from Payne and Prow (2005) and Kim and Yoon (2004), the researcher surmised that as well as pursuing the attrited customers, who offered little willingness to share their subjective attrition decision motivators, he should also consider whether he could look to known cloud industry experts, customer intelligence specialists and data scientists for insight into the relevant research objectives.

While a non-random approach to interviewee selection is acceptable in qualitative research (Patton, 1990), it varied from the original intent. However, this approach could allow the researcher to make alterations to the research design in an interactive way, as the research process developed (Maxwell, 2013; Bryman and Bell, 2011). This is 'real world' research, carried out in an inductive and iterative manner (Bryman and Bell, 2011). Thus, non-random selection of interviewees reflects the emergent nature of qualitative research (Patton, 1990), allowing the researcher to anticipate the need for new interviewees to enable new insight in light of the unforeseen challenges of data collection among the intended customer cohort and to select interviewees suiting the needs of the research. Based on this premise, the researcher sought to enhance the findings gained from the two completed customer interviewees by expanding the interviewee cohort to include other cloud service providers who had broader customer subscription renewal experiences across similar successful software as a service provider companies and extend the researcher engagement with internal client service and data specialists. Identification of these interviewees was non-random, as these individuals were identified based on what they could provide in terms of learning from the industry's customer attrition experiences to date.

Firstly, the researcher sought to interview his company's chief data scientist and the head of its customer intelligence division to elicit the company perspective on both the customer/ research response rate and the concept of subjective or soft RFL criteria

identified in phase 1 of the research study. Each agreed to participate in an interview on the topic. These interviews (the template for which is set out in detail at appendix 3 of the forthcoming paper) proved to be pivotal in the data collection journey. In keeping with Creswell's (2007) approach, the researcher then identified a group of four SaaS and Cloud computing pioneers and experienced executives in the sector and through a further series of interviews, sought to gain insight into research objectives 3 and 4 as stated previously. Details of the anonymised interviewees included in these second stage interviews are included as table 4.3 of the forthcoming paper.

Table 4.1 is a replica of that offered in paper 3 of the DBA series and sets out the key themes utilised in the second interview series. Rather than probing the renewal drivers of individual subscribers, in this instance the researcher used these themes to probe for how the Cloud Computing Renewal Executive would guide their Renewal's Team to early identification of risks in their acknowledged attrition risk areas.

Table 4.1: Key Themes – Second Interview Series

Usage/ Value	Trust/ Satisfaction
'Learnt by customers' (Niculescu and Wu, 2011)	Crucial for acceptance of cloud (Weinhardt et al. 2009)
Changes after sampling (Heiman and Muller, 1996)	Trust is subjective (He et al. 2004)
'Value perception' (Dick et al. 1995)	Most prominent influence on customer relationship (Morgan and Hunt, 1994)
Good predictor of switching and attrition (Chen and Hitt, 2002)	Antecedent of satisfaction and commitment (Verhoef, 2003)
'Disconfirmation of expectations' (Oliver and Bearden, 1985)	Satisfaction drives customer retention (Bolton et al. 2000)
Helps identify potential attrition issues (McLauchlin, 2010)	Satisfaction is an 'emotional state' (Verhoef, 2003)

As an 'insider' in the industry, the researcher appreciates that this level of executive access would not be available to other researchers from without and, as such, was extremely conscious to ensure the second interview themes were driven from the previous literature, as set out above, and not from existing contemporary industry knowledge.

References

- Babbie, E.R. 2013. *The practice of social research* (13th ed.). UK, Cengage Learning.
- Bell, E. And Bryman, A. 2007. "The ethics of management research; an exploratory content analysis." *British Journal of Management*, 18, 63 -77.
- Burez, J. and Van den Poel, D. 2007. "CRM at a pay-TV company: Using analytical models to reduce customer attrition by targeted marketing for subscription services". *Expert Systems with Applications*, 32(2), 277-288.
- Coughlan, D. and Brannick, T. 2014. *Doing Action Research in Your Own Organization*, (4th ed.), London, Sage.
- Creswell, J.W. 2007. *Qualitative inquiry and research design, choosing among five approaches*. London, Sage.
- Fader, P.S. and Hardie. B. 2007. "How to project customer retention." *Journal of Interactive Marketing*, 21(1), 76-90.
- Kim, H-S. and Yoon, C-H. 2004. "Determinants of subscriber churn and customer loyalty in the Korean mobile telephony market." *Telecommunications Policy* 28(9), 751-765.
- Maxwell, J.A. 2013. *Qualitative Research Design - an interactive approach* (3rd ed.). USA, Sage.
- Patton, M. 1990. *Qualitative evaluation and research methods*, Newbury, Sage.
- Payne, A. and Prow, P. 2005. "A strategic framework for customer relationship management." *Journal of Marketing* 69(4), 167-176.
- Sekaran, U. 1992. *Research Methods for Business*. New York, John Wiley & Sons.
- Sekaran, U. and Bougie, R. 2010. *Research methods for business: A skill building approach* (5th ed.). UK, Wiley.
- Skilton, M. and Director, C. 2010. "Building Return on Investment from Cloud Computing". *White Paper*, Cloud Business Artifacts Project, Cloud Computing Work Project, The Open Group. [Internet] Available at:

http://www.mladina.si/media/objave/dokumenti/2010/5/31/31_5_2010_open_group_building_return_on_investment_from_cloud_computing.pdf

(Accessed Sept 2013).

Taylor, S.A. and Hunter, G.L. 2002. "The impact of loyalty with e-CRM software and e-services". *International Journal of Service Industry Management*, 13(5), 452-474.

Turner, M., Budgen, D. and Brereton, P. 2003. "Turning software into a service". *Computer*, 36(10), 38-44.

Van Maanen, J. 2011. *Tales of the field: On writing ethnography*. Chicago, University of Chicago Press.

Paper 4: Phase 2 Findings and Initial Discussion

Exploring a Business to Business Recurring Revenue Framework for the Delivery of Software as a Service through a Cloud Computing Channel

Paper 4 – Phase 2 Findings and Initial Discussion

DBA Cumulative Paper Series

Waterford Institute of Technology

April 2015

Author: David Dempsey, DBA Candidate, WIT

Supervisor: Dr Felicity Kelliher, School of Business, WIT

Examiner panel result: Recommended

ABSTRACT

Cloud Computing is creating a new paradigm for the distribution of computer software applications. Within this context Cloud Computing enabled Software as a Service (SaaS) fundamentally changes the revenue expectations and business model for the application software industry. In this new world, securing the SaaS subscription renewal is critical to the survival and prosperity of the Cloud SaaS business. This study seeks to examine the drivers behind the Business-to-Business (B2B) SaaS subscription attrition decision and, in doing so, to explore the recurring revenue framework for the Cloud SaaS business. The aim of this paper is to present the phase two research findings and initial discussion relating to all the findings. Phase two of the study focuses on the revenue attrition risks inherent in the B2B SaaS business model. Any patterns or trends in the data will allow the Cloud SaaS service provider to build awareness, and commercial exploitation, of these trends into their business model and planning strategy.

Keywords:

Cloud Computing, Software as a Service, SaaS, Recurring Revenue, Attrition, B2B

INTRODUCTION

The provision of a single utility platform on which business applications can be easily built, rolled out and maintained is a key part of Cloud Computing (Vaquero et al. 2008; Buyya et al. 2009). Its provision by companies has allowed the rapid growth of the existing Cloud market (Linthicum, 2010). The Cloud Computing (CC) enabled software as a service (SaaS) platform has created a new paradigm for the distribution of computer software applications and service (Skilton and Director, 2010), with revenue now typically flowing to the industry on a subscription basis after the delivery of the application service (Osterwalder and Yves, 2010). This represents a switchover from traditional software sales models, with their expectation of significant initial licence fees followed by predictable on-going support and maintenance revenue (Fan et al. 2009) to the new CC SaaS business model (Skilton and Director, 2010) which will see the revenue stream change completely to where the software is licenced and paid for on a subscription basis. This research considers the revenue expectation of the CC industry and its dependency on renewal subscriptions (Skilton and Director, 2010; Turner et al. 2003), while the study concentrates on SaaS in the Business-to-Business (B2B) domain, delivered through the CC channel.

This paper focuses on the findings relating to phase two of a two-phased research study. The phase one distillation of the data set acted as the basis for the analysis of the attrition habits of a subset of the renewals cohort of the subscriber base for a leading Cloud Computing software company. Due to inherent challenges relating to customer participation in the research, the researcher made alterations to the research design in an interactive way (Maxwell, 2013; Bryman and Bell, 2011) by expanding the interviewee cohort to include other cloud service providers who had broader customer subscription renewal experiences across similar successful Cloud Software as a Service provider companies and to extend engagement with internal client service and data specialists. Identification of these interviewees was non-random, as these individuals were identified based on what they could provide in terms of learning from the industry's customer attrition experiences to date. Phase two of the study focuses on the revenue attrition risks inherent in the B2B SaaS business model (Fader and Hardie, 2007). The identified patterns in the presented data will allow the Cloud SaaS service provider to build awareness, and commercial exploitation, of these trends into their business model and planning strategy. These findings will also contribute to the refinement of the

proposed recurring revenue framework for the delivery of SaaS through a Cloud Computing channel.

PHASE TWO – ADAPTED DATA COLLECTION PROCESS

The purpose of phase two was to allow the researcher to explore different dimensions of the customer/ respondent's experiences (Sproull, 1998) and to elicit the detailed subjective reasoning behind the SaaS attrition decision. As the decision to renew or cancel a subscription may be influenced by any manner of item or opinion (McLauchlin, 2010), such as customer service or perceived value; phase two focused on the intent behind the qualitative reason for loss (RFL)⁸, which required a more thorough interpretive analysis. The data collection plan was to (a) identify the unique characteristics which influence the SaaS subscription renewal decision (Burez and van den Poel, 2007), and (b) consider the subjective influences which inform that decision. In doing so the researcher sought to randomly select customers from the subset of 1,341 customers identified in phase 1 of the study as having given 'soft' reasons for loss (i.e. usage/ value; trust/satisfaction).

A research instrument is valid when there is confidence that it measures what it was intended to measure (Sandelowski, 1986). The sampling process used for this research was both purposeful and thorough. Through a series of semi-structured interviews, almost 535 minutes (nine hours) of data was collected. Coupled with documentary review, the interview transcripts were analyzed as the primary source of data using the three-stage analysis of data reduction, data display and conclusion drawing favoured by Miles and Huberman (1984). This process was reinforced by the concept mapping approach presented by Jackson and Trochim (2002), giving the robustness which Denzin (1970) believes will come through using multiple and independent methods. Combined with the phase one data segmentation process, this analytical approach meets Eisenhardt (1989) recommendation of creating strong triangulated measures to achieve greater reliability.

Every 67th customer was contacted and asked to participate in phase two of the study (see appendix 1, letter [email] of invitation), as this number equates to a random

⁸ RFL refers to the company-generated codes relating to attrition reasons offered by surveyed attriting or reducing clients.

selection of twenty interviewees from the 1,341 subset identified in phase 1 of the study. As this process did not yield a sufficient number of research participants, the invitation to participate in the study was expanded exponentially to five and then ten each side of the 67th entry, resulting in 420 direct requests from the company to their customers or former customers asking that they allow the doctoral researcher to contact them formally regarding participation. Again, this process did not yield sufficient participants so the researcher sought to contact the remainder of the entire database in tranches of 100 clients. This approach raised serious concerns within the participant company as a result of customer correspondence (see appendix 2) and the researcher ceased contacting the client base at 647 customers, at the express request of the company. This process resulted in nine responses, seven were negative and two agreed to participate and were interviewed in detail based on the previously devised interview template (see cumulative paper 3). This data search and inherent response rate is outlined in table 4.2.

Table 4.2 Interviewee cycle, phase 2

Customer base	Contacted	Respondents	Interviews
Every 67 th customer	20	2	1
5 each side of the 67 th customer	200	0	0
10 each side of the 67 th customer	200	7	1
Remaining customers in tranches of 100	227	0	0

These initial findings resulted in a juncture for the researcher - 647 interviewees from the customer cohort were invited to take part in the study, resulting in nine respondents, of whom only two agreed to be interviewed. Of these, at the respondent's request in each case, both interviews (C1 and C2) were carried out over on-line video/ voice conference (using GoToMeeting). As a result of the low response rate, the researcher sought also to interview SaaS industry providers (CCSP), data scientists (DS) and customer intelligence specialists (CIS) from the CC SaaS industry. In total eight interviewees participated in the study. Table 4.3 outlines the interviewee details.

Mason (2010, p.1) points out that 'frequencies are rarely important in qualitative research, as one occurrence of the data is potentially as useful as many in understanding the process behind a topic'. This was particularly applicable to the research in hand and the circumstances that brought about the instruction to the practitioner/ researcher from

the data owners to cease contacting customers from the dataset provided. While this might be perceived as a potential exposure to the robustness of the data gathering process, Boeijs (2002, p.393) supports ‘the researcher in deciding what data will be gathered next and where to find them on the basis of provisional theoretical ideas’. This reinforces the approach taken in the purposive sampling applied to the selection of the interviewees and allowed the build-up of the qualitative description championed by Sandelowski (2000) through the expansion of the reasons influencing the attrition that had surfaced from the analysis and reflections from the previous SaaS subscriber attrition data and interviews.

Table 4.3: Interviewee Schedule

No.	Interviewee code	Interviewee role	Duration
1	C1	Customer	70 minutes
2	C2	Customer	55 minutes
3	DS1	Data Scientist	60 minutes
4	DS2	Data Scientist	70 minutes
5	CIS1	Customer Intelligence Specialist	55 minutes
6	CIS2	Customer Intelligence Specialist	60 minutes
7	CCSP1	Cloud Computing subscription provider	90 minutes
8	CCSP2	Cloud Computing subscription provider	75 minutes

The pre-prepared semi-structured interview instrument (appendix 3) used in the customer interviews was also applied to each expert/ business leader interview to ensure consistency in pursuit of meaningful insights (Sekaran and Bougie, 2010). The literature review allowed for a number of key themes to be derived and for a series of prompts to be compiled in advance of each interview in the form of an interview guide (Saunders et al. 2003), as presented in appendix 3. The interview questions or prompts are grouped around themes identified as being influenced through the soft ‘reasons for loss’, which emerged from the phase 1 data analysis, specifically - Usage/ Value and Trust/ Satisfaction (see table 4.1 in the preface to this paper).

RESEARCH FINDINGS

As set out in research paper 3, the phase two interviews were guided by the Usage/ Value and Trust/ Satisfaction themes identified from the literature review outlined at

Table 4.1. In total almost nine hours of recorded data was gathered from the research participants, all of whom openly relayed their own deep and personal knowledge of the Cloud SaaS expectation and experience. Extraction of core themes was the result of researcher immersion in the research findings, as exemplified in table 4.4.

Table 4.4: Extraction of core themes from interviewee feedback

Theme	SaaS Subscriber	SaaS Provider	Data Scientist	Customer Intelligence
Trust	<i>"...I trust that you are a trusted advisor to my business. I trust that this is a journey that we are going on together and that you are going to guide me through it..."</i>	<i>"...trust is was the service there and available through the lifetime of the contract..."</i>	<i>"...the opposite of trust is measurable in terms of attrition. If a customer doesn't trust us they leave immediately..."</i>	<i>"...they feel that you are responsible for their success and trust you to deliver this..."</i>
Value	<i>"...is increasing my sales and revenue. I need to see this increasing. You can't fly a plane blind..."</i>	<i>"...if nobody is logging on then presumably they are getting no value. But this is only table stakes. If they are logging on it may still be below the value of the system so you have to know what their measure of value is..."</i>	<i>"...is the easiest of whole lot to quantify. You can determine the true picture of what's happening in the business. They mightn't like the answer but at least they know the answer..."</i>	<i>"...doesn't matter what measure you put, you should be able to measure whether you have achieved it or not..."</i>
Adoption/ Satisfaction	<i>"... is a conversation not a survey..."</i>	<i>"...definitely measurable through usage and through customer success stories..."</i>	<i>"...you try to get an understanding of the user measures..."</i>	<i>"...if no satisfaction by the foot soldiers then renewal becomes an uphill battle..."</i>
Loyalty	<i>"...if I'm successful I'm significantly more loyal..."</i>	<i>"...in SaaS Cloud world, given that its young industry people are loyal because of the thought leadership role you provide. The more you are seen to be a thought leader the wider loyalty to the brand..."</i>	<i>"...brand loyalty is more a factor on initial purchase than on renewal. A repeat purchase is an indication of loyalty. Further purchases of other suites is a better measurement of loyalty. Broadening and deepening the relationship..."</i>	<i>"...but NPS scores not a leading indicator of renewal loyalty in it's own right. Negative will definitely tell you are in trouble but positive is only an indication there is no current issue..."</i>

The researcher interviewed C1 and C2 and then proceeded to interview DS1 and 2 from the customer intelligence unit within the researcher company and CIS1 and 2 from other providers. The initial conversations with DS/ CIS interviewees related to the details of

the participation request and response rates received at each juncture (using table 4.2 as a basis for discussion), as the researcher sought to illicit these specialists' perspectives relating to this response rate. The researcher was surprised to find that the data scientist (DS1) considered the response rate received (1%) was neither unexpected nor a source of concern. This perspective was rationalised on the basis that the company would expect no more than a 4% response rate from its active, opt-in, customers to its own customer surveys and a similar response in terms of the company's own on-line self-service help and training service offerings, where access to the service experience enhancing content is provided free of charge to its customer base:

“...so those response rates of say 1% are actually what I would have expected. If we do surveys, response rates of 4%, 5% are stellar response rates so it's relatively normal” (DS1)

Further, the customer intelligence team rationalised, if they could only access 4% of their existing opt-in and motivated current customers, then any approach to unhappy or reduced service existing customers or unhappy former customers would “*always be expected to produce little traction*” (customer intelligence specialist – CIS1). To quote one of the company's data scientists “*why would they want to respond when they had already cited their dissatisfaction by attriting our service?*” (DS2). For these respondents, based on a less than 4% response from healthy, engaged, customers, a 1% response from highly dissatisfied and disengaged ones was as much as would be expected.

This perceived lack of response (nine responses from 647 customers contacted via the company executive assistant) and the reaction of some clients to being contacted (see appendix 2) is consistent with Groves et al.'s (1992) belief that the United States of America (US) is being over-surveyed. Further Sheehan (2001) believes that this over-surveying risks reducing rates of response as ‘the aura of uniqueness to the participation in the survey process diminishes’. Thus, the response rate achieved is a valuable finding in its own right. In an industry that perceives itself as being customer centric (Meeker et al. 2010), with a proffered customer success business model driving the firm's logic for creating and commercializing value (Osterwalder and Pigneur, 2010), then customer focus is key (Chen, Junliang, et al. 2011). What this research has shown is that far from being the customer centric and customer connected industry which Chowhan and Saxena (2011) believes it to be, there is little difference between this industry and the

other four utilities highlighted by Buyya et al. (2009) and it appears to carry the same customer ambivalence issues that these utilities have experienced before it. As Agyapong (2011) points out, once an industry converts to be viewed as an expected ‘always on’ utility, then its customer base connection/ relationship changes to become utilitarian. If SaaS, or its latest manifestation Cloud Computing, does continue on the successful trajectory that Meeker et al. (2010) predicts for it, then perhaps this growth comes at the price of converting the fanatically loyal customer base which Armbrust et al. (2010) believes the industry might reasonably aspire to, to the generally more agnostic, disloyal and promiscuous customer which Lewis (2002) believes is a prevalence of the true utility service consumer community.

The concept of hard and soft RPL criteria

When analysing the customer (C1 and C2) transcripts, it became clear to the researcher that although the initial research phases had seemingly clearly created separations between what was segmented as hard, objective and quantifiable measures, as opposed to the others believed to be soft, subjective and unquantifiable; in reality this difference proved to be a misinterpretation. The researcher contemplated the findings in light of the literary themes of adoption, value, loyalty, trust and satisfaction; purposefully separating the customer and expert data in pursuit of fair representation of the different cohort’s perspectives.

Customer Interview Findings

Adoption

Rather than the soft, subjective, measures like adoption and value being true, atomic, reason for attrition or reduction; instead they were simply a manifestation of other, often simpler, objective reasons:

“Now if you looked at my adoption rate you might go, oh look, this guy is using this software, look at that, I’m happy he’s using it. But the truth is I’m only using it because I have to and I haven’t got the time to get moving off it” (C1)

“They move us from one server to another and they don’t tend to let us know in enough time and so when they move from one server to another they screw up some of the API’s [Application Program Interfaces]. They swear they don’t do it but within three weeks after they move we ended up having to pay a consultant to fix it and re-plug something in” (C2).

Value

In the two and a half decades since Zeithaml (1988) succinctly positioned value as ‘what I get for what I give’ the evidence from the customer feedback is that rather than being the soft perception which the first phase of this research positioned, to the SaaS subscriber it still appears to be firmly guided by the hard measures of price propounded by Marx (1910) over a century ago:

“I need somebody who can take what we do, understand what we are trying to accomplish and provide some consulting services on best use cases, best practices, helping to set it up and plug it in, understand our needs and then kinda create the design. And I’d be willing to pay for this, they could bundle that into our fee. [company name] does that, [company name] software does that, they are a services and support provider. [company name] does that, you know there are a number of those companies that we use who do that and it works. In [company name] case they just nickel and dime you to death and then don’t provide any other value other than selling you more services” (C1).

Loyalty

Rather than the soft, subjective, ‘attitudinal loyalty’ of Reinartz et al. (2002), the evidence from the customer interviews is that loyalty is still strongly influenced by a price point, similar to the Bei and Chiao (2010) context of the direct effect of perceived price fairness on loyalty:

“I have a friend for nine years and he’s been a [company name] guy true and true and he can’t stand the lack of loyalty from [company name]. He’ll even call me and say, hey here’s the way to negotiate with them, they’ve got a special going on right now and if you do this service you can get a discount on that service. It’s a whole game that [company name] plays because they are such a sales driven organization and not a customer driven, loyalty driven organisation” (C1).

Trust

Based on the reasoning of Morgan and Hunt (1994) and Rust et al. (2000), who both consider trust to be amongst the most prominent influences on a customer’s relationship and from the initial expectations from the phase 1 findings, the researcher’s expectation was that trust was a subjective measure, which could not be measured quantitatively. However, in the customer’s eyes, it is still all about the hard measures:

“I don’t trust them, all they want is the check...calling people three months before their subscription is up and saying, hey, if you renew now we’ll give you a better deal” (C1).

“In fact I don’t even know if they need to be human interactions to build trust but build a community and a support group where you don’t feel like you’re having to pay for it” (C2).

Satisfaction

While Oliver's (1980) 'model of satisfaction decision' expresses consumer satisfaction as a function of expectation, the reality from the customer feedback was very different, with satisfaction instead measured by delivery of a specific set of objective outcomes:

"That's exactly a source of satisfaction for me. It's especially having the consistency as a rep that drives satisfaction and loyalty as well and if you can't keep the same rep covering my company how about keep a file so that at least you know when you call you're not like starting over every time" (C1).

This switch from subjective to objective measures in the RFL decision in the interviewee responses was consistent between the two respondents (C1 and C2). Thus, the researcher sought to clarify the results with both the Subscription Service provider's customer data intelligence team (DS1, DS2) and other SaaS provider's Customer Intelligence specialists (CIS1, CIS2) through four additional, originally unplanned, interviews. Two of the four interviews were completed face to face and two were via GoToMeeting video-conference. Based on these interviewee findings, the researcher found that neither the SaaS company data science team nor the other SaaS customer intelligence specialists saw any significant differential between objective and subjective measures.

Expert Interview Findings

Adoption

Although the SaaS provider acknowledged and was aware of the more subjective reasons for loss (RFL), the data and customer intelligence specialists had already identified ways of breaking these subjective adoption losses down into component measures; which they were capable of measuring in the traditional, hard data, ways of the other objectives codes:

"Well, um, interesting, what surprised me actually is that you put adoption as a subjective measure, right. From my perspective, from what I see, there is a lot of things that are objective that we can't really do anything about, the economic measures right are the things that the company goes out of business, gets acquired by other companies, these are things that we can't do anything about, right. And you put them in the objective bucket I understand. The subjective one, you put adoption in here which I would usually put in the objective one because its something which I can measure, right, because they are not using it" (DS1).

Loyalty

The initially subjective weighted value of loyalty was again considered through an objective lens by the data specialists, and was measured by an extrapolation of previous return buying habits:

”Those are also ways of measuring loyalty. In the end, trust, adoption, loyalty all are factors that reduce attrition and make the customer company more successful. Then, really, it all boils down to delivering business value to the customer” (DS1)

Trust

Guided by the literature, He et al. (2004) and Rust et al. (2000) each found trust has historically firmly been placed in the subjective business decision grouping. Yet, for the SaaS company specialists, data science has moved beyond the nebulous interpretation themes of the previous marketing/ branding methodologies (Day 1976), and instead is viewed in their world as something eminently measurable:

“Is trust measurable? Well, the opposite of trust is measurable in terms of attrition. If a customer doesn’t trust us they leave immediately because that’s the basis of the relationship, so that we can measure the more business processes our customers implement on our platform the more they trust us. Probably that’s the only real measure of success for the company, right, because similar to a bank the more you trust a bank the more money, the more of your money and the more of your processes you put in the hands of your bank. If I love my bank I put my 401k, my retirement plan, my credit card, checking account, savings account all in the hands of one bank and that’s an indication of trust, of the trusted relationship I have with my bank so I guess the success of a software company with regard to trust would be how widely, the width of adoption within an organization” (DS1).

Satisfaction

Similar to the previous measure of trust, Verhoef (2003) sees satisfaction as a manifestation of brand and product allegiance and commitment. In doing so it is seen as a key influencer of customer renewal propensity, which is hoped for rather than measured. However, to the customer intelligence/ data science teams; measuring satisfaction is a standard tool of the trade, one that they utilise and measure as a standard business practice:

“When we do surveys like c sat [Customer Satisfaction] surveys after a transaction we get instantaneous feedback if they are happy or not, both in terms of usage data as well as direct feedback from transactions” (DS2).

Value

Following the lead from Groth and Dye's (1999) belief that consumers see the perceived value of a service as a major influence of customer expectations, one would expect that for the SaaS customer, value would be a key indicator of commitment to their subscription renewal. As such, tracking it as a leading indicator/ influence is crucial but for the classic software distributor the challenge is how to do this based on its perceived subjectiveness. Again for the Customer Intelligence analyst it is perceived to be no more than a combination of other factors and once these are identified and tracked then their aggregate will combine into a consolidated value measure:

“You have to look at it really in this combination of factors and you know the adoption and reduction and attrition risk is not only related to hard metrics around how they use the product, it has to do directly with how easy it is for them to get value out of the product” (DS1).

Subjective or not, once the data scientist is presented with the challenge of measuring these indicators they revert back to their core quantitative data analysis skills propounded by Bryman and Cramer (1994). For the SaaS provider the reality is that in practical terms, where anything was potentially ambiguous, the service provider simply asked the customer directly through the use of an especially intentioned customer surveys. As opined through the Data Science interviews:

“Yes, first the data scientist who believe that everything can be measured is always in the data, are the naive ones. There is always a lot of stuff that is not in the data set that has a huge influence on the customers. What we do for these things is we actually go to customer surveys, so part of my role is I suppose also not only look at customers usage data and from there derive usage patterns but also to go directly to the customers and ask them, so how are you doing, do you like our software?” (DS1)

In consideration of these customer and specialist findings, table 4.5 shows how this subjective to objective transformation maps in the Cloud or SaaS world.

Table 4.5 Objective Measures of Subjective Intent

Subjective	Objective Match	Measurement	Methodology
Trust	Service availability, Data protection	Uptime, Data privacy	Service Level Agreements
Adoption	Usage	Logins, Feature access	Meta Data tracking
Satisfaction	Willingness to Endorse	CSAT scores	Customer Satisfaction Surveys, Testimonials
Value	Key Performance Indicator	Revenue (US\$)	Return on Investment (RoI)
Loyalty	Growth, Repeat Purchases	Additional product purchases, Renewal Rate	Sales, Renewal Results

These research outcomes were serving to challenge the researcher's initial theory-led perspective of there being distinct objective and subjective attrition data drivers. However, the researcher was still not completely satisfied (based partly on the small number of interviewees) and so sought to still further explore these unexpected research outcomes. The researcher obtained a further series of face-to-face interviews with two multi-company founding pioneers of several other significant, established and successful Cloud Computing subscription providers (CCSP1 and CCSP2). The resultant data supported the findings from the earlier interviews and provided rich insights into the mechanisms, which the SaaS providers had both envisaged and purposely employed, to ensure that these seemingly subjective values were measured from the start:

“If the customer wants to set up an optimal sales process they have to do a, b, c and d. If we can track whether they have done these four steps and if we can ensure or verify that the user interface is easy to use and supports the customer in their tasks and if our software contains the functionality that is required to implement the steps to realize the business process then from that point on its probably safe to assume that the customer is happy and will continue using the product’ (CCSP2).

Such was the focus on ensuring that no reasons for reducing or attriting was left unanalysed in an objective way that one of the SaaS pioneers went so far as to ensure that one to one ‘exit interviews’ with its attriting customers were built on a template from the onset to ensure that softer proffered reasons like ‘dissatisfaction’ or ‘perceived lack of trust’ were analysed and broken down into harder, objective values like specific perceived ‘product functionality shortfalls’ or ‘service availability issues’, which could be both measured and addressed:

“...on top of that with the surveys we continuously measure things like the net promoter score, or the customer satisfaction scores which are indicative of if a customer is actually loyal to us, not only loyal but if they would promote us to their friends, if they will recommend us to other people. These are also ways of measuring loyalty and in the end trust, Adoption, loyalty, all are factors that reduce attrition and make the customer company more successful. Then really it all boils down to delivering business value to the customer, it all goes to how can we make sure the customer is successful because if the customer is successful a company, a SaaS company, is successful” (CCSP1).

Through “interactive and real-time exit customer conversations” (DS2), “online attrited customer surveys” (DS1), “targeted ‘at risk’ customer reach-outs” (CIS2) and adoption/ value focused engagements (CIS1), the SaaS providers all believe they have the capability to proactively track and engage in analysing the principal reason for loss or reduction offered by their subscribers, although this data wasn’t available to the researcher for verification. Interestingly, however, these engagements weren’t solely viewed in terms of influencing potential future renewal/ attrition decisions on an individual basis but rather on using these subjectively manifested reductions to influence a program of objective remedies, which could be ‘delivered at scale’ to their complete customer base:

“In our scenario we know who the customer currently is. We know a lot more about the people and that helps us to reach out to them. Especially for a CRM company, it is relatively easy to reach out to their customers and figure out how to reach them” (DS1).

As set out at table 4.5 above, this mapping of subjective intent onto objective outcomes, was positioned by all the SaaS service deliverers as their key business intelligence value.

PHASE TWO DATA ANALYSIS – INITIAL INSIGHTS

Contrary to the direction initially indicated by the prevailing theory and the phase one data, in reality there is little real subjective data indicated through the reasons put forward for the reduction, or attrition, of the SaaS subscriptions. What first appears as a subjective decision can be mapped to, and measured by quantitative data points, which are routinely tracked by the SaaS provider. These values can be measured, tracked and specifically actioned to reduce their future impact across the SaaS service offering. Strengthened by the interview data indicating customer ambivalence; this finding highlights the learning that there are in fact few, if any, truly subjective measures, only ultimately objective ones which will masquerade as something different until data

driven evidence unmask them as data points which can be quantified, albeit by a very tacit and determined analytical approach:

“My measuring does not necessarily always having to take out the ruler and measure it. We count the log files and figure it out” (DS2).

“Measuring for me is also going to a customer and saying so how are you doing?” (DS1).

A separate finding, particularly of interest to the researcher-practitioner as an industry insider, was the ambivalence in the SaaS subscriber community in terms of commitment to the service provider, especially after the initial interaction has expired. The data in table 4.2 above, shows just how stark this disconnect is, with only nine of 647 customers prepared to engage, even following three direct requests from the company. The fact that this was of such little concern to the SaaS data and customer teams was even more intriguing, especially as customer engagement is seen as a fundamental innovation of the SaaS business model over that of the classic software company (McLauchlin, 2010).

Additional to the main findings, a side observation, which emerged from the interviews was that this new-found objectivity was not universal in its value measurements. From almost all of the interviews there came a sense of segmentation, or more specifically, that although the subjective perceptions could in fact be measured, there was no single set of values that would be applied to all:

“I ran a very large company and we were a big user and we got those bigger discounts so I understand that side of it and now I understand the other side being a small medium business owner. I think there have to be different levels of service and different quality of service interactions for different types of customer” (CS1).

“You can’t just provide democratic services across the board” (CS2).

This turned out to be another important finding of the research and one which is hugely applicable to the SaaS Cloud Computing industry. Software as a Service is the ‘ultimate business democracy’ (Meeker et al. 2010), but it is this very democracy which makes it so tricky to measure, and predict, the renewability and ultimate robustness of the SaaS subscriber book of business. In any specific business segment, what might be a very valid subjective measurement key (value, trust, satisfaction, loyalty or adoption expectation), these can be completely different or irrelevant in another segment, even within the same industry. CIS2 explains it well;

“The value measure of the small business owner, writing a personal cheque for the subscription service is totally different for the employee SaaS administrator using exactly the same Cloud service in a large, multinational enterprise”.

Both service users may be subjectively influenced by their perception of adoption or value but equally both are weighted completely differently in each business segment. As Marston et al. (2011) articulate: *‘no one size fits all’*.

The ‘Value’ debate

Although mapped separately, what these outcomes serve to underline is that the ‘value’ debate is as relevant to the Cloud SaaS industry today as it was to the marketing horizons of Slater and Narver (1994). Seen from the research outcomes and dependent on the viewer’s paradigm, value has many faces. Whether its perception by the customer is merely an antecedent of that customer’s loyalty, satisfaction and adoption (Lam et al, 2004) or its measure by the Cloud SaaS provider as its next source of competitive advantage (Woodruff, 2004), the research data and the literature are at one in highlighting that the perception of value, and the delivery against the perception, is a key influencer on the renewal, or not, of the Cloud SaaS license.

REFLECTIONS ON THE RESEARCH PROCESS

From the researcher’s perspective, the initial research challenges were principally envisioned as most likely to be centred around ensuring a clear separation between the dual roles of practitioner and researcher. The reality of the research undertaking proved to be somewhat different than anticipated and the researcher’s closeness and involvement with the company data proved to be as much of a hindrance as help. Reflecting, this time with the benefit of hindsight, on He et al.’s (2004) view that ‘trust is subjective’, ironically, this point may be what caught out the researcher in terms of his expectation of gaining access to and response from potential interviewees. This closeness, and its necessitation of creating a clear buffer between the researcher and the customer; versus his ability to reach out directly to the potential dataset, weakened rather than strengthened his subscriber research capacity. It is a belief of the researcher that the necessitation of this extra layer between the researcher and the research data and cohort reduced the researcher’s ability to reach more directly to ask for research participants. This produces significant additional research learning, one that is opposite

to the expectation of being advantaged through closeness with, and access to, the potential pool of respondents. In reality, the researcher is ethically obliged to sit removed from his professional influence, based on his dual role as researcher-practitioner. Interestingly, and ironically, the solution to this dilemma may actually have come from the research company data scientist in response to general questioning around expected response rates:

“It might be worth while just selecting a set of customers and calling them directly. I mean calling them and setting up some time where they can be reached” (DS1).

Perhaps Van Maannen (2011) had inadvertently already stumbled on this challenge when he referred to regarding the *“relation between the knower and the known to be a most problematic one and anything but independent”*. But that’s for another day....

CONCLUSION AND NEXT STEPS

The phase two research objectives were to allow the researcher to explore different dimensions of the SaaS subscriber’s experience and to seek to elicit the detailed subjective reasoning behind the subscriber’s SaaS attrition decision. Or simply, the qualitative intent behind the quantitative actions.

There were two key findings from the research, each somewhat different than the envisaged outcomes. First, in an industry that is perceived to be customer centric (Chowhan and Saxena, 2011), the response rates received from the surveyed cohort indicate a relationship ambivalence closer to that of a utility (Agyapong, 2011). This has implications for the lifetime value expectations inherent in the SaaS business model (Osterwalder and Pigneur, 2010). Specifically, the perceived subjectivity of the SaaS attrition or reduction decisions (Walther et al. 2013) is less impactful than might have been expected. Secondly, the SaaS providers capability of analysing and tracking meta-data usage patterns (Wohl, 2008) enables them to track subjective influences through a somewhat counter-intuitive, but objective set of algorithms. This outcome can provide the assurance to the SaaS provider that their business foundation is less exposed to unmeasurable customer influences than might previously have been expected.

These findings, combined with, and strengthened by, the current study's interview data indicating customer ambivalence, highlights a third major learning that, within the CC SaaS B2B industry, experts perceive there to be no real subjective measures; only ultimately objective ones which will masquerade as something different until data driven evidence unmask them as data points which can be quantified, albeit by a very tacit and determined analytical approach. In terms of its practical application, these findings mean that the reality of protecting the subscriber base is more within the control of the SaaS provider than might previously have been suspected. Historically all subscriptions are exposed to churn (Kim and Yoon, 2004). None previously had the level of customer interaction and usage data that the Cloud service provider now has, offering new opportunities for generating customer knowledge in pursuit of their loyalty.

This research was undertaken as a 'rear view mirror' analysis only. As such, it looked only through the data of past events in seeking to clarify subjective thinking. The research outcomes were such as to disprove the secondary pointers of the initial research phases, as guided by the literature, which indicated that attrition data could be broken down into both objectively and subjectively, influenced groupings. Clear as these findings were, nonetheless the researcher feels that as Pope et al. (2000) point out, sometimes there is a need to revisit, refocus, and retest the data elsewhere, so the researcher strongly believes that there is significant value in similar research being done in the same Cloud or SaaS areas. Future research could be undertaken not by measuring the 'after the fact' results as in this case but rather that this study might undertake what Armbrust et al. (2010) labels Cloud Customer acquisition criteria. In doing so, any future research might undertake a similar research on the influence of the SaaS or Cloud brand value and loyalty but in this instance on pre acquisition prospects rather than on attrited or reducing existing customers. Based on the insider researcher experiences of the current study, perhaps this future study would be better carried out by a researcher external to the research data cohort.

References

- Agyapong, G.K.Q. 2011. "The effect of service quality on customer satisfaction in the utility industry—a case of Vodafone (Ghana)." *International Journal of Business and Management*. 6(5), 203-210.
- Armbrust, M., Fox, A., Griffith, R., Joseph, A., Katz, R., Konwinski, A., Lee, G., Patterson, D., Rabkin, A., Stoica, I., Zaharia, M. 2010. "A view of cloud computing". *Communications of the ACM*, 53(4), 50-58.
- Bell, E. and Bryman, A. 2007. "The ethics of management research; an exploratory content analysis." *British Journal of Management*, 18, 63 -77.
- Bryman, A. and Cramer, D. 1994. *Quantitative data analysis for social scientists*. UK, Taylor and Frances/ Routledge.
- Burez, J. and Van den Poel, D. 2007. "CRM at a pay-TV company: Using analytical models to reduce customer attrition by targeted marketing for subscription services". *Expert Systems with Applications*, 32(2), 277-288.
- Buyya, R., Yeo, CS., Venugopal, S., Broberg, J., Brandic, I. 2009. "Cloud computing and emerging IT platforms: Vision, hype, and reality for delivering computing as the 5th utility". *Future Generation Computer Systems*, 25(6), 599-616.
- Bei, L-T. and Chiao, Y-C. 2010. "An integrated model for the effects of perceived product, perceived service quality, and perceived price fairness on consumer satisfaction and loyalty." *Journal of Consumer Satisfaction, Dissatisfaction and Complaining Behaviour*. 125-140.
- Boeije, H. 2002. 'A purposeful approach to the constant comparative method in the analysis of qualitative interviews', *Quality and Quantity*, 36(4), 391-409.
- Chen, J., Wang, C., Zhou, B.B., Sun, L., Lee, YC., Zomaya, A. 2011 "Tradeoffs between profit and customer satisfaction for service provisioning in the cloud." *Proceedings of the 20th International Symposium on High Performance Distributed Computing*. New York, ACM, pp. 229-238.

- Chowhan, S., and Saxena, R. 2011. "Customer relationship management from the business strategy perspective with the application of cloud computing." *The Proceedings of DYNAA*, 2(1), 28-38.
- Day, G.S. 1976. "A two-dimensional concept of brand loyalty." *Mathematical Models in Marketing*. Springer Berlin Heidelberg, pp. 89-89.
- Fader, P.S. and Hardie. B. 2007. "How to project customer retention." *Journal of Interactive Marketing*, 21(1), 76-90.
- Fan, M., Kumar, S., Whinston, A.B. 2009. "Short-term and long-term competition between providers of shrink-wrap software and software as a service". *European Journal of Operational Research*, 196(2), 661-671.
- Groth, J.C. and Dye, R.T. 1999. "Service quality: perceived value, expectations, shortfalls, and bonuses." *Managing Service Quality: An International Journal*, 9(4), 274-286.
- Groves, R. M., Cialdini, R. B., and Courier, M. P. 1992. "Understanding the decision to participate in a survey". *Public Opinion Quarterly*, 56, 475–95.
- He, R., Niu, J., Yuan, M., Hu, J. 2004. "A novel cloud-based trust model for pervasive computing". *Fourth International Conference on Computing and Information Technology proceedings*, Wuhan, China, Sept 14-16.
- Jackson, K. and Trochim, W. 2002. "Concept mapping as an alternative approach for the analysis of open-ended survey responses." *Organizational Research Methods*, 5(4), 307-336.
- Kim, H-S, and Yoon, C-H. 2004. "Determinants of subscriber churn and customer loyalty in the Korean mobile telephony market." *Telecommunications Policy* 28(9), 751-765.
- Lam, S.Y., Shankar, V., Erramilli, M.K., Murthy, B. 2004. "Customer value, satisfaction, loyalty, and switching costs: an illustration from a business-to-business service context." *Journal of the Academy of Marketing Science*, 32(3), 293-311.

- Lewis, P. 2002 "The Psychology Affecting Loyalty of Electricity and Gas Customers".
The Global Energy Marketing Conference in University of Vaasa, Finland.
- Linthicum, D.S. 2010. *Cloud Computing and SOA Convergence in Your Enterprise: A Step-by-Step Guide*. U.S.: Addison-Wesley Information Technology Series.
- Marston, S., Li, Z., Bandyopadhyay, S., Zhang, J., Ghalsasi, A. 2011. "Cloud Computing - The business perspective". *Decision Support Systems*, 51(1), 176-189.
- Marx, K. 1910. *Value, price, and profit*. CH Kerr and Company.
- Mason, M. 2010. 'Sample size and saturation in PhD studies using qualitative interviews', *Qualitative Social Research*, 11(3), 1-12.
- Maxwell, J.A. 2013. *Qualitative Research Design - an interactive approach* (3rd ed.). USA, Sage.
- Miles, M.B. and Huberman. M. 1994. *Qualitative data analysis: An expanded sourcebook*. UK, Sage.
- McLauchlin, J. 2010. "Retaining Customers: It's Not Just About the Renewal". *The Marketer*, 17(1).
- Meeker, M., Pitz, B., Fitzgerald, B. 2010. *Internet Trends*. US: Morgan Stanley Research. Private Paper. June [Internet] Available at:
http://211.157.29.42/F10Data/HYBG_NEW/DOC/180.pdf (Accessed: Aug 2013).
- Morgan, R. and Hunt, S. 1994. "The Commitment-Trust Theory of Relationship Marketing." *Journal of Marketing*, 58, 20-38.
- Oliver, R.L. 1980. "A cognitive model of the antecedents and consequences of satisfaction decisions." *Journal of Marketing Research*, 17(4), 460-469.
- Osterwalder, A. and Pigneur, Y. 2010 *Business model generation: a handbook for visionaries, game changers, and challengers*. New Jersey, John Wiley & Sons Inc.
- Osterwalder, A. and Yves, P. 2010. *Business model generation: a handbook for visionaries, game changers, and challengers*. Self published. [Internet] Available at:
www.businessmodelgeneration.com (accessed January 2014).

- Pope, C., Ziebland, S. and Mays, N. 2000. "Qualitative research in health care: Analysing qualitative data." *BMJ: British Medical Journal* 320(7227), 114.
- Reinartz, W. and Kumar, V. 2002. "The mismanagement of customer loyalty." *Harvard Business Review*, 80(7), 86-95.
- Rust, R., Zeithaml, V. and Lemon, K. 2000. *Driving Customer Equity: How Customer Lifetime Value Is Reshaping Corporate Strategy*. The Free Press, NY.
- Sandelowski, M. 1995. 'Sample size in qualitative research', *Research in Nursing and Health*, 18(2), 179-183.
- Saunders, M., Lewis, P. and Thornhill, M. 2003. *Research Methods for Business Students* (3rd ed). Prentice Hall, London.
- Sekaran, U. and Bougie, R. 2010. *Research methods for business: A skill building approach* (5th ed.). UK, Wiley.
- Sheehan, K. 2001. "E-mail survey response rates: A review." *Journal of Computer - Mediated Communication*. 6(2).
- Skilton, M. and Director, C. 2010. "Building Return on Investment from Cloud Computing". *White Paper*, Cloud Business Artifacts Project, Cloud Computing Work Project, The Open Group. [Internet] Available at:
http://www.mladina.si/media/objave/dokumenti/2010/5/31/31_5_2010_open_group_building_return_on_investment_from_cloud_computing.pdf
 (Accessed Sept 2013).
- Slater, Stanley F., and John C. Narver. 1994. "Market orientation, customer value, and superior performance." *Business Horizons*, 37(2), 22-28.
- Sproull, N. 1998. *Handbook of research methods: A guide for practitioners and students in the social sciences*. Scarecrow Press, Maryland.
- Turner, M., Budgen, D. and Brereton, P. 2003. "Turning software into a service". *Computer*, 36(10), 38-44.
- Van Maanen, J. 2011. *Tales of the field: On writing ethnography*. Chicago, University of Chicago Press.

- Vaquero, L., Rodero-Merino, L., Caceres, J., Lindner, M. 2008. "A break in the clouds: towards a cloud definition." *ACM SIGCOMM Computer Communication Review*, 39(1), 50-55.
- Verhoef, P.C. 2003. "Understanding the effect of customer relationship management efforts on customer retention and customer share development." *Journal of Marketing*, 30-45.
- Walther, S., Sarker, S., Sedera, D., Eymann, T. 2013. "Exploring Subscription Renewal Intention Of Operational Cloud Enterprise Systems- A Socio-Technical Approach." *ECIS Conference Proceedings*, Utrecht, Netherlands.
- Wohl, A. 2008. *Succeeding at SaaS: computing in the cloud*. US, Wohl Associates.
- Zeithaml, V. A. 1988. "Consumer perceptions of price, quality, and value: a means-end model and synthesis of evidence." *The Journal of Marketing*, 2-22.

APPENDIX 1: INVITATION TO PARTICIPATE IN RESEARCH STUDY

From: **XXX**
Date: Thu, Feb 5, 2015 at 1:32 PM
Subject: Software as a Service subscription
To: xxxxxx@xxxxxx.com

Dear XXXXX,

Some time ago XXXXX decided not to renew their Salesforce.com Cloud subscription and, in this context, I am writing to politely ask if you would be willing to participate in a doctoral academic research study.

The purpose of the study is to better understand the subscription motivators of Cloud Computing subscribers in order to (ultimately) improve the customer care provisions offered by the Software as a Service (SaaS) provider.

Your selection for this request was totally random and made from a listing of previous subscribers to the Salesforce service. As such, your participation in the research project is entirely voluntary.

If you decide you do not wish to participate, I thank you for your feedback and no further contact will be made in this regard.

If you do decide to participate, with your agreement I will prompt the doctoral candidate to contact you directly so that the academic research undertaking can be carried out completely removed from Salesforce.

None of the research detail will be returned to Salesforce and the summarized, anonymous, research outcomes will be published as an academic thesis only.

Thank you for your time in reviewing this request and I look forward to your response at your convenience, please.

Sincerely,

XXX
Executive Assistant
XXX Company

APPENDIX 2: CUSTOMER/ COMPANY RESPONSE TO RESEARCH REQUEST

Concerns and objections raised by potential participants on receipt of an invitation to participate in the study (appendix 1). The following correspondence has been anonymised to protect the identity of the authors.

On Thu, Mar 19, 2015 at 3:30 PM, [executive assistant distributing the invitation to participate in this study] wrote:

Dave – [Head of Employee Services just called me about this. She needs to speak with you too. She is on a call until 16h30 and will call your mobile then. Thnx.

----- Forwarded message -----

From: **XXX**

Date: XXX

Subject: Fwd: Software as a Service subscription

To: XXX

Cc: "[company] Information Security"

Hi XXX,

Was the below email an accident? [copy of appendix 1 email was attached]. Not sure if your email went out in error to a customer here in the States. It was an odd request to them.

Thanks,
XXX

Sent from my iPhone. Please excuse any grammatical mistakes.

APPENDIX 3: INTERVIEW TEMPLATE

Phase 2 Semi-Structured Interview Themes

3. Usage/ Value	4. Trust/ Satisfaction
a. Never Deployed	g. Trust
b. Unused Licenses	h. Transfer to Reseller
c. Light Functional use	i. Management Change
d. Low True Login Percentage	j. Competitive Risk
e. High Usage limited business value	k. Lack of Sponsorship
f. Sales Process or Contract Terms	l. Analyst influence
g. Poor perceived value	
h. Partner Dissatisfaction	

Source: Current Research

Interview Template:

- Usage/ Value
 - What did you use product for? Did it meet your usage needs? How do you measure successful usage
 - Never Deployed
 - Did you fully deploy it? Why not? How do you measure deployment?
 - Unused Licenses
 - Did you have any unused licences? Why were they not used?
 - Light Functional use
 - Did it meet functional needs? Fully or too much/little? What functionality was good/ bad/ missing/ overkill? Did you make functional asks of support?
 - Low True Login Percentage
 - How often did you use the system? All licenced users with same usage needs? How did the service provider help you to maximise the use?
 - High Usage limited business value
 - Did you get business value? How do you measure it? Did all business users perceive the value?
 - Sales Process or Contract Terms
 - How was the sales process? Was the contract acceptable? Would you change it – how/why? Who does it better/ how?
 - Poor perceived value
 - Did you consider you got value from the service? What does value mean to you in context of this service?

- Partner Dissatisfaction
 - Were you satisfied with the service? Did you interact with any service implementation partners? How was this interaction?
- Trust/ Satisfaction
 - Trust
 - Do you trust the service provider? How did they earn your trust? Did they keep it/ grow it/ lose it? Why is trust important to you? What is trust?
 - Transfer to Reseller
 - Did you use reseller services? What were they? Did you move any of your licences over to the reseller product? Why was it better?
 - Management Change
 - Did all of the management team feel the same about the service? Did the management team change during the lifecycle? Did the management team change its view on the service? How important was the management team PoV of the service? Why? How was the service provider team?
 - Competitive Risk
 - Did you use a competing product? Were you tempted to? For what reasons? Why were you more satisfied with the competing product?
 - Lack of Sponsorship
 - Did you have a business sponsor for the service? Why did they sponsor it? How influential/ important was this to the service? Why did it end?
 - Analyst influence
 - Did you seek an external opinion on the service? Around which parts? Why was this important? Did it influence your initial purchase/ renewal decision? Do you use this external opinion for other, similar services? Why do you value/ trust this analyst? Would you pay for their recommendation? Would you buy a competing product if they recommended it?

**SECTION THREE:
CONCLUSION AND RECOMMENDATIONS**

INTRODUCTION

To re-iterate the rationale outlined in the origins of the research study (section one), the focus of the research is on the attrition of Software as a Service subscriptions rather than their renewal. In the context of the SaaS subscription business model, the decision to not continue or renew the subscription service requires a conscious, and generally a considered, action prior to the cancellation or attrition. In contrast the continued use of, or subscription to, the SaaS service requires no such conscious action, with automatic renewal rollover without intervention being the common business expectation (Walther et al. 2013). This study seeks to build a conceptual framework that will serve the existing or perspective SaaS supplier as a template for a revenue model based on data derived from real world SaaS renewal milestones. For these renewal events no data other than financial performance is captured from the successful renewal events. Thus providing meaningful insights based on actual attrition decisions rather than auto-renew contract extensions provides a much richer outcome for the SaaS Cloud Computing practitioner.

The focus of the research was to study the business of Cloud Computing and the revenue expectation of the Cloud Computing (CC) Software as a Service (SaaS) industry, particularly its dependency on the management of its renewal subscriptions (Skilton and Director, 2010). In doing so it focused especially on the delivery of SaaS through the CC channel, in the Business-to-Business (B2B) domain. Guided by the literature, this research project asks:

‘What is the B2B recurring revenue framework for the delivery of SaaS through a Cloud Computing channel?’

Through an analysis of the real world attrition reasons for loss data captured from a Cloud SaaS B2B subscriber base cohort the primary data provides clear answers to the research question. The resultant research study was carried out over the period 2010 to 2015. Primary data collection was undertaken in four interrelated stages over an 18-month period from October 2013 to March 2015. In supporting this research question, there were five specific research objectives:

1. Examine the existing software distribution and revenue models and assess their applicability to CC SaaS provision.

The literature review identified relevant models (paper 1) and considered their applicability in context. The resultant conceptual framework exhibiting B2B recurring revenue for delivery of SaaS through a CC channel offered a baseline from which to study the remaining research objectives.

2. Identify the drivers, risk factors and subscription renewal influences in CC SaaS B2B renewals.

The subscriber renewal taxonomy (paper 1) provided a baseline summary of the potential drivers, risk factors and subscription renewal influences (paper 2). These were tested and enhanced through a mapping to the real world Reason for Loss (RFL) data identified from analysis of the research data (paper 3 and 4).

3. Explore the reasons why customers renew, reduce or attrit their software as a service, or CC subscription, services.

The influences highlighted by the literature (paper 1) combined with the real world RFL data from the research cohort (paper 3) supported the exploration and analysis of the reasons why Cloud SaaS subscribers would not continue to renew their SaaS subscription (paper 4).

4. Analyze the renewal criteria applied by B2B clientele.

The RFLs from the research data (paper 3) informed the themes for the collection of the interview data on the influences apprising the B2B SaaS subscription renewal or attrition decision (paper 4).

5. Propose a B2B recurring revenue framework for delivery of SaaS through a CC channel.

Enhanced by the learning from the research outputs and supported by the literature, the initial conceptual framework (paper 1) used to support the delivery

of objective one served as the foundation for the refined recurring revenue framework presented below at figure 2.

The aim of the research was to establish a B2B recurring revenue framework for the delivery of SaaS through a Cloud Computing channel. In doing so, the research sought to establish those influences that contribute to the SaaS renewal decision and to explore the reasons why Cloud Computing SaaS customers actually renew, reduce or attrit their SaaS subscription services. This concluding chapter sets out the chronology of the research undertaking. The introduction provides a review and summary of the pursuit of the research aim and the research objectives. This is followed by a summary of the research outcomes and an extraction of the themes from the research study. It then presents a discussion of these outcomes particularly in relation to the pursuit of a refined recurring revenue framework for the Cloud SaaS business. The chapter finishes by outlining the research contribution to both practice and theory, including a review of its limitations, before concluding with a proposal for further studies.

SUMMARY OF RESEARCH OUTCOMES AND EXTRACTION OF THEMES

The principal findings from the research study are:

1. Cloud users and providers view trust in different ways;
2. Subscriber churn is a significant risk for the Cloud Computing Software as a Service industry;
3. The reasons for subscribers attriting or reducing their SaaS subscriptions should be captured at the time of the attrition;
4. These reasons can be prejudiced by both subjective and objective influences.
5. The Cloud Computing SaaS business can mitigate the attrition risk through early lifecycle intervention based on the historic reasons for loss recorded.

Following analysis of the nine hours of interview transcripts, alongside documentary review and expert liaison and an extraction of the key themes from this data, several themes emerge as being particularly appropriate to the Cloud Computing Software as a Service industry. Table 1 below shows that these manifest principally as:

Table 1: Extraction of themes

Theme	Overview
Trust relationship differential	The trusted relationship between the SaaS provider and the SaaS user and how each side views it?
Attrition reasons perceived as measurable	Whether attrition is influenced by subjective or objective and how these influences might be measured.
Customer Segmentation	The influence of the customer segment on the renewal habits of that segment's cohort.
CC/ SaaS as a utility – lifetime value	Whether the SaaS customer relationship is that of a utility subscriber relationship and its impact on lifetime value.

Contemplating each theme offered a basis for further analysis of the findings displayed in cumulative paper 4, in liaison with the literature.

Theme 1 – Trust Relationship Differential

From the researcher's earliest review of the literature, trust emerged as a key factor in any expectation of a renewable customer relationship (Keh and Xie, 2009). However, somewhat in contrast to the Morgan and Hunt (1994) findings around the links between commitment and trust in relationship marketing, this link proved somewhat problematic in the research outcomes of this study in that the view, approach and investment in trust differed considerably for both the SaaS service provider and the service subscriber/user. Theme 1 extracted findings as to whether a trusting relationship exists between the SaaS provider and the SaaS user and how each side views this relationship? Rust, Zeithami and Lemon (2000) set out trust as being amongst the most prominent influences on a customer relationship. The research findings support this view with the expectation of trust emerging as an influence on the subscription renewal habit. However, how trust manifests and whether trust is quantifiable are different for the SaaS subscriber and SaaS provider. For the SaaS subscriber trust is seen as a foundational business relationship value that can be measured by something as simple as pricing 'even-handedness' (equity), while for the SaaS provider the view of subscriber trust is more about being accepted as trusted guardians of the subscriber data or the security and availability of the service instance.

At first, this disconnect appears significant in that the investments which the SaaS provider must make to maintain their perceived positions as trusted suppliers do not equate with how the SaaS subscribers view the same measure. On deeper reflection and

perhaps no different to Plato's Allegory of the Cave, how this appears to the SaaS subscriber may not be a true representation of reality from the dataset tested. In this instance, is it that the Cloud SaaS provider has been so vigilant in attending to their measure of trust, i.e. data security and service availability, that the SaaS user simply doesn't see this as a trust concern and instead measures trust at another, less basic level? Like Maslow's (1943) theory of human motivation, mapping a similar hierarchy of needs for the Cloud Computing SaaS industry it would be reasonable to list secure service availability and data privacy as the base of the pyramid for both the user and provider alike. That the data cohort provided for this research offer different interpretations of trust for the user and provider is perhaps an indicator that the service provider is meeting the foundational service security and availability for the SaaS user; such that the consumer then seeks to have a higher level of need met as their baseline trust measure? Perhaps this is an area with potential for future research.

Albeit that the research data appear to show a 'disconnect' between the trust expectation of the SaaS subscriber and the SaaS provider, trust is an influence on the subscription renewal habit (Burez and Van den Poel, 2007). The researcher expectation is that trust would be a soft, subjective, influence on the renewal propensity rather than a hard, quantifiable, measure. However, the research outcomes show the SaaS vendor's perception of trust to be different from the customer perspective. This is an equally relevant influence, with the research findings additionally showing trust to be an antecedent influence rather than a final outcome. Table 2 below shows the manifestation of trust as a Reason for Loss (RFL) in the SaaS user attrition world, as a measure of data privacy and security. For the SaaS provider, this manifests as quantifying levels of customer trust perceptions through measures of increased data usage levels, combined with system availability and data privacy levels. This is significantly different to Burez and Van den Poel's (2007) perception of customer trust and, as such, ranks as a controversial research outcome. It prompts the thought that perhaps Burez and Van den Poel's (2007) perception of measurable trust is industry specific and is a peculiarity of the Cloud SaaS industry rather than something that holds true for other subscription deliveries.

Theme 2 - Attrition reasons perceived as measurable

Theme 2 provided insight into whether attrition is influenced by subjective or objective and how these influences might be measured? The expectation from the literature (Fader

and Hardie, 2007) was that most reasons for attrition, like price and service level, were objective and measurable, while a number of others; i.e. trust, adoption, satisfaction, value and loyalty, were subjective and would not lend themselves to being measured in a quantitative way. Both the literature and the taxonomic groupings of the subscription habits suggest that while the final recordings of the subscription attrition manifests itself as a hard, objectively driven event, equally it can appear to have been subjectively motivated. This finding is of significant importance to the Cloud SaaS provider, in that any attempt to defend against, or legislate for, such attrition would be significantly more difficult to do without clear sight of the true motivation behind it. It was with this in mind that the phase two research specifically sought to investigate this causal relationship. It is of considerable interest that this causal effect is not supported by the research outcomes from the detailed interviews, expert liaison and documentary review.

Both the attriting subscriber and the Cloud SaaS provider interviewees acknowledge other influences on the final attrition than that finally recorded in the archived survey results. Following review of the transcripts, it transpired that all of the anticipated antecedent influences proved to be objectively motivated. Running contrary to previous subscription renewal expectations (Burez and Van den Poel, 2007) this would appear to be an industry specific phenomenon and, as such, this is a significant finding. The identification of the initial objective will allow the SaaS provider the opportunity to both identify the risk of attrition early in the subscription lifecycle and having done so, to take defensive actions to mitigate against it. From both the SaaS provider and SaaS user points of view, the reasons for loss offered by the attriting or reducing customers in the reviewed dataset manifested in such a way that the attrition data provided could be both measured and tracked using a quantitative approach (table 2).

Table 2: Subjective/ Objective Reason for Loss (RFL) Measurement

Subjective	Objective Match	Measurement	Methodology
Trust	Service availability, Data protection, Usage	Uptime, Data privacy, Increased Usage	Service Level Agreements, Meta Data Tracking
Adoption	Usage	Logins, Feature access	Meta Data tracking
Satisfaction	Willingness to Endorse	CSAT scores	Customer Satisfaction Surveys, Testimonials
Value	Key Performance Indicator	Revenue (US\$)	Return on Investment (RoI)
Loyalty	Growth, Repeat Purchases	Additional product purchases, Renewal Rate	Sales, Renewal Results

This finding runs contrary to much of the earlier literature and would suggest that Armbrust et al. (2010) are correct in the assertion that the amount of customer usage data which the Cloud Computing delivery path makes available to the service provider puts the vigilant Cloud service owner in a uniquely privileged position when it comes to being able to predict the propensity of their customer base to attrit or renew. Similar to the discussion on theme 1 (trust) above, this amounts to an industry specific benefit rather than one that might carry over into other subscription arenas delivered in a more traditional fashion.

Theme 3: Customer segmentation

This theme sought to expose the influence of a customer segment on the renewal habits of that segment's cohort. For this research the attrition data reviewed was purposively chosen as a single geography, dollar value delineated (US \$25,000 to \$100,000) Business-to-Business cohort. To have chosen anything more diverse would have risked the over homogeneity cautioned by Tsiptsis and Chorianopoulos (2011). This was an appropriate sample size (Bryman, 2012) but it also raises the further thought that perhaps a different or wider segmentation might produce different results. Particularly, the views of Frank, Massy and Wind (1972) point to segmentation as being a major influence on commercial purchasing performance habits, so there may be a valid argument made for the further analysis of the subscription renewal customer lifetime of the Cloud SaaS customer using the more longitudinal value segmentation proposed by Rindfleisch et al. (2007). While acknowledging this as a valid question I defend my

narrower stance on the basis that the customer research dataset offered to me was mandated as being of a single year's value only. Perhaps this finding will encourage other researchers to build on my findings by testing the clues provided by the data that segmentation and lifetime value are indeed valid further research avenues.

Theme 4: Cloud Computing/ SaaS as a Utility – Lifetime Value

This theme (4) revealed the SaaS customer relationship is that of a utility subscriber relationship, and considered its impact on the relationship. As previously highlighted as early as the 1960s Kleinrock (1969, as cited in Leiner et al. 1997) believed computer networks would grow in sophistication so that we would see the emergence of Computer Utilities. In the half century since, many (e.g. Vacquero et al. 2008; Buyya et al. 2009) have provided technical specifications for computing power delivery which continue to edge our technical capabilities towards the ubiquitous computing presence. Few would argue that the utility characteristics (Rappa, 2004) have now been matched and delivered by Cloud Computing SaaS, heralding Cloud Computing's arrival as the 5th Utility. The final arrival of Cloud SaaS as a utility presents its own business challenges (Ambrust et al. 2010). Separate from the more obvious exposure to customer and subscription churn documented by Kim and Yoon (2004), this baseline prompts a more subtle risk to the industry in that it will now need to think more like a utility in terms of its customer relationships and expectations. This links closely with the customer lifetime value issues verbalized by Venkatesan and Kumar (2004) and should be considered when thinking about any new business model or framework proposed as appropriate for the Cloud SaaS industry. This additional dimension is one which slowly unfolded through the research process and as such is now reflected in the forthcoming refined conceptual framework of B2B SaaS Renewal Decision Criteria.

For the Cloud SaaS provider this research outcome raises the question of what should be perceived or measured as customer value and how should the provider expect this value to manifest? Importantly, the interpretation of value differs significantly from that which might have previously been expected from the literature (Venkatesan and Kumar, 2004) in that for both the SaaS customer and the SaaS provider, value is quantifiable and central to the renewal decision (McLauchlin, 2010). That both have definite and different measures of value moves the value debate itself from the generic expectations of Zeithaml (1988) to a new place where both the SaaS users' return on investment (ROI) measure or the SaaS providers measure of feature consumption (adoption) need

to be measured and adjudicated on a continuum rather than as a point in time snapshot. This is at odds with the month-to-month subscriptions advised by early Cloud SaaS business literature (Armbrust et al. 2010; Ojala and Tyrväinen, 2012).

Based on this study's research findings, and the proposed SaaS revenue business model paradigm, this monthly flexibility should be put aside in favour of the lifetime value measures championed by Venkatesan and Kumar (2004). While the concept of lifetime value is nothing new (Slater and Narver, 1994) its applicability to the Cloud SaaS is especially appropriate and, I would opine, uncomfortable. From its very earliest manifestations the Cloud Computing or SaaS industry has championed the dial up or dial down flexibility of monthly subscription licensing but the reality of lifetime value creation is such that longevity of the subscriber relationship is likely to be a key component of the original (figure 1) and refined (figure 2) business renewal framework on which the industry needs to be built. Like the trust debate above (theme 1), this theme prompts similar opinions around whether these value expectations and measurements are specific to the Cloud SaaS industry. The literature (Venkatesan and Kumar, 2004) shows lifetime value had been considered long before the advent of the Cloud but the data outputs from this research would caution that it may well be more important to the industry than might at first glance be expected.

REFINED CONCEPTUAL FRAMEWORK

Klag and Langley (2013, p 149) talk about 'the conceptual leap that generates abstract theoretical ideas from empirical data'. Contemplating the findings (cumulative papers 3 and 4) and in consideration of the preceding discussion around theme extraction; it is valuable to reconsider the original conceptual framework of the B2B SaaS renewal decision (figure 1), which represents how, as a researcher practitioner, I had initially envisaged the Cloud SaaS subscription model would manifest.

The initial customer conceptual framework was heavily influenced by the bodies of work covering the three principal theory bases that form the foundation stones on which this research study is built; namely Customer Relationship Management Theory, Relationship Marketing Theory and Competition Theory. From this initial framework it can be seen that the renewal event, and by extension the SaaS subscription attrition or

renewal outcome, results from the coincidence of expectation which the three distinct paradigms of the Customer, the Supplier and the Competitive landscape bring together at time of renewal. In the earlier section titled ‘Origins of the Research’ (Section 1, thesis Introduction), the theory lens through which the SaaS lifecycle is viewed is specifically tied to the non-completion, or attrition, of the subscription contract renewal. The initial framework has as its renewal inputs the Subscriber criteria as highlighted in Rust, Zeithaml and Lemon (2000), the Supplier criteria identified by Fader and Hardie (2007) and those external influences and competitive choices championed by Porter (2008). These influences are set out in detail in table 3 below, which links the initial literature reviewed to its influence and support of the initial conceptual framework model (paper 1).

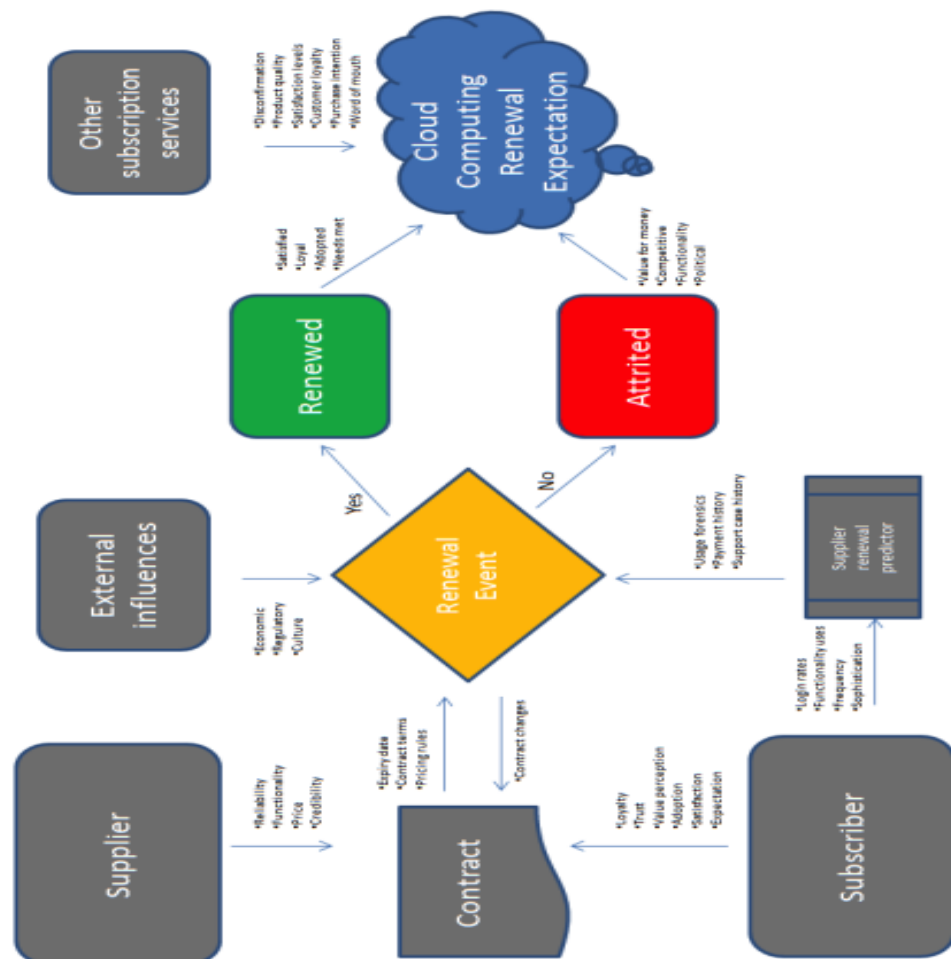
Table 3: Theoretical influence on initial conceptual framework

Theory	Criteria	Supporting Literature
Relationship Marketing	Loyalty	Zineldin (2006)
	Trust	Morgan & Hunt (2004)
	Value	Zeithaml (1988)
	Satisfaction	Taylor & Hunter (2002)
CRM	Service Level	Verhoef (2003)
	Functionality	Burez & Van den Poel, (2007)
	Price	Peppard (2002)
	Credibility	Keh & Xie (2009)
Competition	Economic	Porter & Millar (1985)
	Regulatory / Cultural	Kim & Yoon (2004)
	Political	Porter (2008)

The significance of this confluence of the three theory bases was particularly borne out through the scoping and definition of the initial framework (figure 1 overleaf). Prior to the drafting of the framework it might be expected that each theoretical lens could offer a sufficient breadth of literature on which the framework could be built; however, as the conceptual design evolved, shortcomings in each were first identified, then filled, by an overlap from the other, such as the impact of Service Level on Loyalty or Price on Value, as discussed in paper 1. This cross theory paradigm proved to be both an informative and valuable influence on the framing of the initial framework as informed by the literature (figure 1)

Figure 1: B2B SaaS Renewal Decision Criteria – Initial Conceptual Framework 1

Conceptual Framework: Is the subscription renewal expectation justified/ predictable in the Software as a Service world?



When considering the initial framework of B2B SaaS renewal decision criteria (figure 1), the researcher included the following criteria, forthcoming from the literature review and the presented taxonomy (table 1) and the underlying theoretical influences (table 3).

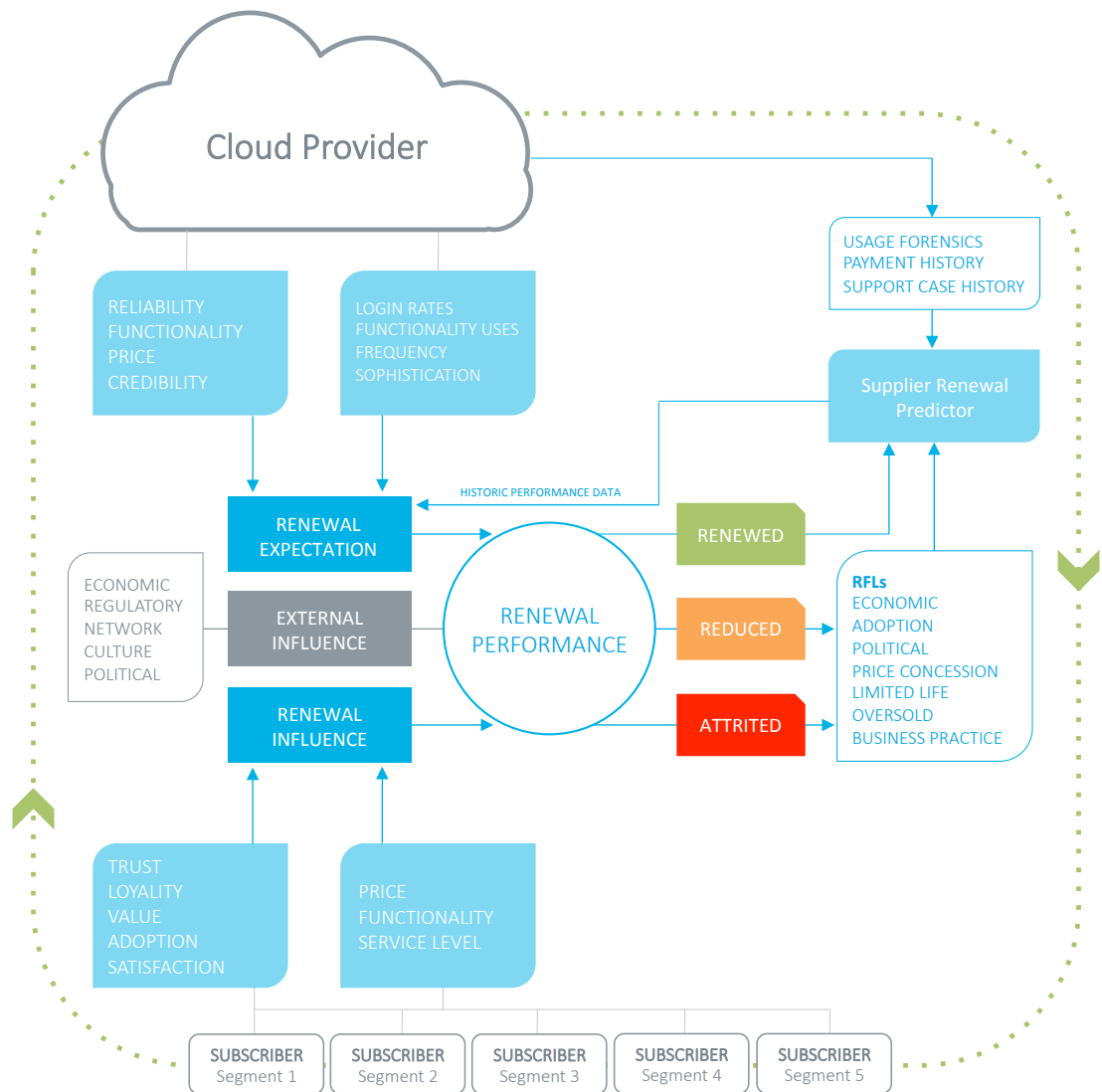
- A key tenet of a SaaS subscription is that one is never the owner of software but rather has the right to access, use or reference the knowledge it contains. It also implies that this service access is time-bound which means that on-going, updated, access to the subscription or service has to be renewed periodically if the B2B user is to continue to have an updated and maintained service level (Vacquero et al., 2008).
- The fundamental difference between a Cloud Computing subscription and any other service or subscription is that the knowledge or value-added data created or owned by the user no longer rests with them on a failed renewal. This remote placement of the data adds an extra dimension to the cloud computing SaaS renewal and could therefore be considered as an additional variable not present in the analysis of more traditional subscriptions (Buyya et al. 2009).
- In developing the framework of SaaS revenue renewal, it is important to also consider the timing of the renewal (Fader and Hardie, 2007).
- The framework considers the democratisation which is positioned as one of the strengths of ‘true’ cloud computing. One of the tenets of cloud computing is that one product is offered across many user segments, ranging from the smallest single user to the multinational business with many thousands of users (Marston et al. 2011). The functionality offered may vary across editions of the subscription product but the fundamental question of a subscription expiry and renewal is applicable to all. However, the renewal decision in one segment will have fundamentally different objectives and subjective judgements from the renewal decision in another. Therefore the framework is focused on the B2B user cohort only.

Many of the criteria exhibited in the original framework 1 (figure 1) still hold true. Nonetheless, based on the research findings and result themes, several refinements are required.

- The conceptual framework needs to show longitudinal awareness of the decision cycle. Initially the achievement or otherwise of the renewal event was viewed as a standalone event rather than as just a single component on an on-going relationship continuum. The value is not just from the single renewal event but from many of them over the relationship lifetime.
- The framework needs to anticipate that the customer relationship between the SaaS provider and the SaaS consumer might well be one of a utility service user. This alters the industry, consumer power position when measured using Porter's (1991) Five Forces guidelines and, in doing so, would leave the SaaS service provider in a somewhat weakened and exposed position if it were not to acknowledge and address this potential subscriber power play.
- The original framework fails somewhat in addressing the need for a segmented approach to its customer base. This is an important learning prompted by the research outcomes. The renewal decision framework should incorporate this to offer the robustness required by Osterwalder and Pigneur (2010) to reflect this segmented business reality.
- The perception from the Cloud SaaS subscribers and industry specialists that everything can be measured is particularly relevant to the renewal conceptual framework. Its inclusion within the revised framework is a fundamental enhancement to the original thinking.
- A unique feature of the Cloud SaaS industry is the fact that it empowers the service provider with much customer consumption and usage data (Armbrust et al. 2009). By their nature, Reasons for Loss (RFLs) are historic data points and, when captured after the fact, these customers are beyond recovery. For the Cloud business provider to create business value from this rich data source, the learning must be transformed into future corrective actions to be fed upstream in the renewals lifecycle to minimise their re-occurrence. This feedback loop was missing from the original model.

Figure 2 presents the B2B renewal decision criteria refined conceptual framework.

Figure 2: B2B SaaS Renewal Decision Criteria – Refined Conceptual Framework.



As in the previous iteration of the proposed B2B SaaS Renewal Decision framework (figure 1 above), this refined framework (figure 2) highlights the interactions between the Cloud SaaS subscriber and the service provider. Although there is refinement to the original thinking based on the research findings, the framework continues to place the renewal performance as the ultimate measure of the Cloud SaaS Provider/ Subscriber

relationship. Where the refined framework differs is in the presentation of the renewal influences and expectations as prior considerations that manifest throughout the subscription lifecycle rather than simply at the time of the renewal event. As such, the refined framework (figure 2) forms a valid blueprint for the Cloud provider and highlights the interface touch points between the renewing subscriber and the service provider.

For the service provider, the framework now includes those influences that have the capacity to impact on the success of their renewal transactions. The flow of figure 2 also highlights that the performance of any renewal event has three distinct sources of influence: (1) Internal influences; (2) SaaS subscriber perception, and (3) external demographic. These influences also emulate the original taxonomy, drawn from literature and set out in Cumulative Paper Series 1, Table 1.

The refined framework flow also illustrates the need for the actual renewal performance data, i.e. Reasons For Loss (set out at Cumulative Paper Series 2, Table 1), to be recorded, analysed and recycled as a potential predictor of future performance. Additionally, the refined framework (figure 2) illustrates the need for the segmentation of the subscriber base. Although shown here as multi-segment it would be equally valid in a single segment market.

CONTRIBUTIONS TO KNOWLEDGE

Knowledge is a key tenet of any discipline but as Ahn and Suk-Gwon (2004, p.403) point out it, is ‘inherently difficult to measure’. Much has been written about what constitutes a contribution to knowledge (Wasko and Faraj, 2005) but the reality is that the form of the contribution can differ significantly in many cases, all without losing the validity of the contribution. Whether adding to Drucker’s (1998) source of comparative advantage or bolstering the technical knowledge of Zahra, Ireland and Hitt (2000), all are valuable knowledge contributions in their own right. So too are the practical additions to the commercial business knowledge base which are the expected outcome of the doctorate of business administration (DBA) programme. This research undertaking reviewed a broad body of literature in the arenas of subscription management modeling and Cloud Computing service delivery. Rather than making a

stand-alone contribution to each, the proposal here is to create a framework, which combines the learning from both areas into the emerging knowledge base that is Cloud Computing SaaS.

Practical contribution to knowledge

Separate to its contribution to theory and in keeping with the tenets of the DBA programme, this research has produced practical learning which offers the Cloud Computing SaaS practitioner valuable guidelines for implementation within their business world. These steps are not prescriptive actions but, instead, are criteria arising from this early-stage research project on what is in itself still a relatively early-stage industry. They should be read in conjunction with the refined conceptual framework included at figure 2 below. As a practitioner-researcher, I believe that being informed by real world Cloud Computing SaaS industry data provides practical insights into the industry and merits serious consideration by both incumbents and potential new entrants into the CC SaaS marketplace alike. Principal of these learning outcomes are the realities that:

- The traditional software industry business model expectation of upfront license fees and on-going annual maintenance revenue is not appropriate for the Cloud Computing Software as a Service marketplace.
- If the Cloud Computing Software as a Service business does not control and minimise its customer and revenue churn it will initially fail to thrive and ultimately fail to survive.
- A taxonomy of subscription renewal habits has been established (see Cumulative Paper Series 1, Table 1). This determines a link from the current Cloud Computing SaaS marketplace to the historical, practical and academic learning established around other earlier manifestations of subscription services. The CC SaaS provider should thoroughly examine the lessons learned by these earlier subscription providers and build on these insights to establish a churn mitigation policy tailored to the latest manifestation of this old-style business challenge.

- It is possible to measure the reasons why Cloud Computing SaaS subscribers reduce or attrit their subscription services and that these measurements can be mapped using the reasons for loss (RFLs) established in this and other studies. Any effort to protect against, or reduce, the impact of these identified attrition risks should use the historical antecedents of the RFLs identified and feed this upstream in the customer lifecycle as the basis for their remedy and a protection against their reoccurrence in the future.
- Reasons for attrition are both objectively and subjectively influenced. However reasons for reduction or attrition that first manifest as being subjectively distinct are frequently also objectively influenced. The subjective drivers can manifest as antecedent rather than final reasons for loss and access to the functional and data usage of the subscriber can both inform and protect the CC SaaS provider's exposure to the impact of both churn influences.
- SaaS Cloud users and SaaS Cloud service providers have distinctly different views of trust and both must be considered and addressed for maintenance of a continued mutually rewarding relationship. The SaaS provider must always be a trusted guardian of the subscription users data and privacy, but the end user expectation is that this basic need is no more than a table stake. The SaaS subscriber expectation of trust is expanded to include the expectancy of the supplier following up the trusted service delivery with a technology supported trusted one to one relationship to deliver tailored business value uniquely to each subscriber.

Cloud Computing SaaS is unique in the history of the software industry in that for the first time it provides the software distributor with the opportunity to measure clearly application usage, from both feature/ function and user consumption points of view. By capturing usage patterns, the Cloud SaaS provider can quickly see the interactions and consumption of the application product and, by mapping the measured data collected to historical renewal or attrition patterns, can clearly create a series of renewal risk triggers such as can be used to prompt the business for at risk accounts or customers. Two elements are important to clarify in relation to this. Firstly, to allay concerns and ensure data privacy, only Meta data usage patterns can be tracked; any data points collected at a lower level of detail than this layer leaves the Cloud SaaS provider exposed to charges

of data privacy breaches. Secondly, the reason for loss or reduction data collected is by its nature a rear-view mirror view. As such, once collected and analysed for data trends, these trends must then be applied to identify appropriate mitigation and corrective actions that can, and should, be fed upstream to identify similar issues and causes in other subscription users who have not yet reached their renewal cycle.

The subscription renewal taxonomy from the first of the cumulative papers (paper 1) sets out clearly that the expectation of the renewal performance is one that can be both mapped and measured. As the research built, so too did the expectation that the cause of any non-renewal or renewal reduction could be both identified and mitigated. The identification of the reasons for non-renewal from the company-supplied input dataset were sufficiently clear to link back to the original taxonomy mapping and once this was done, they could then be meaningfully grouped into both objective and subjective causes or influences. This mapping was robustly tested throughout the detailed research phases with the formal interview outputs confirming that the mappings were both theoretically valid and practically applicable.

A primary differentiator of the Cloud Computing service provider when compared with the traditional software provider is that the CC SaaS company is the host of the service used. This gives the service provider a unique overview of the consumption and usage patterns of their customers such as was not previously available in the software industry. Rather than being reliant on the hope that it's licenced software was being consumed, as was the case historically, now the CC SaaS provider can see at Meta feature function level what aspects of its service are most attractive to its user base. This uniquely allows the provider to both measure this usage and to use this measurement to proactively prompt its greater consumption if required. By combining these usage patterns at an amalgamated level the SaaS provider can strengthen weak service consumption prior to the renewal cycle such that once within that cycle the customer is already solidified on the service and, as such, will likely have a greater propensity to renew the service.

Notably, these contributions are echoed in a recent *Financial Times* business editorial article (Daniel, C., 2015. Adobe Cloud, *Financial Times* Weekender, 4th – 5th April 2015, p. 15) which applauds the business transformation of one of the world's largest and most successful contemporary software companies from traditional software provider to that of a Cloud service provider. The editor strongly cautions the

transformation drivers and encourages those within the industry to consider their exposure to the SaaS provider's business model if it failed to understand fully, and protect against, the customer and subscription churn risk which would present itself in the company's new Cloud manifestation. This perspective not only impacts on this research study, as outlined in its research question and objectives, but also enhances the practical contribution to business practice which is a core tenet of the professional doctorate.

Theoretical implications

On a theoretical level, this study highlights several new areas for the description and extension of existing theory, particularly as it relates to both the descriptive theory of SaaS Cloud Computing and the relational expansion theories of both the customer and commercially competitive marketplaces. The purpose of the research was to study the business of Cloud Computing and the revenue expectation of the Cloud Computing (CC) Software as a Service (SaaS) industry. This is an area that, at a commercial level, has not previously been researched in any significant detail and that is moving so quickly that many of its incumbents have not considered the learning available from its historical subscription antecedents or their theoretical underpinnings. In fact, the researcher would suspect that many simply have not made any connection to the subscription history. I believe that establishing such a link makes a valuable contribution to the enhancement of both the technical and commercial theory bases, such that empower the relationship management and marketing theories to expand to consider the enhancements which the previous technical computing theories now offer in this internet pervasive democratic, global and empowered marketplace.

New areas for description

Cloud Computing creates a new paradigm for the delivery of Software as a Service. While the earlier research and literature have sometimes dealt with SaaS, this has either been in its previous manifestations of timeshare, distributed computing and grid computing (Gray, 2008) or it has addressed the technical requirements of the Cloud model (Boss et al. 2007). This has created a shortfall in both the descriptive and theoretical business modelling of SaaS and of its current delivery vehicle Cloud Computing. For Cloud Computing SaaS to be really understood as a basis for the

transformation of the traditional software industry requires that its description be thoroughly set out within the academic literature and theoretical base. This descriptive shortfall references CC SaaS as it delivers for both the B2B and B2C marketplaces. For completeness, it should also incorporate the optional SaaS Freemium and Opensource distribution options. The outcomes from this research enhance the existing theoretical knowledge base to provide for these extensions.

Extension of theory

The Relationship Marketing and Customer Relationship Management theoretical bodies of work combine to confirm the necessity of the protection of both a positive customer relationship and, by extension, the maintenance of a subscriber base as a continuing source of revenue for all customer centric industries and particularly for those who require a foundation based on recurring revenues. The late emergence of the Cloud Computing Software as a Service marketplace means the literature supporting these theory bases is relatively silent on the business modeling of the customer renewals necessary to support this market. This research reports the results of a real world analysis into the requirements of a business to successfully support its customer base and, in doing so, the author believes it provides some insights into how an organization should build out a robust business model to support the expectations of this new business marketplace.

Much consideration has been given in Competition Theory to the impact of the power balance on the profitability and sustainability of a market place. This research adds to the previous outputs in that it highlights the strengthened hand of the SaaS consumer. The research undertaken in this study underlines the vastly enhanced customer power balance created by the democratization of choice which the SaaS consumer is now offered and this should be a consideration for future research relating to Competition and Customer Relationship Marketing and Management theories.

Similarly, the SaaS consumer/ supplier trust disconnect identified through this research has implications for each of these theoretical bases (Competition, Customer Relationship Marketing and Customer Relationship Management). Previous research, particularly that looking at the creation and maintenance of relationship value, will be enhanced by the findings that each side in the SaaS relationship have different

hierarchies of trust expectations and need and that any future application of the theory needs to consider the balance between the delivery of a robust and trusted service and the expectation that this technical trust is more an entry level foundation than a customer cementing differentiator.

The existing theory on distributed computing and its rollout and commercial acceptance is focused on the extension of the technical capabilities rather than on the commercial enhancements necessary to maximize the new market opportunities that CC SaaS presents. To capture these opportunities the CC business must build itself on a solid business model foundation, such that from the outset the CC company is both aware of the importance and potential impact of attrition on its ability to survive and thrive. The customer acquisition and churn theory pools need to expand to include theoretical modeling of the structures necessary to both measure the attrition and track both its causes and influences. The outputs from this research provide a robust theoretical basis for establishing this.

Recommendations for practitioners

This research undertaking offers valuable learning to both the Cloud Computing Software as a Service practitioner and the CC researcher groupings. To the practitioner it provides what this researcher believes to be the first large-scale study of practical performance data on the specific subject of CC SaaS attrition management. The relative newness and recent rapid expansion of Cloud Computing as a go to market vehicle for software vendors mean that many incumbents are recent entrants or converts to this business paradigm of subscription pricing and delivery. Because of this, relatively few Cloud businesses of significance have reached that stage of maturity where subscription renewals or attrition have been an area of focus. This has created a ground swell of companies who are now waking to the realisation that they must understand and control their subscribers' renewability and do so quickly. In the outputs of this research these companies will find a subscription renewals roadmap which will both guide them as to the importance of the renewal and provide them with a template by which to measure and track their attrition exposure. For the practitioners tasked with delivering this key business function within their own Cloud Computing SaaS business, such a toolset will provide a unique and reassuring pathway to building out their own subscription renewals efforts.

RESEARCHER REFLECTIONS

Johnson and Duberley (2003) talk about how the implications of reflexivity impact on the management researcher. The maintenance of an on-going reflective log was a requirement for the doctoral programme and, in fulfilling this, the researcher found it very interesting to track his approach to the research topic over its lifetime. From an initial very entrenched, and never questioned, quantitative epistemological leaning, as the research progressed so, too, did my mind open to the possibility that there was more to the Cloud Computing renewal decision than first seemed obvious. Having lived in the practical reality of CC SaaS subscription renewals for a long time, my practitioner side had never taken the time to reflect on the influence of the renewal event, focusing instead only on its measurement and reduction. The research reflection opportunities opened new possibilities as to what might be influencing the attrition or reduction decision, while at the same time it also prompted a deeper literature review which both established the link between this new SaaS subscription and those other subscription services that had preceded its existence.

Additionally, it also opened my mind to reflect on the possibility of Cloud Computing being, in reality, another utility service. That this latter might be the case was an especially interesting reflection for me as an insider researcher. As has been well established in the literature (Van Maanen, 2011) sometimes being close to, or participating in, the research can make it difficult to separate the research findings from the researcher's reality. However, in this case the realisation of the reality was provided by the research literature (Buyya et al. 2009) and the practice now needs to reflect on the fact that while the CC SaaS business may well be positioned and marketed as both a ground-breaking business model and a world-changing technology, the reality is that the manifestation of both of these impacts is that the SaaS business model and delivery mechanisms serve to put Cloud Computing firmly in the utility arena. Whether the industry realises this and, more importantly, chooses to embrace it, this is a major question for the participants in the Cloud Computing arena.

RESEARCH LIMITATIONS

The nature of doctoral research, and in this case, its professional basis as a Doctorate in Business Administration, mean there are certain research limitations associated with this research. These are set out individually below but, collectively, they summarize the

concerns highlighted in paper 4 of the cumulative series around the difficulties encountered as a practitioner-researcher interfacing with a research cohort based on an industry dataset from the practitioner-researcher's own business area. As set out in the paper 4 preface, maintaining both the appropriate professional and academic distances meant that, in this instance, the dual role could be considered to have disadvantaged rather than advantaged the professional as researcher. Specifically:

- The need to reach out to the potentially detailed interview candidates through a third party intermediary somewhat weakened the level of persistence that the researcher might normally be expected to deliver. The personal persuasiveness which one might expect from a researcher passionate about the research undertaking was somewhat lessened by the request for participation routing, by necessity, through a third party.
- The dataset, on which the research was focused, while both significant and comprehensive, was from a single company customer cohort. While it provided access beyond what would normally be available to the research undertaking, nonetheless it was based on a single industry and, as such, may have missed some findings that might be nuanced somewhat differently in another industry.
- The necessary segmentation of Business-to-Business customers with annual license upper and lower limits and geographical exclusions means that the research potentially excludes other value rich data sources. However, the researcher views this not so much as a research limitation but as an opportunity for research expansion in the future to include those areas purposely excluded from this study.

AVENUES FOR FUTURE RESEARCH

To those researchers who are attracted to the intriguing challenge of even greater understanding of Cloud Computing and its business expectancies, this thesis will hopefully both provide the encouragement to do so and serve as a basis on which to continue to build the CC SaaS knowledge base. This first step in understanding the renewal influences is simply that, a first step, but one that hopefully urges many more and many better to be taken along the same research path.

Next areas to explore within this research domain may include:

- This study approached the research from the lens of the attriting SaaS customer only. This offers the opportunity for further research using the alternate double lens of both renewing and new SaaS subscribers. Particularly, this may offer an expanded interview cohort on which to test the framework output from this study.
- The measurement of the renewal performance and influences across both market and product segments, and perhaps even the consideration of whether some segments are simply not profitable for the Cloud Computing SaaS service provider to be in.
- That the data cohort provided for this research offers different interpretations of trust for the user and provider, such that the consumer then seeks to have a higher level of need met as their baseline trust measure
- The clues provided by the data that segmentation and lifetime value are relevant influences in the renewal decision process provide valid further research avenues.
- The perception of measurable trust as an industry specific outcome rather than something that holds true for other subscription deliveries warrants further consideration.

Irrespective of the motivation to research this domain, it is my firmly held view that Cloud Computing is both a business paradigm with miles to run and an academic field with many opportunities for exciting and fruitful research.

REFERENCES

- Ahn, J-H. and Suk-Gwon, C. 2004. "Assessing the contribution of knowledge to business performance: the KP 3 methodology." *Decision Support Systems*, 36(24), 403-416.
- Armbrust, M., Fox, A., Griffith, R., Joseph, A., Katz, R., Konwinski, A., Lee, G., Patterson, D., Rabkin, A., Stoica, I., Zaharia, M. 2010. "A view of cloud computing". *Communications of the ACM*, 53(4), 50-58.
- Boss, G., Malladi, P., Quan, D., Legregni, L., Hall, H. 2007. "Cloud computing". *IBM White Paper* 321, IBM Corporation, pp. 224-231.
- Bryman, A. 2012. *Social Research Methods*. Oxford, Oxford University Press.
- Burez, J. and Van den Poel, D. 2007. "CRM at a pay-TV company: Using analytical models to reduce customer attrition by targeted marketing for subscription services". *Expert Systems with Applications*, 32(2), 277-288.
- Buyya, R., Yeo, C.S., Venugopal, S., Broberg, J., Br, I. 2009. "Cloud computing and emerging IT platforms: Vision, hype, and reality for delivering computing as the 5th utility." *Future Generation Computer Systems*, 25(6), 599-616.
- Drucker, P.F. 1998. *Peter Drucker on the profession of management*. Boston, Harvard Business Press.
- Fader, P.S. and Hardie, B. 2007. "How to project customer retention." *Journal of Interactive Marketing*, 21(1), 76-90.
- Frank, R.E., Massy, W.F. and Wind, Y. 1972. *Market segmentation*. Englewood Cliffs, NJ, Prentice-Hall.
- Gray, J. 2008. "Distributed Computing Economics." *Queue*, 6(3), 63-68.
- Johnson, P. and Duberley, J. 2003. "Reflexivity in Management Research." *Journal of Management Studies*, 40(5), 1279-1303.

- Keh, H.T. and Xie, Y. 2009. "Corporate reputation and customer behavioral intentions: The roles of trust, identification and commitment". *Industrial Marketing Management*, 38(7), 732-742.
- Kim, H-S., and Yoon, C-H. 2004. "Determinants of subscriber churn and customer loyalty in the Korean mobile telephony market." *Telecommunications Policy* 28(9), 751-765.
- Klag, M. and Langley, A. 2013. "Approaching the conceptual leap in qualitative research." *International Journal of Management Review*, 15(2), 149-166
- Leiner, B.M., Cerf, V.G., Clark, D.D., Kahn, R.E., Kleinrock, L., Lynch, D.C., Postel, J., Roberts, L.G., Wolff, S.S. 1997. "The past and future history of the Internet". *Communications of the ACM*, 40(2), 102-108.
- Marston, S., Li, Z., Bandyopadhyay, S., Zhang, J., Ghalsasi, A. 2011. "Cloud Computing - The business perspective". *Decision Support Systems*, 51(1), 176-189.
- Maslow, A.H. 1943. "A theory of human motivation." *Psychological review* 50(4), 370.
- McLauchlin, J. 2010. "Retaining Customers: It's Not Just About the Renewal." *The Marketer*, 17(1).
- Morgan, R. and Hunt, S. 1994. "The Commitment-Trust Theory of Relationship Marketing." *Journal of Marketing*, 58, 20-38.
- Ojala, A. and Tyrväinen, P. 2012. "Revenue models in cloud computing." *Proceedings of 5th Computer Games, Multimedia & Allied Technology Conference, GSTF*.
- Osterwalder, A. and Pigneur, Y. 2010 *Business model generation: a handbook for visionaries, game changers, and challengers*. New Jersey: John Wiley & Sons Inc.
- Peppard, J. 2000. "Customer relationship management (CRM) in financial services". *European Management Journal*, 18(3), 312-327.
- Porter, M.E. 1991. "Towards a dynamic theory of strategy." *Strategic Management Journal*, 12(S2), 95-117.

- Porter, Michael E. 2008. "The five competitive forces that shape strategy.". Special Issue on HBS Centennial. *Harvard Business Review* 86(1), 78–93.
- Porter, M.E. and Millar, V.E. 1985. "How information gives you competitive advantage." *Harvard Business Review*, July-Aug, 149-174.
- Rappa, M.A. 2004. "The utility business model and the future of computing services." *IBM Systems Journal*, 43(1), 32-42.
- Rindfleisch, A., Malter, A.J., Ganesan, S., Moorman, C. 2007. "Cross-sectional versus longitudinal survey research: Concepts, findings, and guidelines." Institute for the Study of Business Markets, Pennsylvania State University, ISBM Report 2-2007.
- Rust, R., Zeithaml, V. and Lemon, K. 2000. *Driving Customer Equity: How Customer Lifetime Value Is Reshaping Corporate Strategy*. NY: The Free Press.
- Skilton, M. and Director, C. 2010. "Building Return on Investment from Cloud Computing." *White Paper*. The Open Group. [Internet] Available at: <http://www.opengroup.org/cloud/whitepapers/ccroi/> (Accessed Nov 2013).
- Slater, S.F. and Narver., J.C. 1994. "Market orientation, customer value, and superior performance." *Business Horizons* 37(2), 22-28.
- Taylor, S.A. and Hunter, G.L. 2002. "The impact of loyalty with e-CRM software and e-services". *International Journal of Service Industry Management*, 13(5), 452-474.
- Tsiptsis, K, and Chorianopoulos, A. 2011. *Data mining techniques in CRM: Inside customer segmentation*. UK, John Wiley & Sons.
- Vacquero, L.M., Rodero-Marino, J., Caceres, J., Lindner, M. 2008. "A break in the clouds: towards a cloud definition". *ACM SIGCOMM Computer Communication Review* 39(1), 50-55.
- Van Maanen, J. 2011. *Tales of the field: On writing ethnography*. Chicago, University of Chicago Press.
- Venkatesan, R. and Kumar, V. 2004. "A customer lifetime value framework for customer selection and resource allocation strategy." *Journal of Marketing*, 68(4), 106-125.

- Verhoef, P.C. 2003. "Understanding the effect of customer relationship management efforts on customer retention and customer share development". *Journal of Marketing*, 67(4), 30-45.
- Walther, S., Sarker, S., Sedera, D., Eymann, T. 2013. "Exploring Subscription Renewal Intention Of Operational Cloud Enterprise Systems- A Socio-Technical Approach." *ECIS Conference Proceedings*, Utrecht, Netherlands.
- Wasko, M.M.L. and Faraj, S. 2005. "Why should I share? Examining social capital and knowledge contribution in electronic networks of practice." *MIS Quarterly*, 29(1), 35-57.
- Zahra, S.A., Ireland, R.D, Hitt, M.A. 2000. "International expansion by new venture firms: International diversity, mode of market entry, technological learning, and performance." *Academy of Management Journal*, 43 (5), 925-950.
- Zeithaml, V.A. 1988. "Consumer perceptions of price, quality, and value: a means-end model and synthesis of evidence." *The Journal of Marketing*, 2-22.
- Zineldin, M. 2006. "The royalty of loyalty: CRM, quality and retention." *Journal of Consumer Marketing* 23(7), 430-43.

**SECTION FOUR:
REFLECTIVE LOG EXTRACTS**

INTRODUCTION

I have incorporated extracts from the reflective log in this section that I have maintained throughout my DBA journey. Reflective writing can be both unsettling and informative (Bolton, 2010) and while diligent about keeping this log since embarking on my doctoral studies, I certainly initially found it to be a somewhat uncomfortable process. Early in my writings I explain my natural philosophical approach to be that of the realist, more comfortable with proof points and objectivity than interpretation and subjectiveness. For someone of this leaning, the process of regularly documenting one's epistemological transformation is very unsettling and not a skill easily learned. So it was that I very tentatively approached the creation of my reflective log, warily adding to it at first then embracing it more fully as I began to see its true value. On reflection, I can now plainly see my academic horizons broadening as I journeyed through the learning and research process. To this end I have included specific extracts from my reflective log below as I consider these to be pivotal points in the choices I made as a practitioner-researcher over the lifetime of this research journey.

One of the first significant learning points for me was the need to alter my previous business approach to reading and research and to start to think more academically. Also, I had to be particularly careful not to let any historic business prejudice sway my early-stage thinking. The nature of my business experiences to date had shaped my business thinking. Reflecting on this and particularly on my long-term exposure to the Cloud Computing sector, it was somewhat eye-opening to acknowledge to myself that I had more accumulated knowledge of the area of research than I first realized. Hamel and Välikangas's (2003) work on resilience was the initial hook which prompted me to think about what that resilience might look like for the Cloud SaaS company and, from this, I can see within my reflective log the growth and the broadening of my strategic thinking around what future exposure, or lack of resilience, in Hamel and Välikangas's (2003) parlance, which any weakness in the renewal model might expose for the Software as a Service business.

Becoming clear in my own mind (see extract 10 below) as to what my research question really was also coincided with the realization of the real value that could be gained from adhering to the reflective log process. Many times over the coming months I would use

the log both to clarify my current thoughts and to reflect on the build-up of the previous thinking that had delivered me to the current research spot. Then, once that crossroads was successfully negotiated, I would again use the reflective log to build on the previous reflections and to document how the resolution was reached. So it was that the reflective log entries became over time the foundational stones on which the research progressed and which allowed the findings to be initially documented, analysed and confirmed.

LOG EXTRACTS

Extract 1: 30/8/2010

I found it a little strange to be back reading academic papers again – I thought I had given up on these once my MBA was finished. I was also a little apprehensive as to the workload, which would be required but this quickly faded and I found that I enjoyed being back in an academic environment. Separate from the work required, it's almost therapeutic to have forced time to just read and analyze reading and situations without having the pressure of an immediate business decision to move a team forward.

Extract 2: 31/8/2010

I'm still a little confused as to what's expected of us in terms of the research process. I know it's early but I expected to have a clearer picture of what reading might be started now as part of the longer-term workload.....

.....I need to watch out from letting this prejudice sway my thinking.

Extract 3: 30/6/2011

Thinking about the theory building journey from the workshop and starting to believe that maybe Shake out theory is too high level too?

.....have started to get deeper into the relationship marketing literature and theory base. It's beginning to resonate more and more. Not sure I really want to go here as it's too fluffy for me – really wanted to stick to the hard, more easily quantifiable measures like rates, percentages, early warning indications of a future failed renewal, These are much easier/ clearer to measure. But beginning to doubt that they will show the full picture.....

.....Susan was suggesting that I also include the CRM literature but it's not that exciting to start to read up on what I already worked in.

.....Read the paper on Becoming a Critically Reflective Practitioner. Beginning to see things a little bit different from just the numbers side now. This is definitely a different process than what I thought I was signing up for.....

Extract 4: 23/8/2011

.....it's getting to be heavy going – interfering with home and definitely making it tough to balance SFDC, home, DBA and everything else. Would be a lot easier if I wasn't travelling so much.....

Extract 5: 16/9/2011

.....meet with Mehmet in SF to go through the Early Warning System and where it might fit into the research project. Huge amount of valuable data there, which can be mined, but I'm not sure I want to be the sort of academic Mehmet is. Way too buried in the numbers for me, even though I always thought I was a quant guy too. But am sure this would be a great data source for my research so I need to stay close to it too.....

.....I always assumed that I sat very definitely in the quantitative camp. Numbers have always been my comfort zone – or so I thought. But after receiving the reading from the next workshop around the Philosophies I am beginning to feel that there is still much thought to be given to the Inductive processes too....

Extract 6: 23/11/2011

Not certain about where this philosophy reading is going. Seriously struggling to make sense of it or to see what place it has in my proposed research. It may be appropriate to some of the other research topics from the course but I don't know about mine. It's also bloody heavy going reading through some of the papers. The whole descriptive process is alien to me – feels like there is an intellectual snobbery about it.....

....Hard not to jump straight into the research design process. The current bunch of readings are all around the area of conceptual design. Beginning to make sense and starting to see the reasons why but it's still tempting to go straight to the answers.....

.....Lot of talk at the workshop around Doctoral Learning. Got it at the time but now I'm not quite sure. Started to read Critical Reflections on Doctoral Learning from Mentoring and Tutoring but not finding much in it. Found a better paper called My Growth in a doctoral program by Patricia Harris – made more sense of the journey as I see it.....

Extract 7: 23/12/2011

Finally got my paper in today! That was a real struggle! I can see where its coming from now on the Philosophical front but still finding the language of the journey very stiff and formal. Don't find it easy at all to get into the flow of it. Although one thing it has done is to definitely get me away from lifelong belief that I was a numbers driven person and nothing else. I still like the clarity these bring but I'm warming more to the other paradigms and getting into the drivers and subjective decisions and views that cause and influence the final numbers. But still glad the paper is in. Hope it meets the standard!

Extract 8: 19/5/13

The deeper I explored the idea of the attrition or renewal of the cloud computing subscription the clearer it became that the renewal expectations of these services are similar to the renewal of many other subscription services. The research as proposed is focused specifically on Cloud Computing but I believe that this is simply a modern manifestation of a subscription service and that it's renewal challenges would be same as many similar optional subscription renewals such as cable TV or magazine subscriptions (Burez and Van den Poel, 2007).

Extract 9: 4/10/13

Can't believe it, but finally presented my conceptual framework Colloquium today. It's come a long way since I first started thinking about it and really believe that what I'm proposing now is a valid and real research topic. Believe it was well received but will wait for the formal feedback. From the audience, Buyya 5th Utility context resonated. This really is the simplest way to explain Cloud to a non IT audience.

The process of inverting the pyramid and showing what I was excluding from the research scope and why now makes perfect sense. Denis was right when he advised this years ago.

Pat Lynch had a good call out when he said I took a long time to get to the real research topic. I thought I needed to go deep into the lead in subjects in order to show why I was excluding them – like Freemium – but maybe I don't need quite so much of a focus on them?

Really great papers from all of the rest of the team. They are so much more advanced in their DBA than I am – but I’m encouraged by this, as I can see my own way forward now too, especially with Felicity as my new supervisor.

Extract 10: 24/10/13

Surprise, surprise - Exploring a Business-to-Business Recurring Revenue Framework for the Delivery of Software as a Service through a Cloud Computing Channel, has been deemed an acceptable subject to move forward with! Over the last year, really didn’t think I would get this far but just heard from Felicity that the colloquium review board have approved it. There doesn’t seem to be any requests for a major re-write either, just some helpful suggestions and pointers around the fact that I could have gotten to the detail of the research proposal earlier in the paper, rather than going through as much of a build-up around how I narrow it down to just B2B, eliminated Freemium etc. Need to check with Felicity what exactly this means, although there was definitely no request for a re-write or a re-submission.....

Extract 11: 11/11/13

What’s my real research question? The research will deal with the possible impacts on the recurring revenue for the CC SaaS deliverer. Because it is B2B only, it will need to narrow down the research cohort, so what will the dollar values do? Are dollar values the right criteria to use for the selection process?

What’s the research cohort? Should the research be based in a single geography or region? If this is the case will it really be a universally applicable piece of work? Would the results be different if another region was used instead? How do I decide on which one and why?

For those that could be influenced, I believe that in addition to the quantifiable or objective reason for the reduction, such as price or loss to a competitor, there would need to a further subjective analysis on softer perceptions, like that of value v. price. Shouldn’t this be part of the research too?

But what analysis will I be doing on the first cut of the data that’s unique and hasn’t been done before? What more will there be other than saying that x% left because it was too expensive for example? Couldn’t anyone within the company do this for themselves? Doesn’t merit SPSS so how can I make it sufficiently robust for academia?

Extract 12: 28/1/14

In SF now and attempting to get to grips with my methodology submission. A review of the Philosophy module papers has only marginally helped and I'm still not sure how acceptable a dual Positivist and Phenomenological approach would be.

Extract 13: 10/5/14

Thinking about what's realistic from a renewals point of view. There are definitely two different approaches to the process. I can view the renewal process as a subscription service to be renewed which simply gets measured by the reason codes for the renewal/attrition but thinking about it this way won't add a lot to the learning of the reasons why the renewal did or didn't happen. There is definitely more to it than the quantitative analyses stand alone. The process also needs to look at the motivation of the decision too. What are the subjective reasons why? Are these common across subscription services or does Cloud have its own unique reasons and unique set of considerations? Definitely something like trust must play a much bigger part in the renewal attractiveness of a cloud subscription business than say a magazine or cable TV subscription. Is trust best addressed as a qualitative or quantitative measure?

Extract 14: 16/11/14

Well, the interview requests have started to go out now. One response so far – not interested.

Extract 15: 26/11/14

Spoke with Felicity about lack of responses to the interview requests. Agreed that I should extend the requests to five either side of original 67th, then ten either side if that doesn't work....

Extract 16: 13/12/14

Now that I've started the interviews this is beginning to look very, very interesting. Today I interviewed Ralph Smith (pseudonym) a Vice President at a current SFDC customer. I'm shocked at the interview. I explained to Ralph that I was undertaking the interview as a doctoral student but that I also wanted to be completely transparent and told him that I was also an employee at SFDC. I was a little uncomfortable about explaining this and thought it might make him reluctant to be fully open and expansive

with me. It was the opposite – he told me he was already aware of this as the initial SFDC request for him to participate had explained this and he was very happy to participate.

I first asked him how long he had been using the SFDC product set and was very pleased to hear that he had been a user for almost fifteen years, making him one of the very early adopters of the SaaS technology. I also asked him about other SaaS use and found that he ran his whole business on SaaS services and was a complete believer in the business model and delivery. Having explained the progress of my research and my desire now to understand the subjective measures of usage, propensity to renew I began by asking him to talk about Loyalty as a measure for the SaaS provider, with SFDC as the example used. He was vicious in his feelings towards SFDC as a SaaS provider. Went right down to language like ‘cheats’, who gouge every cent out of their customers. ‘They were only interested in increasing the price’, ‘asking you to renew early to avail of offers which built up their cash’, ‘not interested in my success’, ‘only interested in price’. ‘No customer service, no understanding of his business’. A complete rant. I asked about adoption, trust, satisfaction, expectations and whether it was possible to influence these as a SaaS provider and he agreed that it was but everything he was giving me as a measure was in fact an objective measure, couched as subjective. Like knowing his KPIs as an indicator of satisfaction, offering him a special price as an indicator of loyalty, providing services – either free or billable – to help him be successful or satisfied. All hard measures but with a soft face.

In contrast he ‘loved’ other SaaS providers like Tableau. Why? – because they understood his KPIs and had account managers who understood his business. He ‘loved’ and was very ‘loyal’ to Apple’s iCloud because they offered him fair pricing and had people who understand him. I asked him how this people interaction could be scaled to provide the service he ‘loved’ to his volumes and he had a very immediate and forceful answer of using outsourcers (he mentioned India) or online communities. He really loved the community idea.

Very, very interesting conversation. Maybe there really are no subjective influences after all – just hard, measurable, facts tarted up to manifest as something softer, more cuddly, to make the message easier to consume? In fact, he specifically mentioned the marketing of the service as being his interface with the softer traits.

Am I barking up the wrong tree here, trying to find subjective influences when maybe they don't actually exist???

And the most interesting thing about the conversation? Mr Smith is still a SF customer!

Extract 17: 5/1/15

Very worried about lack of positive interview responses. Lot of bounce backs and no responses...

Extract 18: 21/1/15

Had a call from Rosie today re interview requests. Customer complaints and have been told to stop emailing customers! This is very difficult. Going to try and meet HR and Legal in SF next week to explain that I have permission from Graham to carry out this research. Going to ask Felicity if I can expand the interview cohort to bring industry and data experts – Mehmet and his data science team would be ideal experts to test the subjective/ objective findings with. Would be great if I could interview him when I'm over there.

Extract 19: 15/2/15

Great interview with Steve in London. Feel I'm really getting somewhere with this now. Lot more work than I thought in getting these typed up - I owe Bernie big time...

References

- Bolton, G. 2010. *Reflective practice: Writing and professional development*. UK, Sage publications.
- Burez, J. and Van den Poel, D. 2007. "CRM at a pay-TV company: Using analytical models to reduce customer attrition by targeted marketing for subscription services". *Expert Systems with Applications*, 32(2), 277-288.
- Hamel, G. and Välikangas, L. 2003. "The quest for resilience." *Harvard Business Review*, 81(9), 52-65.