

An Investigation into the Information System Implications When Adopting a  
Cloud Computing Infrastructure at Caerphilly Rugby Football Club Ltd.

A dissertation submitted in partial fulfilment of the requirements for the degree of  
Bachelor of Science (Honours) in Software Engineering

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## Declaration

I hereby declare that this dissertation entitled as “An Investigation into the Information System Implications When Adopting a Cloud Computing Infrastructure at Caerphilly Rugby Football Club Ltd.” is entirely my own work, and it has never been submitted nor is it currently being submitted for any other degree.

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## Abstract

This dissertation investigated an outdated Information System that can be updated by cloud computing services. After the investigation of an Information System, a recommendation for a cloud computing service was made. As an example case study used throughout this research paper, a sports establishment, Caerphilly Rugby Football Club Ltd agreed to the evaluation of their system, and to provide recommendations of a cloud computing system.

The literature review provides definitions and clarifications of cloud computing, with an explanation of the type of cloud models available, its characteristics and the features that can be of beneficial use to a Small Medium-sized Business (SMB), such as Caerphilly Rugby Football Club Ltd.

Primary research was carried out to evaluate Caerphilly Rugby Football Club Ltd.'s current Information System by interviewing committee members, and the bar steward of the establishment, collecting data on how the current Information System works, their opinions of the system and their knowledge of cloud computing.

Recommendations have been made by the requirements gathered from the primary research, including both free and paid cloud services. Giving the establishment an opportunity to trial any cloud computing services before upgrading and causing any unnecessary expenditure.

Keywords: Cloud Computing, Caerphilly Rugby Football Club Ltd, Information System, Sports Establishment, Small Medium-sized Business (SMB)

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## 1.0 Introduction

This dissertation will be examining an Information System (IS) of a business that does not currently use cloud computing, and recommend an appropriate cloud computing infrastructure that can replace the current IS. As an example of recommending a cloud computing infrastructure to an SMB (Small Medium-size Business), this dissertation will be using Caerphilly Rugby Football Club Ltd (CRFC) as a case study, and using primary research to collect information about the sports establishment's IS. The IS that is being evaluated is the use of how documents and files are created, edited and shared throughout the committee members and the bar steward of CRFC.

For the research of this study, primary and secondary sources will be utilized. Primary research will be used to interview employees and committee members of CRFC to gain knowledge, and their opinions, of the current system being used. This primary research will also determine what cloud computing system would suit their requirements, and their current understanding of the technology being researched.

### 1.1 Background

Cloud computing has provided individuals and businesses technological opportunities. Supplying users with software and hardware capabilities over the internet such as processing power and storage space etc. Providing a hassle free, and a cost effective alternative for the consumers. Allowing individuals and businesses to only pay for what is being used. Giving the consumer an opening to build their own IT resources as they please (Rajaraman, 2014).

The growth of cloud computing has rapidly accelerated over the past few years, with the worldwide cloud computing market growing 28%, making \$110 billion in revenues in 2015 (Columbus, 2016). This growth has resulted in businesses adopting cloud computing to improve their Information System and decrease their expenditure in unnecessary technology expenditure. As an example of the rapid growth, 78% of United Kingdom organisations formally adopted at least one cloud-based service in 2014 (Venkatraman, 2014).

### 1.2 Aim

The aim of this project is to evaluate the current Information System utilized by Caerphilly Rugby Football Club Ltd.'s (CRFC) committee members, and analyse the appropriate technologies to adopt a cloud computing infrastructure.

### 1.3 Objectives

To complete the investigation for this project, the researcher must;

1. Review the literature and identify characteristics and features of a cloud computing infrastructure.
2. Critically evaluate the advantages and disadvantages of cloud computing.
3. Evaluate the current Information System used in Caerphilly Rugby Football Club Ltd by its committee members.
4. Identify a recommended cloud computing system for Caerphilly Rugby Football Club Ltd and research the benefits the system would provide for the establishment.
5. Review the possible implications of adopting a cloud computing infrastructure to the current Information System of Caerphilly Rugby Football Club Ltd

The objectives defined above provides a guideline for the research project. To make sure that cloud computing is defined and explained, review CRFC's current Information System and recommend a cloud computing system for the sports establishment.

To accomplish these objectives, research methods will be utilised to gather data and information about cloud computing and to create recommendations through secondary research, and an evaluation of the Information System will be carried out through primary research.

#### 1.4 Motivation for Topic

With cloud computing dominating the Information Technology (IT) market, the technology service has been adopted by individuals and businesses alike. However, businesses that still use a paper-based Intelligent System or an outdated technological system, cloud computing providers such as Amazon, Dropbox and Google creates the opportunity for that business to adopt a new Information System, creating an affordable system, and a start of an investment into their own resources.

An example of a type of business that would use an outdated Information System is longstanding sport establishments, such as Rugby Football Clubs. Consisting of a small Information System within the establishment, the use of cloud computing can provide efficiency and an update to current technology trends.

#### 1.5 Structure of Dissertation

##### Section 1: Introduction

The Introduction provides an outline of what the aim of the dissertation is, with objectives providing a structure to reach the aim. Furthermore, background and motivation are also featured in this chapter to support the aim of the research paper.

##### Section 2: Literature Review

This section introduces the characterizations and features of cloud computing, as well as its advantages and disadvantages, including the efficiency that cloud computing brings and the security element of the technology. An introduction to Caerphilly Rugby Football Club Ltd is also included to provide a brief history of the establishment, and its structure.

##### Section 3: Methodology

The Methodology provides a guideline for how the research will be carried out throughout the dissertation, discussing the data collection process.

##### Section 4: Results and Discussions

This section discusses the findings of the data collection process, and also provides an analysis of available cloud computing services to create a recommendation for a suitable Information System for Caerphilly Rugby Football Club Ltd.

##### Section 5: Conclusion

The last chapter provides a review of the research paper by evaluating how objectives are met, and if the aim has been reached by the researcher.

## 2.0 Literature Review

### 2.1 What is Cloud Computing?

Rajaraman (2014) defines cloud computing as a method of a user utilizing computer resources supplied by a provider on demand, providing the user is connected to the Internet. This allows the user to utilize the supplier's hardware and software, such as processing power, storage space or applications without human interaction (Rajaraman, 2014).

Cloud computing did not emerge to the commercialised industry until 2006, with Amazon launching its Elastic Compute Cloud (EC2) services that allowed organizations to "lease" the hardware and software to run their enterprise applications (Erl et al, p.27, 2013).

With a wide range of services now available to the public and organisations, such as Dropbox, Google Drive and Microsoft's OneDrive, cloud computing technology has certainly dominated the Information Technology market. By 2019, cloud applications will account for 90% of worldwide mobile data traffic, compared to the 81% of 2014 (Columbus, 2015).

### 2.2 Cloud Computing Characteristics

There are six common characteristics that allow cloud providers and consumers to assess and measure the value of a given cloud computing service (Erl et al, p.58, 2013).

#### 2.2.1 On-Demand Usage

An individual cloud consumer may access the cloud-based IT resource at any given time, allowing the cloud consumer the freedom to self-provision these IT resources. Once the consumer has configured the resources to their needs, they are automated, allowing a non-human involvement. This is generally known as an "on-demand self-service usage" (Erl et al, 2013).

#### 2.2.2 Accessibility

There must be universal access to the resource, representing the global access of the cloud. A range of devices can establish individual access, such as transport protocols, interfaces and security technologies (Erl et al, 2013).

#### 2.2.3 Multitenancy

Multitenancy allows multiple users (tenants) to access the same technology service together, however, remaining separate from each other's activities. The use of multitenancy also allows resource pooling, which permits cloud providers to group large scale IT resources to serve multiple 'tenants'. Furthermore, multitenancy also offers the cloud provider to dynamically arrange physical and virtual IT resources based on its cloud consumer demand (Erl et al, 2013).

#### 2.2.4 Elasticity

Considered as one of the core characteristics for a cloud computing platform, the IT resource must be able to manage and adapt at a high capacity of cloud consumers. This is mainly due to elasticity being closely affiliated with reduced investment and the proportional costs benefit (Erl et al, 2013).

#### 2.2.5 Measured Usage

Measuring the use of the resources is an important factor, regarding with the cost of the services for the cloud consumer. Measuring the usage allows the provider to keep track of the cloud consumers' usage of the IT resources. The cloud provider then charges the

consumer with the resources used, allowing the service to be cost effective for the user (Erl et al, 2013).

However, measuring the usage is not limited for only charging the consumer, but measuring the consumer for general monitoring of IT resources, and related usage reporting (Erl et al, 2013).

#### 2.2.6 Resiliency

Resiliency allows the cloud provider to have redundant implementations of IT resources at different physical locations. The IT resources are then pre-configured, and used as a back-up if the primary IT resource becomes unworkable (Erl et al, 2013).

### 2.3 Cloud Delivery Models

Cloud delivery models represent the different packages that cloud computing technology has to offer. These packages represent a combination of IT resources offered by the cloud provider. There are three common delivery models; Infrastructure-as-a-Service (IaaS), Platform-as-a-Service (PaaS) and Software-as-a-Service (SaaS) (Erl et al, p.63, 2013).

#### 2.3.1 Infrastructure-as-a-Service

The Infrastructure-as-a-Service (IaaS) environment is generally used to provide the cloud consumer with a high level of control and responsibility over their cloud computing service, with its configuration and deployment. Upon installation of the technology for the cloud consumer, the IaaS environment is generally not pre-configured, allowing administrative responsibility for the consumer (Erl et al, p.64, 2013).

IaaS can be cost effective, and allow easily scalable IT solutions for cloud consumer. The costs of hardware are substantially reduced, as the underlying hardware are outsourced to the cloud provider (Interoute, 2015).

#### 2.3.2 Platform-as-a-Service

The Platform-as-a-Service (PaaS) environment is represented as a “ready-to-use” package, as it is typically comprised of already deployed and configured IT resources. Unlike IaaS, a PaaS environment reduces time and cost of an administrator of the cloud consumer, as this is a pre-configured package (Erl et al, p.65, 2013).

Furthermore, PaaS provides developers with a platform, allowing them to create web-based applications, with a life-cycle development environment. This includes testing, deployment and hosting the developed applications by a cloud-based platform. An example of commonly found PaaS includes Facebook F8, Salesforce App Exchange, Google App Engine, Bunzee Connect and Amazon EC2 (Xu, 2012).

#### 2.3.3 Software-as-a-Service

Software-as-a-Service, sometimes referred to as Application-as-a-Service, offers a multi-tenant platform, allowing common resources to be used at a single instance with multiple users at once (Xu, 2012).

A SaaS environment severely limits the administrative role to the cloud consumer over its implementation, and is often provisioned by the cloud provider. However, SaaS can be legally owned by the provider *or* the consumer, and assumes the cloud service owner role. As an example, the cloud consumer can also utilize a PaaS environment, and build a cloud service that decides to deploy in that same environment as a SaaS is offering (Erl et al, p.67, 2013).

Cloud Delivery Model	Typical Level of Control Granted to Cloud Consumer	Typical Functionality Made Available to Cloud Consumer
SaaS	Usage and usage-related configuration	Access to basic cloud computing services, such as storage space, collaboration tools.
PaaS	Limited administrative	Moderate level of administrative control over IT resources relevant to cloud consumer's usage of platform
IaaS	Full administrative	Full access to virtualized infrastructure-related IT resources and, possibly, to underlying physical IT resources.

*Table 1 A comparison of typical cloud delivery model control levels (Erl et al, p.68, 2013)*

## 2.4 Efficiency

### 2.4.1 Finance

With the outsourcing of IT resources in cloud computing, there is the major benefit of reduction in staffing costs, and the cloud services and its applications, such as SaaS, save the huge IT infrastructure investment (Kumar and Vidhyalakshmi, 2012).

Cloud providers base their business model on the necessary of IT resources, such as software and hardware. The IT resources are then made available to the cloud consumers through “bargain” package prices. This allows businesses and organizations to access powerful infrastructure without having to purchase the equipment themselves (Erl et al, p.41, 2013).

The minimization of costs for the software and hardware allows the businesses themselves to start small, and gradually build their IT resources throughout its lifecycle when allocation is required (Erl et al, p.41, 2013).

A study conducted by Rackspace, in conjunction with Manchester Business School, surveyed 1,300 companies in the United Kingdom and United States of America that used cloud computing during December 2012 and January 2013. The study found that 88% of the cloud consumers resulted to cloud computing for the cost savings. With 56% of the respondents agreeing that cloud computing have helped them boost profits (Olavsrud, 2013).

### 2.4.2 Time

Multi-tenancy and mobilisation allows the cloud consumer's employees access the same IT resources from multiple devices with an internet connection, from an anywhere anytime basis (Kumar and Vidhyalakshmi, 2012). These two characteristics improve collaboration, particularly a business with remote employees. Based on a survey conducted by Microsoft in 2010, Small and Medium-sized Businesses (SMBs) Cloud Computing Research, 66% said they need to allow employees to work anywhere at any time (OPEN and Express, 2011).

Using the cloud computing technology, teams and employees can collaborate at separate locations eliminating the use of email services to attach and share documents, calendars and task lists. Furthermore, time can be saved by accessing a certain program over the internet, instead of downloading and installing that software, such as word-processing software (OPEN and Express, 2011).

With the previously mentioned survey conducted by Rackspace, an additional 60% of the surveyed companies said that cloud computing has reduced the need for their IT team to maintain infrastructure, allowing their employees more time to focus on strategy and innovation (Olavsrud, 2013).

In addition to focusing on other tasks, cost and time is reduced with the cloud provider taking care of the concerns regarding upgrading equipment, and amending any configuration settings (Kumar and Vidhyalakshmi, 2012).

## 2.5 Security

One of the major worries of cloud computing is the security of data and files. Feignebaum (2009) resembles the situation of storing jewellery that is normally kept in a sock drawer, and then storing it in a bank with guards, robust safes and video surveillance as the same situation as uploading documents and media files from your desktop to the cloud.

According to a report released in 2009 by Credant Technologies, it was found that there were 60,000 hand-held devices left by taxi passengers in the vehicle over a period of six months. These devices include 55,843 mobile phones, with the rest being laptops, tablets and other technology devices. Furthermore, the IT Policy Compliance Group reported that in 2008, human error accounted for three-quarters of all incidents that involved the loss of sensitive data (Feignebaum, 2009).

As cloud computing services run on a network structure, they are open to network type attacks. This can be caused by multiple factors, such as the incorrect configuration of Secure Sockets Layer (SSL), where client and server authentication are not correctly behaving, causing a 'man in the middle attack' (Jamil and Zaki, 2011).

According to Barron, et al (2013), security threats and attacks can derive from malware injections, social engineering attacks, account hijacking or Wireless Local Area Network (WLAN) attacks.

Malware injections can occur when a hacker 'injects' malicious code into the cloud computing system. This malicious code can include scripts, active content or software. An example case of malware injection is the United States Treasury Department, with four sites being forced to go offline after discovering malicious code at the parent side. The third party application being used by the U.S. Treasury Department was a victim to an intrusion attack. As a result, multiple websites were affected (Barron et al, 2013).

A social engineering attack is an invasion of a user's account by obtaining details over the internet and manipulating the company, holding the victim's account details, to gain access and change details as the hacker pleases. As an example case, Mat Honan's digital life was destroyed by a hacker who got access to his Amazon and Apple account by adding a credit card to the Amazon account. By supplying details to the Amazon representative with a full name, billing address and the associated email address, all details which could be found on the internet by the hacker, the hacker added his own credit card to the account, allowing him to also enter a new email address. This allowed the hacker full access to the victim's Amazon account (Barron et al, 2013).

This process was repeated by the hacker with Mat Honan's Apple account. For this attempt, the hacker was unable to answer the victim's account security questions. However, the representative from Apple then offered the hacker an alternative, by only supplying the user's

billing address and last four digits of the victim's credit card, which was gained through the Amazon account, and reset the Apple ID password. Once accessed Mat Honan's iCloud account, all information from his iPad, MacBook and iPod account were completely erased (Barron et al, 2013).

Another security threat is account hijacking, which is similar to social engineering attack. However, the difference is that account hijacking involves stolen credentials. In July 2012, Dropbox confirmed that hackers gained access to usernames and passwords from a third party site to access Dropbox users' accounts. To prevent further attacks, Dropbox has applied a two-factor authentication into the company's security controls. This two factor authentication involves the user entering two of the following three properties, including something the user will know, their password or PIN, something the user has, such as a debit/credit card, or something the user is, such as a biometric characteristic, for example, a fingerprint (Barron et al, 2013).

Finally, another security threat can also include a Wireless Local Area Network (WLAN) attack. In a WLAN attack, a hacker performs attacks such as a man-in-the-middle, accidental association, identity theft etc. In January 2011, Thomas Roth used cloud computing to crack wireless networks that relied on pre-shared passphrases, such as those found in homes and small businesses. Thomas Roth used an Amazon EC2 system to run through 400,000 possible passwords per second, costing \$.28 cents per minute, costing a total of \$1.68 to hack into a wireless network instead of costing tens of thousands of dollars to purchase the hardware and run the program themselves (Barron et al, 2013).

## 2.6 Document Collaboration

Collaboration within cloud computing allows your team members to work together on a document that is either on-site or off-site, allowing that team member to access, share and edit the files that are within the cloud computing network (Boyer, 2015).

With the current trend of remote employment, and numerous Small and Medium-sized Businesses (SMBs) adapting to the 'Bring Your Own Device' (BYOD) practice, workforces want to move and communicate effortlessly between a range of devices, such as mobile phones, tablets and laptops. Cloud computing collaboration allows the consumer to do that (Boyer, 2015).

A feature that is often involved with cloud computing collaborative tools is presence technology. This enables the capability of seeing whether your team member is online, or offline. Presence technology can optimize the process involved with communication to the team member, as the speed of this process allows the user to request and retrieve information (Hartman, 2009).

Enabling file collaboration within the cloud can provide cost-effectiveness. As previously mentioned in section 2.2.5, the cloud computing provider will measure the consumer's activity, allowing the business to only pay what is being used. This prevents cost of buying and building their own cloud computing infrastructure (Boyle, 2015).

Collaboration of documents and files within the cloud environment can also enhance the project management process, allowing the business to keep all project related documents in a unified area. Furthermore, allowing collaborative project management tools removes the element of tracking old emails, and saving the document multiple times for various versions,

as all documents created and edited are archived to be easily accessed by its contributors (Boyle, 2015).

Finally, collaboration tools allow for scalability. The restriction of adding a team member onto the cloud environment for access to files and collaboration is removed, as the business will not have to invest in a change of infrastructure to their system. Instead, the business will pay for additional storage and users when needed. Improving organizational agility (Boyle, 2015).

## 2.7 Caerphilly Rugby Football Club Ltd

Caerphilly Rugby Football Club Ltd (CRFC) was established in 1887, and has participated in multiple leagues and competitions, such as the Heineken League Rugby, the European Shield and the Principality Cup (Tamplin, 2013).

CRFC will be used as a case study example for how a cloud computing infrastructure can improve an outdated Information System that CRFC have. Using primary research to interview their committee members and bar steward.

### 2.7.1 Committee Members

As Caerphilly Rugby Football Club Ltd will be used as an example for a recommendation of a cloud computing infrastructure, the committee members of the establishment would be the most affected by the new system with the recommended infrastructure to provide efficiency, and save time when collaborating on files and media amongst the committee, with a total of twelve members (Chowdhury, 2015).

According to Benjamin Robbins, in his article for The Guardian, businesses should first look for systems and processes that would benefit from cloud computing to improve existing systems and capabilities, improving services in the future not just for their customers, but as well for the internal employees, therefore benefitting the committee members (Robbins, 2014).

### 2.7.2 Bar Steward

The bar steward of the establishment will also be heavily involved with the recommended cloud computing infrastructure. In a managerial position, the bar steward will be dealing with the cash flow/expense documents, giving the bar steward access to the cloud computing system to store and access the necessary documents.

## 2.8 Conclusion

To conclude, this literature review has highlighted the characteristics of a cloud computing infrastructure, as well as highlighting the positive and negative impacts of adopting such a system within a Small Medium-sized Business (SMB), in this case, Caerphilly Rugby Football Club Ltd.

As covered, the biggest hesitation for SMBs to convert to a cloud computing infrastructure is the awareness of security, concerning the safety of documents and files from hackers and malicious software, as well as the safety of the details of any employee or team member attached to the cloud computing environment.

However, with the mention of the advantageous factors, such as time and cost efficiency, cloud computing can introduce features to the business, such as a unified storage system that can be accessed by any committee member with the correct permissions, and the bar steward. Furthermore, cloud computing can also provide the business with collaboration

tools that will allow team members to access the document simultaneously, archiving the changes made to the document for any previous revisions.

Finally, introducing cloud computing to Caerphilly Rugby Football Club Ltd can also provide the positive impact of cost efficiency to the business, such as saving the cost of producing paper copies of each document for every committee member. Furthermore, costs are saved when hiring the required software, and possibly hardware.

## 3.0 Methodology

### 3.1 Introduction

To investigate the implications of adopting a cloud computing infrastructure for Caerphilly Rugby Football Club Ltd.'s (CRFC) Information System (IS), a methodology is first required in order to begin the investigation.

To begin the investigation of the IS, it is first decided that this dissertation will be an empirical study, requiring both primary and secondary research (Winch, 2015). As a form of primary research, interviews will be used to gather opinions and insights of the current Information System used by committee members and the bar steward of CRFC. Secondary research is carried out to define the characteristics and features of a cloud computing infrastructure and a recommendation will be made for a suitable cloud computing system that will update the current IS for CRFC.

This methodology section will go further into detail about the chosen methods of gathering data, why certain techniques were not used, what possible implications may occur during the collection of the data, its reliability and its importance.

### 3.2 Primary Research

According to Driscoll (2010), primary research is information and data that is collected at a first-hand experience, rather than finding the information in a book, article or a database etc. The aim of primary research is to learn about something new that can be confirmed by others (Driscoll, 2010). In this case, learning about a business' Information System that can be confirmed by its members and employees.

#### 3.2.1 Interviews

For the chosen method for collecting primary data, a qualitative method will be used. Interviews will be used to collect individual opinions and views of the current Information System (IS) that the committee members of Caerphilly Rugby Football Club Ltd (CRFC) currently use. Interviews require asking a participant(s) questions in a one-on-one, or a small group meeting. Furthermore, as the interviewees will also question the committee members about their behaviours, beliefs and/or attitudes towards their IS and cloud computing, it is recommended to use interviews (Driscoll, 2011).

For this process, five committee members will be interviewed at CRFC in a one-on-one meeting. In addition, the bar steward of CRFC will also be interviewed. With five committee members, this will provide an overall perspective of the current IS, a general opinion of how the system could be improved, and their views of cloud computing.

Interviewing the bar steward of the establishment will also provide a guideline of how important information such as stock in-take, expenses and sales reports are produced and passed to the committee of CRFC.

Covering these areas throughout the interviews will provide enough qualitative information to research a recommended cloud computing infrastructure for CRFC. Qualitative research is a method that provides non-numerical data, with information that refers to their experience, behaviour or emotions (Strauss and Corbin, 1990).

### 3.2.2 Interviews or Surveys

When deciding upon a primary research method, the objective was defined to collect opinions and thoughts towards Caerphilly Rugby Football Club's (CRFC) current Information System (IS) for the committee members.

Surveys were first considered as a data collection method, as they would allow the researcher to survey all committee members. Furthermore, the researcher would also be able to develop further detailed questions about the current IS and views of cloud computing (Driscoll, 2011).

However, surveys can provide invalidity throughout the data gathering process. As survey questions are standardized, it is difficult to ask anything other than the questions being posed to the respondent. As an example used by Blackstone (2012), if the researcher wishes to ask "If your party nominated an African American president, would you vote for him if he were qualified for the job?", the respondents were then asked to answer yes or no. However, the answer may be more complex than the survey asks for, such as an opinion of the question, or the situation (Blackstone, 2012).

With the use of interviews, the subject at hand may be too complex for simple answers and require a lengthy explanation, providing flexibility for both researcher and interviewee (Blackstone, 2012). Therefore, with detailed information needed to evaluate the current IS, and detailed responses about cloud computing, interviews are used for this dissertation.

### 3.3 Secondary Research

To provide further analysis of cloud computing, with its characteristics and features, and to provide a recommendation of a suitable system for Caerphilly Rugby Football Club Ltd (CRFC), secondary research is needed to provide further support and clarification to the research at hand.

Secondary research is the use of previously published work, such as newspaper articles, journals, government documentation and books. However, with current technology, it is now much easier to gain access to large data, and the expansion of the internet has also provided further secondary research, such as blogs, articles and databases (Saunders et al, 2006).

Services that are available such as MetSearch are very useful to search a catalogue of journals, books and articles. The library management system allows Cardiff Metropolitan University students to place reservations on book loans, and renew items, search DSpace, the institutional repository of the university, and also manage a library account to keep a collection of studied literature (Cardiff Metropolitan University, 2016).

### 3.4 Ethics Approval

Due to the ethical implications that could occur whilst performing primary research, an Ethics Approval Form must be completed. Once the Ethics Approval Form has been approved by the ethics committee, the student can carry out the interviews.

In order for the Ethics Form to be approved, documents such as the participant consent form, participant information sheet, the letter to the organisation, and a document with the interview questions had to be submitted simultaneously with the approval form and approved.

All documents can be found in the appendix.

## 4.0 Results and Discussion

This chapter will be analysing and discussing the answers provided in the interviews for the primary research of this thesis. The primary research being analysed has been data gathered from interviewing the committee members and the bar steward of Caerphilly Rugby Football Club Ltd (CRFC) about their current Information System (IS) for sharing and storing documents amongst the sports facility's committee.

### 4.1 Findings

#### 4.1.1 Introduction

The interviews performed involved a total of five committee members and one bar steward. With the six interviews, all participants were asked questions in three sections, with the first about their position within the establishment, the second about the current IS the participant utilizes, and the final section covering about their knowledge and views of cloud computing.

#### 4.1.2 Interviews

The interviews with the five committee members provided clarification of the current IS used to create and share documents amongst themselves, and also provided their knowledge of cloud computing, as well as their overall use of technology.

The first two questions that were answered provided much significance to the data collected, with the committee positions willingly revealed as chairman, vice chairman, secretary, treasurer, membership secretary and the club steward. Allowing the interview data collected to be more trustworthy and viable, due to the high authority positions of the committee members.

Question 3 provides a mix of approaches to the current IS used by the committee members, with Interview 1 stating that there is a "My WRU system which logs most documentation which involves any form of rugby data." However, no further clarification is provided for this system, as Interview 1 is the only participant that mentions the My WRU system, with other participants not having any knowledge of the system that is introduced by the Welsh Rugby Union (WRU).

Another mixed approach provided by Interview 3, is that the secretary "keeps all the documents in his possession... and shares the documents through email". This approach was also supported by Interview 6, by storing documents on their own laptop but "shares the document via email".

To conclude, the current IS to share documents amongst the committee members is through email with 50% of the participants using email to transfer and share files. The rest of the participants either have very little involvement with the documents, such as Interview 4 who is only there "in the capacity of helping everyone else out with their role".

Question 3 addresses whether all committee members develop their documents and files on computer, with an overall agreement that majority of the documents and files are produced on a system. There is an exception with Interview 2, who keeps a record of all membership records on a spreadsheet, and on a logbook which is paper based.

Question 4 then asks the participants of their opinions of the current IS used by the committee members, and how it could be improved. All participants provided a unanimous opinion that

the IS could be improved, with Interview 2 suggesting of using a cloud computing system and Interview 6 suggesting that there should be a central system for the whole of the committee.

Based on questions 5 and 6 for the committee members, there seems to be an open door policy with restriction of documents, with no restrictions in place.

As the club steward is not part of the committee, one different question was different for the bar steward, enquiring how cash flow reports are produced and accessed. The participant responded by explaining that work is “produced on (his) personal computer, and then send them over to the treasurer”.

Proceeding onto the third and final section, all participants are asked about their knowledge of cloud computing.

Question 8 first addresses if the participant is familiar with cloud computing, with a response with 5 out of the 6 respondents saying yes. The same response applied for question 9, asking whether the respondents have used cloud computing services. However, with the 5 participants using cloud computing services in some capacity, only 2 of the committee members use cloud for storage, using services such as Office 365, and Dropbox.

Question 9 addresses if the participant would use cloud computing to improve the current IS, with only one respondent hesitant about the idea. Interview 2 has made it clear throughout the interview that they are not comfortable with the use of modern technology, and only using their home computer for his main occupation, not to develop documentation for the sports facility.

Question 10 then enquires how the participant feels about the security of cloud computing, with the general response being neutral, involving the human element, and also the element of malware attacks and hackers.

An extra question posed to the treasurer of CRFC was whether if the establishment would consider paying for cloud computing services, such as document collaboration, extra money etc., with the answer being yes.

## 4.2 Discussions

With the information provided by the participants from CRFC, a formal analysis can be made of the current IS, a solid recommendation for a cloud computing system can be produced based on the opinions and experiences of the committee members and the bar steward.

### 4.2.1 Current Information System

The current IS utilized by the committee members of CRFC has been established as a simple emailing process, only sending documents when they are requested by a singular member or printed and shared for a meeting that occurs once a month amongst the entire committee members.

As suggested by Interview 3, the secretary is in possession with the majority of the documents used by the committee, with the treasurer in possession of all financial documents that concern the establishment.

Another process, involving the bar steward and the treasurer, entails the same process by emailing the spreadsheet document to the treasurer weekly, with reports of the general takings.

Using an emailing system to share documents amongst the committee members can be time consuming and unsafe. With popular emailing services, such as Gmail, with a secure HTTPS connection, there is no control for the sender over the recipient's server, allowing them to download the important attachment through an unencrypted HTTP connection, possibly from a public Wi-Fi hotspot (Pash, 2015).

Interview 1 revealed a system that exists, however, not utilized by the committee. Based on the respondents answer, the My WRU system logs most documentation, which involves any form of rugby data, being a central point for all documents and information for the committee of CRFC. However, due to Interview 1 being the only participant to mention this system supplied by the Welsh Rugby Union, it is clear that remaining committee members that were interviewed have no knowledge of the system.

With the exception of one committee member, all work produced is on a computer. The exception is the membership secretary of the sports establishment, recording all members of the facility in a log book, with the vice membership secretary creating a digital copy of the logbook in a spreadsheet.

Using email as a main IS for Caerphilly Rugby Football Club Ltd (CRFC) can be dangerous. Particularly with documents that contain sensitive information, such as tax documents. However, email can be satisfying for a Small Medium-sized Business (SMB), being cost-effective, send messages, files, videos and documents to a recipient at any location with an internet connection and allows the user to have a wider availability, archiving emails with a significant importance, providing organisation. Nevertheless, email can provide dangers for a business like CRFC, with vulnerability of the data, providing a possibility of a hard drive crash, or losing all information associated with the email account. Furthermore, email provides hackers with the opportunity to access emails, and possibly intercept a message and wind up in someone else's inbox (Root, 2016).

An important factor to take into account is the demographic of all committee members, with Interview 1 mentioning that the typical volunteer is probably not up-to-date with the current technology trends. With the demographic currently being over aged 50 for the majority of the committee, due to their upbringing, they are not as comfortable with the use of technology, such as computers and mobile phones due to the non-existent technology in their childhood.

This can create a difficult situation for when introducing a new system that requires technology, and participation of all committee members. Making sure that the cloud computing software used is installed sufficiently on all desktops, or laptops, that are owned by the committee, and possibly their mobile devices.

When asked about the opinions of the current Information System (IS), there is a general perception that the current system does need improvement, in terms of sharing of the information produced by each committee member. As answered in Interview 6, one response included the need of a centralised system for the committee, which can be established by using cloud computing system.

#### 4.2.2 Use of Cloud Computing

Currently, there is mixed use of cloud computing throughout the establishment, concerning its committee members. With two of the respondents using cloud computing services to store documents and files for work and their personal life. One other committee member uses

cloud computing due to his mobile phone device, with the use of Apple's iCloud, using the cloud to save contacts, emails and device information. Another situation with the use of cloud computing is within a database for a committee member's professional job. Leaving one participant with no knowledge or previous experience of cloud computing.

Five out of the six respondents agreed they would consider using cloud computing to improve their current IS. However, precautions must be taken place to ensure the protection of the documents due to their sensitivity, and the ease of access to the system. The cost of the system was also a point brought up by the chairman; as a small establishment, the business must take care of its expenditure on a new system.

When interviewing the treasurer of the sports facility, a question that was specifically designed for that committee member; would CRFC be prepared to pay for extra services that may be available, such as document collaboration, extra memory space, and adding extra members to the cloud service. With the response being yes, this opens wider opportunities for the committee with the choice of cloud system that is on offer to use.

#### 4.2.3 Recommended System

Over 80% of the respondents of the interviews agree to the possibility of introducing a cloud computing system to the current IS, eliminating the use of email, and create a central system for the committee of the establishment. The enthusiasm of reinvigorating the current IS will apply less pressure on the procedure to introduce the new system.

As discussed earlier in Section 2.3, there are three cloud delivery models available to the cloud consumer. It would be unreasonable for CRFC to adopt an Infrastructure-as-a-Service (IaaS) model, due to the lack of understanding for technology, and the committee's Information System being a basic document sharing system using email. Furthermore, as CRFC do not deploy or host any web-based applications, it would also be unnecessary for CRFC to adopt a Platform-as-a-Service (PaaS) model, causing unwanted costs for equipment that is not needed.

However, the only suitable cloud delivery model for CRFC is a Software-as-a-Service (SaaS) model. With only basic specifications needed, such as file storage, and document collaboration, SaaS will provide the correct requirements for CRFC. Keeping costs to a minimum, and preventing less confusion for any future projects for any committee member.

Specifications based upon the primary research include an estimated minimum storage of 5GB (Gigabytes) due to the necessity of documents and media affiliated with CRFC. Accessing the stored files and media through a mobile device, allowing committee members to preview documents at meetings, eliminating the use of paper, and the dependence of one committee member to print out all copies etc. Another service needed is the use of file collaboration, to allow multiple users access and edit the document simultaneously.

Finally, the ease of access to the storage system will be the most prioritised specification. With the general demographic of CRFC's committee aged over 50, it is important for the use of cloud computing to be accessed easily, and generally easy to communicate with.

When recommending a system, a comparison of free cloud services will first be investigated, allowing the business to trial and feel what service is best. Allowing CRFC the choice to stick to the free system, or upgrade in the future, allowing plenty of options for the establishment

Cloud Provider	Storage	Multiple Devices	File Collaboration	Offline Access	Online Software
 Dropbox	2GB	Yes	No	Yes	No
 Google Drive	5GB	Yes	Yes	Yes	Yes
 OneDrive	7GB	Yes	Yes	Yes	Yes
 box	10GB	Yes	Yes	Yes	Yes
 ZOH0	5GB	Yes	Yes	Yes	Yes

*Table 2 Cloud Computing Packages (GetApp, 2016)*

The most suitable free cloud computing packages available are displayed in Table 2. Dropbox provides a centralized basis for its files and media, however, with no file collaboration. In order for each committee member to share a document, the process is done through an email, which is the current problem for CRFC's Information System. Therefore, making Dropbox an unlikeable replacement.

Google Drive allows the user to create, edit and delete documents online, as well as collaborating with them. Furthermore, Google Drive allows the user to view previous versions of the file, work offline if there is no internet connection available, and scan paper documents from a mobile device, possibly involving bills, important documents and letters from organisations (Google, 2016). However, each Committee Member will have to create a Google account in order to access Google's products, and allow full collaboration (Stratton, 2014).

Microsoft's OneDrive offers many features, especially for document collaboration. Microsoft Office is heavily involved with OneDrive, creating and editing documents on the installed version of Office, or the online package for the use online document management (Microsoft, 2016). However, with the demographic range of the committee members mentioned as a possible problem with the use of technology, the package offered must be simple to understand and use. Furthermore, all committee members must create a Microsoft email account in order to access all features of the package.

Another cloud provider, Box, very much like OneDrive and Google Drive contains online software to allow the user to create and edit documents. Box offers the largest amount of storage for free, and still provides the same features as its competitors. Furthermore, for committee members, it will not be necessary to create a new email account to access its services.

As a final recommendation, Zoho seems to be the most compatible for CRFC. Zoho offers 5GB of free storage, easy collaborative tools, such as creating project folders, and selecting the team members you would like involved. Zoho also offers integration with third-party applications, such as accessing Dropbox or Google Apps, providing the user already has an

affiliation with those services. Furthermore, online access to Microsoft Office programs, such as Word, PowerPoint and Excel is available (Zoho, 2016).

Zoho offers extra features such as an Admin Console, allowing the committee members to select an administrator for their centralized cloud computing system. The admin console allows the user to customize logos, manage domains and set permissions for each user (Zoho, 2016).

When there is familiarity amongst the committee members for the use of the cloud services, improvements and extra services can be added for a cost. However, as mentioned in section 2.4.1, the minimization of costs, such as the free services offered, can allow the establishment to gradually build their IT resources, and invest into extra services that are available from cloud providers.

Cloud Provider	Storage	Multiple Devices	File Collaboration	Offline Access	Online Software	Cost
 Dropbox	As much is needed	Yes	Yes	Yes	Yes	£11.00 / user / month
 Google Drive	30GB	Yes	Yes	Yes	Yes	£3.30 / user / month
 OneDrive	1TB	Yes	Yes	Yes	Yes	£7.00 / user / month
 box	100GB	Yes	Yes	Yes	Yes	£3.50 / user / month
 ZOHo	50GB	Yes	Yes	Yes	Yes	£5.00 / user / month

Table 3 Cloud Computing Packages (GetApp, 2016)

Dropbox has multiple payment packages offered, such as extra space. The best Dropbox solution for CRFC is the Business Package, allowing the establishment to grow its IT resource by space, an unlimited file recovery and advanced collaboration tools (Dropbox, 2016).

A cheaper alternative available to CRFC is an upgrade for Google Drive. The upgraded package provides communication benefits, such as providing a service for video and voice calls, supplying project management tools, including an integrated calendar and easy-to-create project sites, and providing each user with 30GB of storage and a business email address (name@yourcompany.com). This is a highly recommended package for CRFC, providing not only the basic cloud computing elements of storage and file collaboration, but also elements that provide organisational, and time saving tools for the committee, also a very affordable package as shown in Table 3 (Google Apps, 2016).

OneDrive for Business compared to the usual OneDrive used by individuals has the collaboration feature to allow co-workers share and edit documents together. Due to the lack of features provided by Microsoft for OneDrive for Business compared to other packages recommended so far, being Google Drive and Dropbox, this package offered is the weakest (Office, 2016).

Box also provides a business package which can allow CRFC to easily share and collaborate throughout the committee members, providing a range of options for the business to integrate with, such as Outlook, Microsoft Office365 and Google Docs. An administration role is also provided for anyone to control access, audit and monitor all members who are a part of the system (Box, 2016).

An upgraded package for Zoho provides the free edition features, also task management tools, group sharing and access activity. However, like the free package, there is a vital disadvantage by not allowing the user to restore any deleted document (Zoho, 2016).

#### 4.2.4 New System Implications

When introducing a new system, CRFC can be exposed to risks, such as a poor understanding of the system and delays in project deadlines etc. However, when introducing the new recommended cloud computing system, a successful training strategy and preparation will minimise the risks and prevent any implications (Strathmore, 2010).

Before introducing a new IS, the timing of the implementation must be considered. Due to the rugby season being between September and May, the best time to consider the implementation of the cloud is during the summer, with June, July and August available. This prevents any delays during the season, and prevent any problems that may occur during the busiest part of the year for the establishment if there were to be a failure in the system (Strathmore, 2010).

Consideration of the financial impacts must be taken into account during the transition. Depending on the system that has been chosen, financial risks can be avoided if the establishment first introduces a free cloud computing infrastructure. While cloud computing services have the potential to reduce capital expenditure, CRFC will have to consider the potential impacts on their budgets and financial statements (Strathmore, 2010).

As pointed out in Interview 1, it was stated that the average age of a committee member is approximately over 50 years old. Furthermore, with Interview 2, it was clear that there is at least one member who is not comfortable with the use of technology, or familiar with cloud computing. To ensure a smooth transition of the IS, it is vital to prepare all committee members for the skills required to use cloud computing (Strathmore, 2010).

This risk of confusion and being uncomfortable with the technology can be prevented by hosting workshops and tutorials to teach all members how to use the system, walking through each scenario, and create group activities that will guide each committee member through a function available through the cloud system. Workshops can also provide opportunities for any risk checks, change and analyse the system (BMC Software, 2010).

As mentioned in Interview 1, the participant said that the Welsh Rugby Union (WRU) could hold computer courses, and encourage people to continue the use of technology. Therefore, with the help offered from a specialist, and multiple courses were held to use the learn the new system, the committee members will be encouraged and comfortable with the use of the technology.

#### 4.2.5 Conclusion

An evaluation of Caerphilly Rugby Football Club Ltd.'s current Information System has provided a sound reasoning to introduce a cloud computing infrastructure. With problems of

the current IS including time consumption, no centralized system, a lack of communication, and the use of an emailing system to share documents.

Furthermore, all committee members agreed that the new system is in need of an improvement, with five out of six of them agreeing that cloud computing would be a suitable system replacement.

With cloud computing possibly playing a pivotal role for CRFC's future Information System, it is vital for the committee members and the bar steward to get comfortable with the use of this technology, therefore utilizing the free packages offered will allow CRFC to save any expense of any software before purchasing, allowing them to explore further possibilities, and trial more than one cloud computing provider.

As a recommended free cloud computing package, the best alternative for CRFC is Zoho. The storage space offered is the minimum requirement with 5GB, collaborative software tools are also provided.

Furthermore, Interview 2 stated that only personal work is managed on the desktop owned by the participant. Using Zoho provides committee members the option to use the online file explorer to navigate through documents and folders, and another option for desktop synchronization. Therefore, filing both needs and requirements of the committee members.

Third party applications which allows the user to create and edit documents is also an advantage for any committee member who may not have possession of the correct word-processing software etc., this prevents any committee member from any unnecessary expenses of purchasing software, as it is provided by Zoho.

A recommendation for a paid cloud service is Google Drive. Google Drive provides the basic cloud computing services of storage and collaboration tools, as well as organisational and time saving tools. This is the cheapest and best alternative for CRFC, as desktop synchronization is included, third party applications to create and edit documents online and a business email. Google Drive's payment plan consists of paying for each user per month, at £3.30. As there is a total of twelve committee members, the total cost of the system will be £39.60 per month, with an annual cost of £475.20.

## 5.0 Conclusion

To conclude this research project, after evaluating Caerphilly Rugby Football Club Ltd.'s Information System, and by agreement of the committee members of the establishment, it has been determined that a new Information System with the use of cloud computing would improve the current situation of an out dated system. Recommendations have been made to supply the committee of the sports establishment with a variety of cloud computing packages that will establish a foundation for the system, and to carefully introduce the technology to each member.

Evaluating Caerphilly Rugby Football Club Ltd.'s Information System consisted of using primary research to gather information and opinions of the current environment by interviewing individual committee members and the bar steward.

The literature review provided in this dissertation determined the characteristics and features of a cloud computing infrastructure, also delving into the advantages and disadvantages of a Small Medium-sized Business (SMB) such as Caerphilly Rugby Football Club Ltd.

### 5.1 Objectives

#### 5.1.1 Objective 1

*“Review the literature and identify characteristics and features of a cloud computing infrastructure.”*

Section 2 completes the objective set by reviewing current literature using secondary research. Identifying the characteristics and the features of a cloud computing infrastructure provides a clear understanding of what a general cloud system is entailed of, and what system would best suit an SMB such as Caerphilly Rugby Football Club Ltd.

#### 5.1.2 Objective 2

*“Critically evaluate the advantages and disadvantages of cloud computing.”*

Advantages and disadvantages of cloud computing systems have been discussed and reviewed throughout section 2, providing examples of efficiency with advantages including the possible reduction of expenditure and demonstrating the time saving benefits a cloud computing infrastructure can provide. Disadvantages have also been discussed with the issue of security, by providing previous cases and examples demonstrating the type of attacks the could occur for such a system.

#### 5.1.3 Objective 3

*“Evaluate the current Information System used in Caerphilly Rugby Football Club Ltd by its committee members.”*

The objective has been achieved by using primary research to conduct interviews with individual committee members and the bar steward of Caerphilly Rugby Football Club Ltd. The interviews entailed to evaluate the current Information System, as well as collecting the opinions and personal involvement of their current system. The results provided are discussed in great detail in section 4.

#### 5.1.4 Objective 4

*“Identify a recommended cloud computing system for Caerphilly Rugby Football Club Ltd and research the benefits the system would provide for the establishment.”*

After establishing the cloud delivery type that would best accommodate Caerphilly Rugby Football Club Ltd, being a Software-as-a-Service model, ten cloud computing packages were evaluated, later identifying a solid recommendation for the establishment. The first five recommendations gathered consisted of non-payment services, with the final five evaluating the upgraded packages of the first five involving payment. Each cloud service is researched, providing what benefits are available from the package for the establishment.

#### 5.1.5 Objective 5

*“Review the possible implications of adopting a cloud computing infrastructure to the current Information System of Caerphilly Rugby Football Club Ltd.”*

Implications were evaluated in section 4.2.4, addressing the problems that could occur during the implementation of the technology, and applying theoretical strategies that can prevent the implications from occurring, such as the use of workshops to train the committee members how to use the software, and creating an appropriate timeline for when to install the new system.

#### 5.2 Research Aim

*“The aim of this project is to evaluate the current Information System utilized by Caerphilly Rugby Football Club Ltd.’s (CRFC) committee members, and analyse the appropriate technologies to adopt a cloud computing infrastructure.”*

The aim of this research project has been met by evaluating Caerphilly Rugby Football Club Ltd.’s Information System regarding its committee members, and providing an appropriate recommendation of a cloud computing infrastructure to adopt as their new IS.

#### 5.3 Recommendations

Based on the requirements gathered through primary research carried, recommendations were created based on the current Information System, entailing the sharing of documents through only email, with no centralised system. The requirements were then consisted of the ability to create and share documents with ease on a centralised system that all committee members could access with ease, to collaboratively work on documents and files simultaneously, and have a storage space of at least 5GB, as storage is used for media as well as documents and files.

Ten cloud computing packages were evaluated, producing two recommendations. With one recommendation consisting of a non-payment service, allowing the sports establishment to trial the software, and be slowly introduced to the software without sparing any expense. The second recommendation provided is an upgraded package if Caerphilly Rugby Football Club Ltd wish to upgrade from the non-payment system in the future, when all committee members are comfortable with the technology.

Other recommendations were produced based on the implementation of the systems, preventing any implications that may occur throughout the system’s life cycle, and the possibility of human error problems. It was established that it would be most suitable to install the new system during the summer months of June, July and August due to the break of rugby season. Allowing three months for the establishment to be familiar with the new cloud computing service.

It was also recommended for workshops to be carried out to ensure the committee members have an understating of the new system, and ensure that each user has the correct knowledge

for the features that are included with the cloud computing infrastructure. Eliminating the implication of human error.

#### 5.4 Limitations of Research

The limitations that occurred throughout this research project included the limited information provided for how cloud computing is currently used throughout the Welsh Rugby Union, involving its club rugby, and possibly professional rugby. The information could have possibly provided further clarification of the My WRU system mentioned in Interview 1, and a possible demonstration of the system would provide clarity of the current system that the Welsh Rugby Union has provided to club rugby throughout Wales.

However, as general SMBs do not belong to the sporting sector, the My WRU system would not affect the recommendations provided to Caerphilly Rugby Football Club Ltd (CRFC), as the recommended systems can also be capable to facilitate businesses familiar to the CRFC.

Furthermore, another limitation is the lack of the amount of interviewed candidates. With more time, all committee members of the establishment would provide all opinions of the current Information System, and provide a clear understanding of their current system. As there are a total of twelve committee members, a focus group could have been organised after the six interviews. This would provide an opportunity for a more generalized view of their current system, and how they would feel about using cloud computing services to update their Information System.

However, the six interviews provided a solid representation of the whole committee, with participants including the chairman, vice chairman, secretary, treasurer and membership secretary who deal with the vital documents of CRFC, such as financial documents and membership databases.

To overcome these limitations, an efficient timeline for primary research can be produced to allocate time to interview the Welsh Rugby Union (WRU) about the My WRU system, and the impact of technology such as cloud computing has on the sporting sector. Furthermore, focus groups can be used to create a further detailed evaluation of the Information System used by CRFC, as well as providing a general view of the cloud computing technology.

#### 5.5 Validity and Reliability of Research

The interviews conducted provided a sense of strong validity to the research. Using a qualitative method provided the researcher the ability to have face to face interviews with the committee members and the bar steward. As each committee member was interviewed individually, opinions and information provided was not effected by other answers, eliminating the possible sense of intimidation or distraction. Providing their views, and their views only.

Furthermore, due to the positions of each committee member acknowledged throughout the interviews, a sense of reliability of the information provided grew stronger. With high authority committee members including the chairman, vice chairman, secretary, treasurer and the membership secretary. Making this research reliable and viable.

If this research was to be improved for the future, a focus group after the interviews would allow the researcher to gain a stronger understanding of CRFC's current system. This would also allow a free flowing discussion about all committee member's views of cloud computing, creating a collective opinion of how they like to improve the system for the future.

## 5.6 Future Research

The continued growth of cloud computing has provided many opportunities for not only Small Medium-sized Businesses (SMBs) such as Caerphilly Rugby Football Club Ltd, but also for SMBs in the sports sector that are in a similar situation as the establishment evaluated in this research with the existence of outdated Information Systems, and without a central system to control and store any important documents, files and media.

If this research was to continue, other areas could also be investigated;

- Expanding an Information System with a cloud computing infrastructure that can also involve the sports team management, sharing documents and team information. Giving access to not only committee members.
- Evaluate the Caerphilly Rugby Football Club Ltd.'s Point of Sale system that can be connected to the cloud system to store reports, receipts etc.
- Investigate the My WRU system provided by the Welsh Rugby Union (WRU).
- Evaluating SMBs who have already implemented cloud computing into their Information System. Use primary research about the process the business took, as well as the reactions and opinions of their employees.

These areas mentioned above can help to develop a sufficient cloud computing system that can also be used by other sporting establishments to create a centralized system for all committee members and team management within that facility.

Furthermore, to expand the current research further, primary research can also be undertaken to evaluate an SMB similar to Caerphilly Rugby Football Club Ltd with cloud computing already incorporated into their Information System. A comparison can then be created and evaluate if Caerphilly Rugby Football Club Ltd would benefit from the use of a cloud computing infrastructure as their core Information System.

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## Appendices

### Appendix A – Ethics Form

#### PART ONE

Name of applicant:	Liam Chowdhury
Supervisor (if student project):	Stuart McNeil
School / Unit:	CSM
Student number (if applicable):	st20043420
Programme enrolled on (if applicable):	BSc (Hons) Software Engineering
Project Title:	An investigation into the information system implications when adopting a cloud computing infrastructure at Caerphilly Rugby Football Club Ltd.
Expected start date of data collection:	29/02/2016
Approximate duration of data collection:	3/4 weeks
Funding Body (if applicable):	N/A
Other researcher(s) working on the project:	None
Will the study involve NHS patients or staff?	No
Will the study involve taking samples of human origin from participants?	No

Does your project fall entirely within one of the following categories:	
Paper based, involving only documents in the public domain	No
Laboratory based, not involving human participants or human tissue samples	No
Practice based not involving human participants (eg curatorial, practice audit)	No
Compulsory projects in professional practice (eg Initial Teacher Education)	No
A project for which external approval has been obtained (e.g., NHS)	No
If you have answered YES to any of these questions, expand on your answer in the non-technical summary. No further information regarding your project is required. If you have answered NO to all of these questions, you must complete Part 2 of this form	

In no more than 150 words, give a non-technical summary of the project

The impact on the current information systems (IS) of adopting a cloud computing infrastructure for a Caerphilly Rugby Club Ltd.

This research will detail and define the required technologies to facilitate Caerphilly Rugby Football Club with a cloud computing infrastructure by analysing the current Information System used by the committee members of the establishment, and analysing what appropriate software that would be best suited for the business.

**DECLARATION:**

**I confirm that this project conforms with the Cardiff Met Research Governance Framework**

**I confirm that I will abide by the Cardiff Met requirements regarding confidentiality and anonymity when conducting this project.**

**STUDENTS: I confirm that I will not disseminate any material produced as a result of this project without the prior approval of my supervisor.**

Signature of the applicant:

Liam Chowdhury

Date:

14/01/2016

**FOR STUDENT PROJECTS ONLY**

Name of supervisor:

Date:

Signature of supervisor:

**Research Ethics Committee use only**

Decision reached:

Project approved

Project approved in principle

Decision deferred

Project not approved

Project rejected

Project reference number: [Click here to enter text.](#)

Name: Liam Chowdhury

Date: 14/01/2016

Signature:

Liam Chowdhury

Details of any conditions upon which approval is dependant:

[Click here to enter text.](#)

**PART TWO**

<b>A RESEARCH DESIGN</b>	
A1 Will you be using an approved protocol in your project?	No
A2 If yes, please state the name and code of the approved protocol to be used <sup>1</sup>	
N/A	
A3 Describe the research design to be used in your project	
<p>This dissertation will be using qualitative data to gain information on how the development and use of cloud computing in a business environment can be beneficial when applied at Caerphilly Rugby Football Club Ltd (CRFC).</p> <p>A total of six interviews will be used to collect primary data. The information collected will be guided and developed from the analysis of current literature within the given domain. A purposeful sampling technique will be used to gather findings in related to my research. The interviews will be conducted with employees and committee members of CRFC to investigate their practices using the current Information System.</p> <p>I wish to interview the candidates at CRFC, this way, it would prevent loss of time for the employees of the business. The interviews will take place with the candidates on Wednesday 17th February.</p> <p>To acquire the right amount of information from these interviews, I will require five committee members and the bar steward. The five committee members will be the Chairman, Secretary, Treasurer, Membership Secretary and a member from the House Committee of Caerphilly Rugby Football Club.</p> <p>Collected data will be transcribed and analyzed, and only used for the purpose of this research project. The collected data will be stored on password protected hard drive, and documents will be stored in a locked cupboard. All data will be anonymised.</p> <p>Interviews will be coded and themes developed, ensuring that the anonymity of the interviewees is maintained.</p>	
A4 Will the project involve deceptive or covert research?	No
A5 If yes, give a rationale for the use of deceptive or covert research	
N/A	
A6 Will the project have security sensitive implications?	No
A7 If yes, please explain what they are and the measures that are proposed to address them	
N/A	

## **B PREVIOUS EXPERIENCE**

<sup>1</sup> An Approved Protocol is one which has been approved by Cardiff Met to be used under supervision of designated members of staff; a list of approved protocols can be found on the Cardiff Met website here

B1 What previous experience of research involving human participants relevant to this project do you have?

None

**B2 Student project only**

What previous experience of research involving human participants relevant to this project does your supervisor have?

Stuart McNeil has 10+ years in experience with research involving human participants.

**C POTENTIAL RISKS**

C1 What potential risks do you foresee?

1. Potential risks can include causing an inconvenience for the employees, and it can take their time away from their role when being interviewed.
2. Other potential risks may include asking personal information that the interviewee may not want to be asked and cause conflict between the interviewer and the participant.
3. There may be risks caused by unfinished deadlines, such as not completing certain stages of my dissertation in order to interview any participants.
4. Personal information and data must be anonymised throughout the process for when keeping important details that the participant may not want to share, making confidentiality important.

C2 How will you deal with the potential risks?

1. The candidates will be interviewed at Caerphilly Rugby Football Club Ltd, with interviews to last approximately 15 minutes per candidate. The interviewees will be notified in advance of the interview date. And will have the flexibility to swap interview times to enable them to attend.
2. Confidentiality will also need to be ensured with the participant's agreeing to the terms and conditions from the consent form, ensuring that any unnecessary details will not be mentioned or explained in the dissertation or to any person not present at the interview.
3. Every effort will be carried out to ensure that all research phases are completed before the interview process begins.
4. All data collected will be kept on an external hard drive that will be password protected, and paper copies kept in a locked cupboard. All data will be anonymised to protect the personal information of the interviewee.

When submitting your application you **MUST** attach a copy of the following:

- All information sheets
- Consent/assent form(s)

## **PARTICIPANT INFORMATION SHEET**

### **An investigation into the information system implications when adopting a cloud computing infrastructure at Caerphilly Rugby Football Club Ltd.**

**Cardiff Metropolitan University Protocol Number: 2015D0402**

#### **Project summary**

The purpose of this project is to investigate how the current Information System at Caerphilly Rugby Football Club Ltd (CRFC) will be impacted by adopting a cloud computing infrastructure.

#### **Why have you been asked to participate?**

You have been asked to participate because you fit the profile of the population being studied; that is, you are Committee Member or the Bar Steward of CRFC. During the interview you will be asked about your experience with document handling and sharing. You will only be required to provide thoughts and opinions on the questions posed to you, and will not be needing to demonstrate any processes to the interviewer. Your participation is entirely voluntary and you may withdraw at any time.

#### **Project risks**

The research involves the completion of participation in an interview which will be recorded for later analysis. This interview is not seeking to collect any sensitive data on you; this study is only concerned with how cloud computing can be used to improve efficiency amongst the establishment and the committee members. However, if you do feel that any of the questions are inappropriate then you can stop at any time. Furthermore, you can change your mind and withdraw from the study at any time – your decision will be completely respected.

#### **How we protect your privacy**

All the information you provide will be held in confidence. Careful steps have been taken to make sure that you cannot be directly identified from the interview; there will be no questions in the interview that will identify you. Your personal details (e.g. signature on the consent form) and your interview will be kept in secure locations by myself. When I have finished the study and analysed all the information, all the documentation used to gather the data will be destroyed. The recordings of the interview will also be held in a secure and confidential environment during the study and destroyed when it is complete.

---

If you require any further information about this project, then please contact:

Liam Chowdhury, Cardiff Metropolitan University

CMU email: [st20043420@outlook.cardiffmet.ac.uk](mailto:st20043420@outlook.cardiffmet.ac.uk)

Supervisor's Details:

Stuart McNeil, Cardiff Metropolitan University

CMU email: [smcneil@cardiffmet.ac.uk](mailto:smcneil@cardiffmet.ac.uk)

## PARTICIPANT CONSENT FORM

Cardiff Metropolitan University Ethics Reference Number: 2015D0402

Participant name or Study ID Number: st20043420

Title of Project: An investigation into the information system implications when adopting a cloud computing infrastructure at Caerphilly Rugby Football Club Ltd.

Name of Researcher: Liam Chowdhury

---

**Participant to complete this section: Please initial each box.**

1. I confirm that I have read and understand the information sheet for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily.

2. I understand that my participation is voluntary and that I am free to withdraw at any time, without giving any reason.

3. I agree to take part in the above study.

4. I agree to the interview being audio recorded

5. I agree to the use of anonymised quotes in publications

---

Signature of Participant

---

Date

---

Name of person taking consent

---

Date

---

Signature of person taking consent

Appendix D – Semi Structured Interviews (Committee Members & Club Steward)

Caerphilly Rugby Football Club Ltd

Committee Members Interview Questions

Cardiff Metropolitan University Ethics Reference Number: 2015D0402

Question	Related to Question?	Discussed?
1) Ask respondent approval to use recording systems Ask respondent to sign and acknowledge consent form		
2) Background Questions		
a) What is your position at Caerphilly Rugby Football Club (CRFC)?	/	
b) How many years have you been at your position at CRFC?	/	
3) Current Information System (IS)		
a) How do you currently share and store documents and other media amongst the Committee Members?	/	
b) Are all documents and files produced on a computer?	/	
c) What are your opinions of the current IS of sharing and storing documents?	/	
d) Do all Committee Members have access to the documents that they wish to see?	/	
e) Are there certain restrictions on the CRFC Committee for access to documents and files?	/	
4) Cloud Computing		
a) Are you familiar with Cloud Computing (CC)?	/	
b) If so, what CC services are you aware of, and do you use them?	/	
c) If you are not familiar with CC, would you start using it to improve the current system?	/	
d) How do you feel about the security of CC?	/	
e) With CC services being offered for free with limited storage, would CRFC consider paying for extra services of CC? Such as document collaboration, extra memory etc. <b>(Only for treasurer of CRFC)</b>	/	
f) Do you have any further comments of CC?	/	

Caerphilly Rugby Football Club Ltd  
 Bar Steward Interview Questions  
 Cardiff Metropolitan University Ethics Reference Number: 2015D0402

Question	Related Question?	to	Discussed?
1) Ask respondent approval to use recording systems Ask respondent to sign and acknowledge consent form			
2) Background Questions			
a) What is your position at Caerphilly Rugby Football Club (CRFC)?	/		
b) How many years have you been at your position at CRFC?	/		
3) Current Information System (IS)			
a) How do you currently share and store documents for yourself and for CRFC?	/		
b) Are all documents and files produced on a computer?	/		
c) What are your opinions of the current IS of sharing and storing documents between the Committee Members and yourself?	/		
d) How are current cash flow reports from the cash machine stored and accessed?	/		
4) Cloud Computing			
a) Are you familiar with Cloud Computing (CC)?	/		
b) If so, what CC services are you aware of, and do you use them?	/		
c) If you are not familiar with CC, would you start using it to improve the current system?	/		
d) How do you feel about the security of CC?	/		
e) Do you have any further comments on CC?	/		

Caerphilly Rugby Football Club Ltd,  
Virginia CI,  
Caerphilly,  
CF83 3JA.

Dear Caerphilly Rugby Football Club,

As a Software Engineer student at Cardiff Metropolitan University, and in my final year, I will be carrying out a dissertation. The title of my dissertation is; An investigation into the information system implications when adopting a cloud computing infrastructure at Caerphilly Rugby Football Club Ltd. Its aim is to investigate how the current information system at Caerphilly Rugby Football Club can be improved by introducing a cloud computing infrastructure.

By introducing cloud computing to the current Information System, this would improve time, efficiency and cost by storing documents in a centralized system that all committee members can easily access without having to email and contact each other for the relevant documentation. Furthermore, this could be expanded to not only documents for the committee, but also for cash machine reports and media, such as photographs.

My purpose in writing is to ask if you would permit me to interview Caerphilly Rugby Football Club's committee members and staff. Their participation would be entirely voluntary, and will not be identified in the research if they wish not to. Each interview will require 10 to 15 minutes of each participant to complete an interview. I wish to interview five committee members and the Bar Steward.

The areas which would be covered by the interview will include:

- Their length of employment/voluntary work at Caerphilly Rugby Club
- How are current documents stored amongst the committee members?
- How are documents shared amongst your cohorts?
- What is your current understanding of cloud computing?

Thank you in anticipation.

Yours sincerely,  
Liam Chowdhury,  
[st20043420@outlook.cardiffmet.ac.uk](mailto:st20043420@outlook.cardiffmet.ac.uk)

Supervisor:

Stuart McNeil,  
[smcneil@cardiffmet.ac.uk](mailto:smcneil@cardiffmet.ac.uk)

## Appendix F – Interview Transcripts

### Interview 1

Venue: Caerphilly Rugby Football Club Ltd

Date: 06/04/16

Time: 17:16pm

#### **What is your position at Caerphilly Rugby Football Club Ltd (CRFC)?**

At present, Secretary.

#### **How many years have you been at your position at CRFC?**

1, but 10 years prior to that though as chairman

#### **How do you currently share and store documents and other media amongst the Committee Members?**

Two things really, one, is the My WRU system which logs most documentation which involves any form of rugby data. It's like a central point. It's a controlled environment, a number of people use it. Internally, we actually don't have our own system which holds that information, the only other stuff we would have is that the treasurer would have his bits and pieces of the financial information. The rest of the time is more documents that generate other extra membership, marketing or information.

#### **Are all documents produced and files produced on a computer?**

Yes, 100%, of course. There would be some that involves a printing company, but we would give them a brief outline and we would obviously monitor it and sign it off before it goes to print. We have also tried to keep records of that, so it could be used in the future for other events possibly.

#### **What are your opinions of the current IS of sharing and storing documents?**

I think it could obviously be improved with the quality of the person who is running that particular area of the club. If we had more full time administrators, I think we would have our own system which would be more akin to a properly run standalone business. But because we have people who are all volunteers, and they help with their own system, so we try and collate it and share it as best as possible.

But I think going forward, one of the answers to some of the problems that are involved with volunteer support in our sporting sector is that a shared ownership of an organisation such as ours will probably lead to paid full time administrators doing certain part of these roles even if it has to go across, perhaps different other sports, such as football, cricket and such. So a joint administration, because it's getting more difficult for recruitment of volunteers.

Also the typical volunteer is probably not familiar with the current tech. If you have a look at the current demographic for committee members, they are normally about over 50, such as myself. It wasn't part of our upbringing.

#### **Do all Committee Members have access to the documents that they wish to see?**

There's two questions there. Do all committee members have access to all documents, no. Because some committee men wouldn't be comfortable to logging onto a computer if they don't have access to it, they don't need it, people who help with the team on a Saturday and

wouldn't look for that type of access. But the people who require it, Chairman, Secretary, Treasurer, house committee, they will have access to everything they need.

**Are there certain restrictions on the CRFC Committee for access to documents and files?**

You are trying to keep some controls in place for obvious reasons, as some people wouldn't know what to do with the information, some information could be dangerous in other hands, what they would do with it, and stuff like that. So you're trying to give access to the people who need it, and try to make people aware of the security element of some of the things they are dealing with.

**Are you familiar with Cloud Computing?**

Yeah, I understand the terminology, understand the benefits of saving a file and draw that file from where you are with computers and mobile phones, and all these type of things. It has obvious benefits, as long as the people that are trying to access it have a little bit of knowledge to what to do. One of the issues we have in our sport is the age of the people who help, we need to attract younger people to do these things, and would be more valuable to share this information.

One of the problems in the past was getting the information because it's always been held paper wise, so past accounts and stuff like that would've been held on paper files and stuff like this.

**If so, what Cloud Computing services are you aware of, and do you use them?**

Uh yeah, I have access to Apple products. It's in its infancy for my role in financial services and we've started to use it a lot more, but I do think financial services is an older generation industry as well. It's only recently when they started to hold university courses to get people qualified for this, so that generation will have the skill level to benefit from a lot of these things that they are dealing with now. The average age in financial services is well above 50, so again, it is something that technology is driving on, a great deal of training going around.

**Would you start using Cloud Computing to improve the current system?**

I would do anything that makes my life easier. But I don't like to be just shown, I like to be trained. One of things we often say to the Welsh Rugby Union, is that they could hold computer courses, and encourage people to go on these things. We can't ignore it because it's part of everyday life, that's why we need to encourage younger people to come on and do some of these roles.

**How do you feel about the security of Cloud Computing?**

I think it's one of those things that we will always be aware of. We don't hold too many things that we need to be secured by. However, there are certain things we don't want people to know, simply because it's our club and why should everyone else have it sort of thing. It's not national security here but there is a question mark, you see in the press everyday which can have a hold of online activity like banking and shopping, it's the potential of theft, virus or money.

**Do you have any further comments on Cloud Computing?**

I think there's a little bit of a myth about it, it's nothing brand new, and from what I understand it's a process that you use, you know, they haven't invented a car that runs on water, it's a facility that is there. I think something will replace it quite quickly, everything is stored somewhere. To me it's not a big deal that everybody thinks it is. I think it's been there a while, and only now there is commercial access to it, something that they are pushing.

## Interview 2

Venue: Caerphilly Rugby Football Club Ltd

Date: 08/04/16

Time: 19:42pm

### **What is your position at Caerphilly Rugby Football Club Ltd (CRFC)?**

Membership Secretary

### **How many years have you been at your position at CRFC?**

3 or 4 years

### **How do you currently share and store documents and other media amongst the Committee Members?**

Basically, any stored memberships are actually put onto a spreadsheet. The supporting membership secretary keeps that, and also has a copy of it himself on his computer.

### **Are all documents produced and files produced on a computer?**

Spreadsheets are obviously to keep track from one season to another, and to get a total at the end of the season, how members we have actually taken on board. But I've obviously got a handbook as well with all the members in, so we can keep an accurate account of how many members we have at the time.

Interviewer: "So the logbook is paper based?"

Yeah, it's a hard copy register basically.

### **What are your opinions of the current IS of sharing and storing documents?**

I think it could be improved a hell of a lot to be honest with you, both from an information point of view and from being more of a collective organisation passing information onto individuals. I don't think that we pass enough information on throughout the committee itself.

### **Do all Committee Members have access to the documents that they wish to see?**

If they request them at the time, but like I said earlier, the only documentation I have is the spreadsheets or basically the register I've got. Any sort of money trees that are passed over, I get the signature of the treasurer, one of the house committee or the another committee member. No money ever leaves the club when it is collected, it's collected in the club, it's then given to a club official, and then either given to the secretary or the club treasurer. They bank it then.

### **Are there certain restrictions on the CRFC Committee for access to documents and files?**

From a document point of view, I wouldn't see any other documents normally until the Annual General Meeting (AGM), with the members present. I won't actually look at the documents

from the committee, unless we particularly added it in a full committee meeting, which we tend to have one a month.

**Are you familiar with Cloud Computing?**

No

**Would you start using Cloud Computing to improve the current system?**

With regards to computing, I tend to leave most of that to the supporting membership secretary, because he has a little more time than me. But it is much easier for the spreadsheets, you know. I have a computer myself, but I don't tend to do any CRFC work on that computer though, it's just purely for my works.

**How do you feel about the security of Cloud Computing?**

I think you a never be too safe, but I'm sure it would have security checks continuously.

**Do you have any further comments on Cloud Computing?**

No not really.

### Interview 3

Venue: Caerphilly Rugby Football Club Ltd

Date: 08/04/16

Time: 20:00pm

#### **What is your position at Caerphilly Rugby Football Club Ltd (CRFC)?**

Chairman

#### **How many years have you been at your position at CRFC?**

As my position, for less than a year. But been involved with the club for 30 odd years.

#### **How do you currently share and store documents and other media amongst the Committee Members?**

The secretary, he keeps all the documents in his possession at the moment. And shares the documents through email.

#### **Are all documents produced and files produced on a computer?**

99%

#### **What are your opinions of the current IS of sharing and storing documents?**

Currently, I think we could do a lot more within the cloud sort of system. How that will be adopted in the club we would have to investigate that, because a lot of the people aren't computer friendly.

#### **Do all Committee Members have access to the documents that they wish to see?**

No

#### **Are there certain restrictions on the CRFC Committee for access to documents and files?**

No, no. Any requests, they can get them via the secretary.

#### **Are you familiar with Cloud Computing?**

Yes

#### **If so, what Cloud Computing services are you aware of, and do you use them?**

I currently use Office 365 and I have a cloud based telephone system.

#### **Would you start using Cloud Computing to improve the current system?**

Yes, it would improve the situation, it's about cost, protection of the documents, the sensitivity of the documents, and obviously the ease of access.

#### **How do you feel about the security of Cloud Computing?**

I think that Microsoft is a very good tool, and definitely secure. I'm not sure about the other cloud computing systems there are, but I know that has served me pretty well.

#### **Do you have any further comments on Cloud Computing?**

I think it will become a lot more accessible than it is in the near future, definitely.



#### Interview 4

Venue: Caerphilly Rugby Football Club Ltd

Date: 08/04/16

Time: 20:05pm

#### **What is your position at Caerphilly Rugby Football Club Ltd (CRFC)?**

Vice Chairman

#### **How many years have you been at your position at CRFC?**

4 years

#### **How do you currently share and store documents and other media amongst the Committee Members?**

I don't really get involved with any of the documents, my main role was assistant secretary, but then moved down to vice chairman because I didn't have enough time for that role. They wanted me to keep a role on the main committee, so I'm there in the capacity of helping everyone else out with their role. So help out the chairman, secretary. But my function is the rugby side of the committee.

#### **Are all documents produced and files produced on a computer?**

So I believe, yes.

#### **What are your opinions of the current IS of sharing and storing documents?**

I feel that they need to be stored in a safe capacity, only people are relative to those documents and their involvement. I don't believe they should be released publicly though, due to the sensitivity of the documents.

#### **Do all Committee Members have access to the documents that they wish to see?**

Yes

#### **Are there certain restrictions on the CRFC Committee for access to documents and files?**

Yes

#### **Are you familiar with Cloud Computing?**

Yes, I am, I use it in my own personal work.

#### **If so, what Cloud Computing services are you aware of, and do you use them?**

I work on a main database, which involves cloud. I know what it consists of, but I don't usually get involved with that because somebody in work deals with the maintenance of that.

#### **Would you start using Cloud Computing to improve the current system?**

Definitely

#### **How do you feel about the security of Cloud Computing?**

Well, we've obviously got the problems with hackers, but I feel if you have a good system, you can make it very safe. The problem with any system is the manual side, retrieving the wrong information and so on. So it's just keeping everything to a minimum.

**Do you have any further comments on Cloud Computing?**

Yeah everybody should use it, aha.

## Interview 5

Venue: Caerphilly Rugby Football Club Ltd

Date: 08/04/16

Time: 20:15pm

### **What is your position at Caerphilly Rugby Football Club Ltd (CRFC)?**

Club Steward

### **How many years have you been at your position at CRFC?**

10 years' now

### **How do you currently share and store documents and other media amongst the Committee Members?**

At the moment, I don't deal with a huge amount of documents to do with the club. But I do deal with the weekly analysis sheets, takings for the week. Which I store on my personal computer, then transfer that over to the treasurer.

### **Are all documents produced and files produced on a computer?**

Generally, the takings sheets are done on computer. And then they get emailed over to the treasurer.

### **What are your opinions of the current IS of sharing and storing documents between the Committee Members and yourself?**

For me, it's a straight forward system. At the end of the week, I simply put the information into a set template that the treasurer and myself created, and then email him the information directly. Those are the real documents I tend to deal for the club.

### **How are current cash flow reports from the cash machine stored and accessed?**

They are produced on my personal computer for work, and then I send them over to the treasurer, where he would store the document, then produce copies for the rest of the committee members.

### **Are you familiar with Cloud Computing?**

Familiar, but not exactly an avid user

### **If so, what Cloud Computing services are you aware of, and do you use them?**

No really, maybe Netflix and social media I guess.

### **Would you start using Cloud Computing to improve the current system?**

Again, I wouldn't necessarily have an issue with it, anything that can be accessed by the committee at one go can be useful.

### **How do you feel about the security of Cloud Computing?**

Well, obviously all the things in the media, I don't know how trustworthy the system would be, but the ability of it storing it off site. I'm sure it improves storage, but the ability of the information being stolen is a little frightening.

**Do you have any further comments on Cloud Computing?**

None that I know of.

Interview 6

Venue: Caerphilly Rugby Football Club Ltd

Date: 08/04/16

Time: 20:27pm

**What is your position at Caerphilly Rugby Football Club Ltd (CRFC)?**

Treasurer

**How many years have you been at your position at CRFC?**

Officially, my first year

**How do you currently share and store documents and other media amongst the Committee Members?**

Store documents on my laptop, and share documents via email

**Are all documents produced and files produced on a computer?**

Yes

**What are your opinions of the current IS of sharing and storing documents?**

There's no central system. We need more of a secure central system

**Do all Committee Members have access to the documents that they wish to see?**

I issue paper copies of my documents once a month in the meeting

**Are there certain restrictions on the CRFC Committee for access to documents and files?**

No

**Are you familiar with Cloud Computing?**

Yes

**If so, what Cloud Computing services are you aware of, and do you use them?**

I use them for storing documents and transferring data from people to people

**Would you start using Cloud Computing to improve the current system?**

Yes, I think we should do

**How do you feel about the security of Cloud Computing?**

It's safe, I've never had a problem with it

**With Cloud Computing services being offered for free with limited storage, would CRFC consider paying for extra services of Cloud Computing? Such as document collaboration, extra money etc.**

I don't see why not, to keep things secure.

**Do you have any further comments on Cloud Computing?**

No, I think it's the up and coming thing. I've used it in the oats 2 years now. Much easier to transfer bigger files, with emails not letting you send bigger files than 10 MB.