Implications of Personal
Technologies in the Workplace:
Distinctions between Employer and
Employee Perceptions

By
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Abstract

Personal workplace technologies, with the capability to both enhance productivity and monitor staff performance, have become prevalent in many organisations. With the increased need for the use of personal computers, the Internet and safety and security technologies, employers are offered a plethora of tools that can be used to track the activities of staff during their working day. This thesis offers a case study on an organisation, studying the personal workplace technologies it adopted and how they are applied in the organisation by management.

The main reasons for implementation into the core organisational structure are compared between the unique perceptions; those of staff and management. The impact of these technologies, their benefits and problems are discussed and evaluated from the perspectives of both staff and management, which provides a number of points of difference and agreement. McGregor’s Theory X and Theory Y is explored, and compared against the characteristics of the case study organisation.

Findings from primary research are then analysed in order to deduce concluding recommendations, particularly the need to increase staff training after implementing personal workplace technologies. Including all affected employees in meetings to discuss personal workplace technology, and its impact on the job role, is vital in increasing transparency and trust. Furthermore, decreasing levels of employee monitoring where possible, and ensuring it is done for reasons other than the need to know the whereabouts and activities of staff would ensure a more positive working environment.

These recommendations and conclusions open up an area for further research in order to seek more knowledge into the vital issue of personal workplace technologies and their impact upon an organisation and its actors.
Acknowledgments

The beginning of knowledge is the discovery of something we do not understand
– Frank Herbert

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Declaration

Name of candidate: Marta Byrski

This Thesis/Dissertation/Research Project is submitted in partial fulfillment of the requirements for the Unitec degree of Master of Business

Candidate’s declaration

I confirm that:
☐ This Thesis/Dissertation/Research Project represents my own work;
☐ The contribution of supervisors and others to this work was consistent with the Unitec Regulations and Policies.
☐ Research for this work has been conducted in accordance with the Unitec Research Ethics Committee Policy and Procedures, and has fulfilled any requirements set for this project by the Unitec Research Ethics Committee.

Research Ethics Committee Approval Number: 2009-901

Candidate Signature: .................................................. Date: ......................

Student number: ...........................................
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Chapter One - Introduction

1.1. Background

Personal workplace technologies in the workplace can be used for various purposes and have the potential to be used for monitoring staff on a regular or ad hoc basis, in order to maintain productivity, reduce the misuse of company property and resources, and protect the sensitive information of the organisation (Dorval, 2004). Personal workplace technologies used for this purpose are becoming highly prevalent across an increasing number of industries (challenging the notion that only organisations within the information technology sector are capable of employing its use). In recent years, the use of personal workplace technologies appears to have increased in the pace in which it is employed within an organisation, often without real justification (bar that ‘everyone else is doing it’) and without consultation with one of the key stakeholders – the employees.

This lack of consultation by the employer can lead to a wide array of concerns. These include, but are not restricted to, privacy issues such as when do personal workplace technologies start breaching individual privacy or impacting the morale of the employee. Also, the creation of a work performance approach that implies ‘quantity over quality’ may unintentionally change the procedures and culture of the organisation (National Workrights Institute, n.d). Bowal (2006) states that employees generally do not have a problem with working or explaining what they do during their working hours, but are less accepting of being monitored or watched over whilst they work. This thesis sets out to examine a range of issues that result from these observations.
1.2. **Purpose Statement**

After gathering and evaluating the current literature and thus identifying its gaps in knowledge, the overall purpose of this research is:

*to evaluate the positive and negative outcomes arising from the implementation of personal workplace technologies in an organisation, and to establish the points of agreement and disagreement between management and employees in respect of these outcomes.*

1.3. **Research Objectives**

The principal approach to be used in this research is the conduct of a case study analysis within an organisation that currently uses personal workplace technologies. As part of this analysis, the research will seek to address the following objectives:

- Determine the specific types of personal workplace technologies used by the case study organisation to monitor the workplace
- Determine why the organisation originally chose to implement personal workplace technologies in the workplace
- Establish employer perceptions concerning the advantages and disadvantages associated with the use of personal workplace technologies
- Establish employee perceptions concerning the advantages and disadvantages associated with the use of personal workplace technologies
- Establish the points of agreement and the points of difference between the perceptions of employers and employees
- Categorise each of the identified advantages and disadvantages in terms of its level of impact on organisational effectiveness
1.4 **Strengths of the Research**

The key strengths to this research included the high response rate where almost 50% of the entire organisation participated ensuring the data was not over-extrapolated and thus, not prone to serious statistical error. The research also had a good balance of qualitative and quantitative data collection methods and analysis meaning it was neither overly subjective nor objective, and allowed for the tailoring of data collection based on the strengths each research paradigm offered.

1.5 **Limitations of the Research**

This study contains a number of limitations. Where the limitations established are due to bias, it is important for the researcher to ensure the biases of a particular geographical location, organisation, or industry are not interpreted as being necessarily representative of a widespread, worldwide and all-inclusive phenomenon.

- **Geographical Bias:** This study was conducted in one specific New Zealand district. This district is not representative of the whole country, or of the world, and thus the results will be limited or restricted to the case study environment.

- **Organisational Bias:** The choice of organisation may challenge the validity of the research findings. The organisation chosen has its own unique culture that may not reflect the exact needs and values of other organisations. Each industry contains its own culture and values, and different industries face different levels and intensity of personal workplace technologies.

- **Organisational Bias 2:** The organisation used for the case study was based in a remote/rural area that requires a different approach from an organisation in the city, in order to attract and retain quality staff. Thus, the results of the study will not be entirely applicable to an organisation based in the city, and where the number of employees exceeds 200 employees.
• Organisational Bias 3: The organisation is located across a number of offices which may or may not employ the same personal workplace technologies, implementation strategies and training. Also, a number of staff routinely work from home impacting the final result. Ideally, the organisation should be located in one central location in order to grasp a clear view of the varying perceptions within the one locale.

• Data Bias 1: The study is limited by using just one organisation. Conducting a study with more than one case study organisation provides data that are more extensive, significant, valid and reliable than a single case study organisation (Yin, 2003)

• Data Bias 2: The study includes qualitative data collection methods in which the resulting analysis and interpretation of data can be subjective and arguable.

1.6 Research Significance

Further growth in personal workplace technologies is almost inevitable, and they are already proliferating in many industries – however, based on an initial literature review, there are significant gaps in terms of discussing the negative and positive aspects their use. This research attempts to add to the sum of knowledge in this regard, though there has been no attempt to discern whether personal workplace technologies are a purely positive or negative thing in their effect on an employer or employee. Rather, the research focuses on the balance of attitudes between employer and employee, collecting a variety of views, opinions and perspectives, rather than passing judgement as to whether personal workplace technologies is an overall positive or negative phenomenon.

The benefits derived from this research will aid in understanding the positive and negative perceptions and beliefs of employers and employees in regards to personal workplace technologies. This may help provide an understanding into the different views perceived by staff and the employer, and may help to reduce potential
employee dissatisfaction which can cause undue stress, loss of productivity and trust in the employer, sabotage, resignation and much more.

The research proposed will ideally lead to further research which is necessary to fully encompass and understand the topic at hand. Thus, this research can potentially benefit other students by acting as an initial reference point for their studies.

1.7 Summary

This chapter has introduced a background to personal workplace technologies and why they are used within organisations. It notes the concerns existing with the use of personal workplace technologies, and how they can affect the organisation’s staff. A purpose statement is defined in order to set the focus point of the research, and is supported by a number of specific research objectives. The significance of the research is explained in terms of existing gaps in the knowledge community, and how the research will attempt to bridge those identified gaps. It is hoped that the research will lead to further case studies which are deemed necessary to gain a more in-depth knowledge of the subject matter.
Chapter Two - Literature Review

2.1 Introduction

Though personal workplace technologies are a relatively recent organisational phenomenon, in one sense they can be seen as no more than an electronic version of traditional workplace monitoring. Electronic workplace monitoring has been described as “the technology used to collect, store, analyse, and report the actions or performance of workers” (Alge, 2001). Though much research has been undertaken into electronic workplace monitoring, the nature of the technology requires constant attention because of its numerous features and its impact on working society. The purpose of this literature review is to evaluate and analyse the past literature on personal workplace technologies and their uses for monitoring, in order to establish what research has already been conducted on this subject and what other research could aid the knowledge community.

The structure of the literature review consists of a brief history of electronic workplace monitoring, primarily describing two key movements in history that have enabled a faster progression into an electronically monitored working environment. The following section describes the perceived benefits to the employer of monitoring employees, and includes core benefits such as protection from legal liability, legal compliance, assistance with performance reviews and measuring productivity and task performance improvement. It also discusses any security concerns including both external and internal threats. The third section deals with perceived costs to the employer of monitoring employees, and incorporates the main disadvantages of employing electronic monitoring technologies into a working environment.

The fourth section deals with perceived benefits to the employee in a workplace that is under electronic monitoring, discussing the personal safety of staff and individual and team recognition. The perceived costs to employees are discussed in a fifth section, including psychological and health risks and the intensification of workload demands. The relationships between staff and the
employer are also discussed, as well as the concept of demographic and personality characteristics as a variable.

Lastly, the sixth section covers the repercussions for the organisation when adopting electronic monitoring technologies. The research gathered and analysed from the literature review is also presented in terms of its relevance to Douglas McGregor's Theory of X and Y managerial philosophies (McGregor, 1960).

2.2 Brief History of Electronic Workplace Technology

The use of electronic technology to assist with workplace operations first arose in the early twentieth century, for what the National Workrights Institute (n.d) described as the measurement of hand and eye movements and the monitoring of breaks an employee took during the day. Weckert (2005) states that this was partly due to alterations that were then being made in regard to how employees conducted their work, along with the introduction of new tools and technologies that enabled the workload to be completed in a more effective and efficient manner. Carroll (2007) suggests that the widespread automation that has taken place within the workplace has also supported the introduction of electronic technology monitoring. The author asserts that enhancing workplace performance via automation has also enhanced the monitoring and tracking of employees.

Johnston and Cheng (2002) suggest that, as long as employment has been available, then so has the monitoring of staff. These authors add that, in the beginning, the monitoring data gathered were limited to the observations and handwritten records the supervisor could make. Carroll (2007) draws attention to the fact that many monitoring practices in the past were conducted by the staff themselves, through self reporting of their performance and productivity.

Introna (2000) adds that there were two key movements that provided a background for the present-day debate around the positives and negatives of electronic technologies found within the workplace. The author firstly discusses how the ‘production floor’ was impacted by the social revolution of Marxism and by a
subsequent wave of liberal democracy. During the unionisation of the labour working force, the Marxist idiom played upon the dangers of workplace monitoring, which was held to be in direct relation to capital gains of the bourgeoisie. As such, the labour force insisted upon further rights within the workplace and, increasingly, modern management was forced to justify their practices to the unions and workers.

The second movement in history was the quickening pace of the initiation, progress and expansion of electronic technology, through which monitoring gradually evolved from being transparent and obvious to the employee, to becoming increasingly more subtle or diffused. Introna (2000) admits that this evolution provided exceptional and unparalleled opportunities for employers to introduce a wide-ranging and comprehensive programme of surveillance. Due to the diffusion of electronic technology, and its increasing sophistication, employers became increasingly more aware of the potential offered, and began implementing processes such as keystroke monitoring into the very root or core of the infrastructure and production (Introna, 2000).

This ‘potential’ was thereafter recognised and began to concern unions, social activists, policy makers and employees but, regardless of their efforts and the noticeable progress of liberal democracy, Introna (2000) states that the balance of power is still wielded by the employer. In the author’s opinion, this deficiency in the protection of employee rights is due to a lack of progress in the debate on electronic monitoring, but this observation is open to discussion and debate by other researchers.

Up until the 1980s, the use of electronic monitoring was an uncommon practice, mainly due to the limited technology available, and thus the perception arose that the use of such tools is unnecessary and counter productive. Since that time, however, hundreds of tools and technologies have been developed globally for the electronic monitoring market, with the most commonly used technologies including computer and internet monitoring (e.g. web filtering software or web site sniffers), telephone monitoring, closed circuit television/video surveillance, and radio frequency identification devices including smart cards and global positioning system.
tracking. Other forms include biometric security and monitoring, such as the use of fingerprint scanning, facial recognition and iris and retina scanning.

Due to their sophistication, accessibility, and ease of installation, maintenance and use, many employers are encouraged to undertake some form of monitoring within their workplace – often without any prior research into the need for such a tool and the consequent development of a set of policies and regulations (Johnston and Cheng, 2002; Holman, Chissick and Totterdell, 2002).

### 2.3 The Growth of Electronic Technology

Weckert (2005) has identified a number of factors that enhance the growth of electronic technology within a workplace, and these are listed below:

- **Cost**: Many employers can now afford many of the technologies available due to inexpensive hardware and software.
- **Ease of Use**: Electronic technologies are growing easier and quicker to use, permitting even the most inexperienced employers to use them.
- **Productivity**: Employers appear to believe that productivity is increased if employees are monitored.
- **Potential for Abuse**: Employers are aware of the increased risk of undesirable employee behaviour due to abuse of the technologies offered to them, such as the Internet and electronic mail. The use of electronic technologies allows them to minimise the risks of misusing company resources.
- **Concealment**: Though unethical and, at times, illegal, employers can now benefit from the miniaturisation of electronic technology to ensure that monitoring tools are well concealed and used covertly.
- **Sophistication**: Electronic technologies are becoming more powerful and all encompassing when it comes to gathering data.
- **Change Management**: Employers are increasingly switching to electronic technologies as opposed to the conventional “over-the-shoulder spot check” approach to workplace monitoring.
Introna (2000) affirms that today’s technologies allow the employer to easily ingrain the monitoring of staff into the core and infrastructure of the organisation. As such, Vorvoreanu and Botan (2000) conclude that the paradox of employing electronic monitoring in the workplace lies with the fact that numerous employers implement the technology but often do not understand its full implications.

2.4 Perceived Benefits to the Employer

Past authors have noted a range of reasons why employers may feel the need to monitor employees within an organisation. For example, Wood (2001) notes five key reasons below.

2.4.1 Legal Liability

The first reason involves the management of legal liability attaching to the organisation if the employee is found to be misusing company resources and thus potentially inviting legal action or enforced compliance. This is particularly relevant for highly regulated industries, such as finance, where the employer is legally required to record and monitor certain employee activities.

Dorval (2004) stipulates that employers may monitor employees to prevent liability if the employee is found to be participating in offensive, criminal, illegal (or otherwise inappropriate) activities such as the posting of defamatory, racist, sexist or other material deemed offensive to the viewer, or participating in harassment of other staff members. They may also wish to protect themselves from employees engaging in defamation or other negative comments – thus the reason why most email signatures now hold a clause specifically indicating that the views of the sender (the employee) do not necessarily reflect the opinion of the organisation and the employer.
2.4.2 Legal Compliance

An example of legal compliance motives is the practice of providing the customer with a degree of protection in regulated industries such as the financial sector, where monitoring and/or recording activities of the organisation provide such protection. Weckert, (2005) notes this includes the monitoring and recording of business transactions, compliance with self regulatory guidelines, and the meeting of set customer service and training standards.

Conflict of interest can also be an issue within the organisation, especially if the employer discovers that the employee is undertaking personal activities such as setting up or running their own business, or misusing company resources for personal financial gain (Naughton, 1999).

2.4.3 Performance Reviews

The third reason is the ability to use the results gathered via the use of electronic technology to help employers in measuring the performance of both individual employees and workplace teams, where electronic monitoring aids in conducting performance reviews and improving quality. According to Vorvoreanu and Botan (2000), this often tends to be the focal point for monitoring staff.

For example, information gathered from a databank derived from electronic surveillance technologies can be used to accompany or to drive the performance review of the employee. Based on analysis of databank results, the employer can then verify (or question) the reliability and trustworthiness of the employee, or reward performance with a pay rise, training, and opportunities for promotion. In essence, this is a form of quality control, designed to ensure that employees are working to their full capacity.
2.4.4 Measure of Productivity and Task Improvement

Measuring and monitoring productivity within a workplace is conducted to ensure that employees do not spend excessive amounts of time conducting activities outside of their designated job description. According to the McWorld survey conducted in 1993, over 29% of employers state enhancement of productivity as the main reason for conducting monitoring activities (Schulman, 2001).

Schulman (2001) adds that employers are believed to assume that electronic monitoring will prevent or diminish productivity loss, and are therefore increasingly using these technologies to aid them in maintaining productivity standards. However, improved productivity has sometimes come at a cost, and the primary disadvantages that are found in the afterglow of implementation are discussed in future sections of this review.

2.4.5 Security Concerns

The final main reason why employers monitor their employees is based on a perceived need to protect the employer from both external and internal threats that could negatively influence the organisation. Security concerns may involve anything that the employer wishes to protect from unwelcome eyes, or the misuse, theft, dissemination or manipulation of confidential data. Further security concerns may arise when working within an industry or firm that is of a controversial or sensitive nature (such as abortion clinics or governmental security and defense).

- External Threats

External threats can include the protection of both staff and classified company information from parties such as competitor firms or other unrelated parties. Where employees are working in jobs that could potentially cause emotional or physical harm – for example, front line police work or late night retail staffing - employers have the option of implementing electronic monitoring technologies that will minimise these risks and such risk minimisation is commonly seen as a benefit to both staff and employer (Chen and Ross, 2007; Vorvoreanu and Botan, 2000).
• **Internal Threats**

A number of arguments have been offered to affirm that internal threats are no longer restricted to the old adage of ‘fingers-in-the-till’. Instead, internal threats include employee espionage that involves the disclosure for profit of sensitive company information, or selling of data from a confidential customer database to the competition or a marketing company (Vorvoreanu and Botan, 2000). Wood (2001), and National Bank of New Zealand (2004), both emphasize the misuse of propriety information or intellectual property such as patents, trade secrets or pricing and competition strategies, as well as the financial records belonging to the organisation. As early as 1993, during the McWorld survey, 21.5% of employers admitted that they had monitored organisational data for espionage purposes (Schulman, 2001). Internal threats also include damage to company equipment, the manipulation of information for personal gain, or the theft of resources such as property, equipment, information or finance.

An added incentive to monitor employees is the potential for the employer to be held liable in court in the event that illicit or illegal activities had gone unnoticed during the employee’s service. According to Wood (2001), this liability exists regardless of whether the employee is still working at the organisation or no longer in its employ; the employer may still be held responsible for any crime committed during the period of the employment contract.

Sterneckert (2004) argues that the most commonly found threats through infiltrations of assets are deemed to occur due to the actions of external parties; however, the most successful and financially destructive assaults come from internal sources. The author suggests that this is due to the access necessarily granted to both current and former employees, and to external contractors, in relation to sensitive and private information belonging to the organisation. This presents a solid argument for the introduction of electronic monitoring into the workplace, though there is little support in the literature for the legitimacy of this argument.

The degree to which an employer uses workplace monitoring technologies varies greatly, and each employer therefore sets their own policies in regards to the use and misuse of company time. Miller (2002) notes that only the employer can
decide how to act upon the monitoring data gathered, what activities conducted by the employee are permissible and what are not, as well as how to discipline employees for their unacceptable actions. Naughton (1999) compares two American firms and their stance towards electronic monitoring. He states that Xerox, a company that specializes in photo copiers, multifunction printers and document does not believe in restricting their employees from occasionally using the internet and checking personal email accounts. On the other hand, Ameritech, a large corporate organisation specialising in telecommunications, has a policy that includes zero tolerance for any personal use of the internet and email.

Ameritech are by no means typical in this regard, for not all employers view the Internet as an enemy whose misuse should be treated as a constant firing offence – a web design organisation, Vantage One, holds ‘Quake-Offs’ where the employees are encouraged to play web-based games in order to relieve stress and any negative tensions held towards one another. The employer holds a firm belief that allowing such ‘slacker bonding’ is beneficial, and does not attempt to control personal Internet usage unless it offends another employee or hinders the work of the employee or team (Naughton, 1999).

The literature suggests that many organisations will choose to utilise, and benefit from, the use of electronic monitoring technology in accordance with one or more of the reasons advanced above. The extent of usage may, however, be dependant on the industry, the societal and economic stratum the organisation functions within, and the organisation itself. For all organisations, however, there are corresponding weaknesses in the typical implementation process.

### 2.5 Perceived Costs to the Employer

The introduction of electronic workplace monitoring almost certainly represents a major change in the organisation’s ‘way of doing things’ and therefore a parallel change in the characteristics of organisational culture. As with any change initiative, no matter how negligible or nondescript it appears to management, it is pertinent to establish its effects upon both the organisation and its staff.
As part of the change management process, the employer will almost certainly assess the predicted advantages and disadvantages of introducing monitoring into the workplace, and decide that the benefits, such as improved productivity, outweigh the risks, such as a loss of trust from staff. However, the literature suggests that certain costs or disadvantages may only surface, and be discovered by the employer, after the implementation of electronic monitoring technology (Chen and Ross, 2007). Here, it is important to note that the initial perceived costs or disadvantages are not necessarily the same as, or even bear a resemblance to, the actual costs that eventually emerge. For example, the employer may have erred in assuming the staff are willing participants, whereas the staff actually end up resentful over being scrutinised by the employer via the use of electronic monitoring.

Vorvoreanu and Botan (2000) firstly clarify that the unfavorable consequences of electronic monitoring are not strictly limited to legal risks and costs. Although electronic monitoring is becoming more and more prevalent within the workplace, employers can still face negative or unwarranted attention. This can emerge from both internal and external parties depending on how, where and why the technologies were implemented. The types of electronic monitoring technologies implemented also affect the perception of those parties. For instance, intrusive technologies, such as key loggers, are more likely to warrant negative scrutiny and complaints than those that are less clearly obvious.

To counteract or minimise this particular risk, Wood (2001) discusses the need to be aware of, and to understand, any existing union agreements which prevent and/or limit the right of the employer to monitor staff, as well as limit the scope and scale of technologies the employer wishes to utilise. Employers can face legal and union issues, as it is often an offence (depending on the country in question) to be less than open in disclosing the electronic technologies and methods used within the workplace. Such open disclosure is especially pertinent if the company policy claims to assure the privacy of the employee, but is subsequently found to be doing the opposite.
Nevertheless, an employer will typically enjoy significant legal rights to conduct undercover surveillance upon staff if there is significant reason to do so, and in these instances disclosure is not an option. Such a procedure may occur where the employer suspects a staff member or members are stealing from the organisation, and uses technologies such as closed circuit televisions in order to catch the guilty parties in the act. Disclosure at such a time would not produce the desired results, as the illegal act would cease to exist under circumstances of overt surveillance.

2.6 Perceived Benefits to the Employee

Electronic monitoring is often portrayed by the media as an invader of privacy, a breach of ethical standards and human rights, and the source of a variety of ailments amongst employees (Vorvoreanu and Botan, 2000). This arguably exaggerated degree of pessimism in regard to the negative aspects of electronic monitoring in the workplace leads to titles such as ‘Big Brother at work’ and ‘The boss never blinks’, with the depiction of the working environment as a personification of George Orwell’s book ‘1984’ Aiello (1993). In reality, the benefits to the employee, amongst other things, include personal safety, recognition of productivity, and protection from false accusations.

2.6.1 Personal Safety

As has been already mentioned, employees working within high risk and ethically sensitive industries can greatly benefit from the use of electronic monitoring technology within the workplace. Security staff at major events can be protected by devices that inform headquarters of the staff member’s location, as well as providing a means of instant communication with both the main site and other staff members located elsewhere on the premises. Employees working in sensitive areas, such as abortion clinics, will be protected via the use of closed circuit televisions and doors requiring a swipe card to protect them from any opposing members of the public, and from religious and other organisations that campaign against abortions.
2.6.2 Individual and Team Recognition

Sipior and Ward (1995) discuss the importance of electronic monitoring technology when it comes to recognition of employees for their productivity, accomplishments, efficiency and effectiveness within the workplace. The example produced by these authors is one where an employee uses email to make a sale, and only through email monitoring would the employer have been made aware of the efforts of that employee. Holman, Chissick and Totterell (2002) add that employees can now receive more effective feedback in regards to their performance, the review is of a higher accuracy, and is often provided in a more timely fashion. These authors claim that this leads to further improvements in an individual’s work performance, allowing them to train for and develop new skills.

Goffee and Jones (1996) suggest that the concept of solidarity, or the effective development of common team goals, may also be enhanced through the use of electronic monitoring technology, especially if staff believe that its introduction will result in the generation of rewards for their personal and team successes (Chen and Ross, 2007). Nonetheless, despite its potential relevance to the current study, there is no research evidence to support the claimed correlation between the introduction of electronic workplace monitoring and the Goffee and Jones model.

2.7 Perceived Costs to the Employee

One complicating feature of the impact of using monitoring technologies on employees is the potential for such monitoring to be both overt and covert. In this respect, Miller (2002) believes that employees should assume that they are being monitored within their workplace, as there is no real guarantee that their workplace is electronic technology free. Wood (2001) adds that the employee is not protected by the law if they are found to be misusing company resources, for example through the excessive personal use of the Internet, regardless of whether they had been informed that they were being monitored.
The current workplace reality is that the laws in place in many countries allow the employer to hold all but complete control of the electronic monitoring technology process. Wood (2001) explains that this means the employer may be allowed to monitor staff without their consent during a preliminary process of attempting to discover whether monitoring technology is actually necessary for the workplace. Wood (2001) adds that, due to a lack of clear guidance in legal practices, as to what the employer can and cannot do in regards to electronic monitoring, it is difficult to regulate the events and repercussions that occur afterwards. In extreme cases, a major drawback of electronic monitoring for an employee is the ultimate penalty of losing their job and their source of livelihood for themselves and their families (Weckert, 2005).

Naughton (1999) states that employees tend to feel provoked and defensive if the employer incessantly holds them under their watchful eye, especially if the monitoring technology is highly intrusive (such as keyboard logging and taking snapshots of the employee’s computer desktop). Furthermore, Vorvoreanu and Botan (2000) insist that the negative effects on employees due to the use of electronic monitoring technology within the workplace have a substantial correlation with productivity. As such, both Vorvoreanu and Botan (2000) and Johnston and Cheng (2002) stipulate that the employer should be wary of declining employee morale, as this type of workforce ailment ultimately affects the bottom line of the organisation. They add that, although the employer’s focal incentive was to boost productivity and the efficiency and effectiveness of their staff via the use of electronic technology, they may in fact, develop the opposite effect: again referring to Goffee and Jones’ ideas, where ‘sociability’, morale, or corporate culture deteriorates, so does productivity.

2.7.1 Psychological and Health Risks

It has been established that the negative effects of electronic workplace monitoring can affect the employee in terms of various behavioural reactions (Chen and Ross, 2007). These reactions include mental health issues affecting employee relations, low morale and motivation, stress, increased anxiety, boredom, higher tension, repetitive strain injury, depression, anger, fatigue, musculoskeletal problems
and other ailments (Vorvoreanu and Botan, 2000; Weckert, 2005; Holman, Chissick and Totterdell, 2002). Weckert (2005) considers that, due to the lack of personal freedom and limitations on the exercise of creativity, as well as the loss of morale, motivation and empowerment, it is not uncommon for staff to face a loss of self esteem. They add that, combined with the guilt and shame arising from finding out they need monitoring, staff may then experience doubt about their own abilities due to being perceived as lazy, untrustworthy and unproductive by their employer.

McNall and Roch (2007) refer to a study produced by Strickland, as far back as 1958, that a high level of surveillance contributed to a perception that staff were not trustworthy. Though this may initially suggest comparisons with the behaviour of McGregor’s (1960) Theory X manager, it is important to note that this perception was held by both staff and employer, thus further eroding commitment to both dignity and fairness, and amplifying the negative effects of surveillance upon the staff.

Employees have also been found to perceive that the more presence of monitoring in the workplace means that they are being individually targeted. Dorval (2004) mentions that this is due to the employee being unable to verify who the employer is watching at any given moment, and thus there is a feeling that only they are being observed, rather than the entire employee roster (Dorval, 2004).

Johnston and Cheng (2002) explain that, based on prior research conducted by the occupational health and safety sectors, there is a correlation between physical and psychological ailments and the introduction of monitoring. The authors cite the US National Institute for Occupational Safety and Health findings that the introduction of monitoring for performance amplified the risks of various injuries, such as back injuries. This was due to the unrealistically demanding nature of the output required from employees that was neither physically nor mentally sustainable over a long period of time.

2.7.2 Relationships Between Staff and the Employer

The undermining of employee morale produces a significant division between employer and staff, creating a perception of ‘us’ and ‘them’ (Johnston and Cheng,
Weckert (2005) believes that electronic technology used for the purpose of monitoring has the potential to undermine the workplace, creating an environment of distrust and resentment amongst employees towards the employer, and even between each other. Kramer and Tyler (1996) states that this is due to the strong contribution to a trust relationship made by the existence of an bond of mutual dignity and respect between employer and employee. The authors believe that traditional methods of monitoring convey an atmosphere of trust to an employee, somewhat akin to McGregor’s Theory Y management approach, whereas the use of electronic monitoring technology expresses a Theory X culture of distrust. The implications of McGregor’s (1960) ideas in relation to the introduction of electronic workplace monitoring are discussed later in this review.

2.7.3 The Intensification of Workload Demands

Holman, Chissick and Totterdell (2002) believe that the implementation of electronic monitoring technology often increases the workload for staff. The intensification of work demands lead to the above stipulated health risks, though the authors admit that few studies have been conducted to test the supposed relationship between monitoring staff performance and lowered health. However, they do add that the use of results gathered via electronic technology may affect the remuneration of staff, if the employer believes that staff are not working to their full capabilities.

2.7.4 Demographic and Personality Characteristics as a Variable

Though it is not uncommon for all staff to suffer some negative effects from the implementation of electronic monitoring technologies, Chen and Ross (2007) stipulate that certain staff members are more susceptible than others. They affirm that job dissatisfaction, stress, and subsequent withdrawal are dependant on varying personality characteristics and traits. Panina (2002) concludes that the lower threshold for privacy breaches found amongst women makes them more susceptible to stress, making them a higher target for the negative effects of electronic monitoring.
On the other hand, Schleifer, Galinsky and Pan (1996) discovered that the performance and capabilities of a staff member has a positive relationship with the levels of stress. In other words, employees are found to be more stressed under the watchful eye of a monitoring tool if they are falling below the required performance levels or are not meeting the work standards required of them.

Another variable supplied by Zweig and Webster (2002) is that individuals found to be of an introverted nature, or perhaps emotionally unstable (e.g. due to bereavement or other traumatic events) are found to be less welcoming or accepting of electronic monitoring technology. The authors ascertain that, even if the employer is found to have been fair and equitable in respecting privacy rights, only employees with strong emotional stability benefit, whereas others are negatively affected or harmed by the employers’ attempts. Staff found to have intrinsically low levels of trust towards the employer and the organisation are also affected in a different manner as opposed to individuals with high levels of trust when it came to the implementation of electronic monitoring technology that was capable of monitoring (Chen and Ross, 2007).

Self esteem also plays a large part in how staff deal with constructive criticism. Individuals with a high self esteem will strive harder to succeed next time, whereas those with low self esteem will tend to mentally ‘give up’ and thus produce an even lower performance result. Therefore, the implementation of electronic monitoring technology that may be intended, amongst other reasons, to increase employee performance and productivity, may ultimately accomplish the exact opposite for individuals with low self esteem (Chen and Ross, 2007). Nevertheless, as early as 1988 Brockner (1988) suggested that such individuals may be more flexible, impressionable and compliant in meeting the performance standards of the company.

Chen and Ross (2007) conclude that, with the careful implementation of electronic monitoring technology alongside a supportive initiation programme, employees found to have low self esteem could significantly improve their performance and minimise the risk of unwanted behaviour (i.e. theft). In comparison, employees with a high level of self esteem may be more stubborn and less compliant
with the implementation of electronic monitoring technology. However, the research is not yet complete, though these factors have been studied within many disciplines including psychology; human resources and information technology – in most cases, the issues under discussion here have been a secondary point of focus in these studies (Chen and Ross, 2007).

2.8 Modelling the Effects of Electronic Workplace Monitoring

The preceding discussion would seem to indicate that the introduction of electronic workplace monitoring is often undertaken for largely positive reasons, frequently related to productivity enhancement, but tends to result in unforeseen damage to workplace relationships. In short, as Carroll (2007) asserts, the introduction of electronic monitoring technology may generate improvements in efficiency and effectiveness within the workplace, but at the cost of a deteriorating organisational culture. Thus, employers may achieve their goal of increased productivity, but may also experience a degree of weakening sociability that they did not predict prior to the implementation.

This weakened sociability can, in extreme cases, be evidenced by instances of sabotage, espionage, and the production of a significantly lower quantity and/or quality of products or service than existed prior to the introduction of monitoring into the workplace (Johnston and Cheng, 2002). The resulting lack of job satisfaction leads to absenteeism and higher turnover rates, and such issues can undermine the attempted productivity gains by the employer as noted by Mishra and Crampton (1998).

However, if the employer has a good understanding of the organisation, its staff, and the current company culture, there may be a practical solution when it comes to the implementation of electronic monitoring technology. Through being able to better understand the attitudes of staff, employers can potentially influence a higher rate of positive reaction to the technology, whilst still acquiring the benefits they wish to achieve through the implementation of the chosen electronic technology solutions. In this respect, the key difference between a largely negative and a largely
positive outcome may be traceable to the extent to which the employer has established a trust relationship with staff – this aspect of workplace relationships forms the basis for Douglas McGregor’s X and Y theories.

2.8.1 McGregor’s Theory X and Theory Y

Theory X and theory Y were created by Douglas McGregor in 1960, and were first mentioned in his book “The Human Side of Enterprise”. In his book, McGregor researched a variety of theories that focused on the behaviour of employees and employers within the workplace and, from this research, he developed two models that were presented as polar opposites.

Theory X describes a form of authoritarian management, founded upon a basic belief that employees have a natural dislike for work, and will do anything in order to avoid it; thus, the employer must force or coerce staff in order to achieve acceptable productivity. Theory X believes that employees require constant direction, due to their lack of ambition and aversion towards responsibility of any kind, and cannot be trusted to work without supervision.

On the other hand, Theory Y describes a participative management style, based on a belief that employees do not require to be threatened into doing their duties; instead, they are thought to thrive on responsibility, and are capable of self management, direction and control. When staff are satisfied and empowered within their job positions, they become more loyal, productive, hard working and committed to the organisation. They can then be expected to work more effectively without controlling supervision.

Where a Theory X manager is highly results driven, with a need for meeting deadlines and delivering tangible results, a Theory Y manager is more likely to focus on the human attributes in a working environment. Thus, it can be assumed that Theory X managers would be initially more inclined to employ electronic technologies in the workplace, without necessarily seeing the need to make staff aware of it, or participate in its introduction. According to McGregor, this would then lead to the general discontent and negativity described in earlier comment, and the
overall result would be a diminished value of the technology. Conversely, a Theory Y manager is less likely to employ subversive tactics against employees, but rather include staff in the process of implementation from the outset in order to gain maximum benefit from the investment.

In essence, McGregor observes that the possession of either an X or a Y approach to organisational management will invariably influence the reactions of staff to each new change initiative as it is introduced. Although his theory is almost fifty years old, it is still relevant today impacting the means of conducting performance reviews within an organisation and its organisational culture (Chapman, 2009). Later sections of this thesis investigate the extent to which this observation is valid in the subject case study.
Chapter Three - Research Design

3.1 Introduction

This research methodology chapter focuses on both data collection and data analysis methods. It endeavours to cover the distinction between qualitative and quantitative data collection methods and in particular, it includes a justification of why both methods were chosen for this particular project. An outline of the case study method is also provided, accompanied by a description of the case study organisation and environmental setting. The identities of the case study’s participants are disguised to protect their confidentiality.

The mechanics of the first data collection method, including interviews with employers, are described, including identification of the questions posed to interviewees. The survey data collection method is then described, including the instrument design, how it was set up, its implementation and its response statistics. Finally, a description of how the data was analysed is provided, along with the reasons why particular methods of analysis were selected.

3.2 Research Paradigms

There are two fundamental research paradigms, namely the positivist paradigm under which the quantitative data collection method lies, and the interpretivist paradigm, within which the qualitative data collection method resides. The positivistic paradigm attempts to objectively seek out facts and statistics in an unbiased and objective manner, rather than allowing subjective distortion from individuals (Collis and Hussey, 2003). The paradigm tends to work with variables that can be quantified and measured without unnecessary assumptions or bias. As per Peoplelearn (2009), quantitative research stems from the development of theory that leads into the proposal of hypotheses. Thereafter, these hypotheses require testing through data collection, and lead into subsequent disconfirmation or
confirmation of these hypotheses. The role of the researcher in working with quantitative data collection methods is to remove bias by remaining detached from the study (Firestone, 1987).

![Deductive Approach - Quantitative Paradigm](image)

**Figure 1 - Deductive Approach; Quantitative Paradigm**

On the other hand, the interpretivist paradigm focuses on “understanding human behaviour from the participant’s own frame of reference” (Collis and Hussey, 2003, p. 53). The interpretivist paradigm is defined by Van Maanen (1983, p. 9) as “an array of interpretative techniques which seek to describe, decode, translate and otherwise come to terms with the meaning, not the frequency, of certain more or less naturally occurring phenomena in the social world.”

Though this paradigm is highly subjective, its strengths are its sensitivity to, and usefulness in, environments where the qualitative, non-numerical variables of interest are complex and entwined, thus making them difficult to quantify and therefore measure. Peoplelearn (2009) states that qualitative research, unlike quantitative research, works its way up from the observation or data collection that assists in the development of conclusions and patterns. These form hypotheses which eventually lead into the formulation of a theory. Firestone (1987) stipulates that the researcher’s role is to engross themselves in the subject of interest.
Collis and Hussey (2003) point out that it is possible for the positivist or interpretivist paradigms to utilise both qualitative and quantitative data collection methods, nonetheless the table below represents the key features and differences between the two paradigms.

<table>
<thead>
<tr>
<th>Positivist Paradigm</th>
<th>Interpretivist Paradigm</th>
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<tbody>
<tr>
<td><strong>Data Collection</strong></td>
<td></td>
</tr>
<tr>
<td>Uses large samples</td>
<td>Uses small samples</td>
</tr>
<tr>
<td>Variables are identifiable and discrete</td>
<td>Variable are complex and entwined</td>
</tr>
<tr>
<td>Reliability is high</td>
<td>Reliability is low</td>
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<tr>
<td>Validity is low</td>
<td>Validity is high</td>
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<tr>
<td>Data are precise and specific</td>
<td>Data are subjective</td>
</tr>
<tr>
<td><strong>Role of Researcher</strong></td>
<td></td>
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<tr>
<td>Remains detached and objective</td>
<td>Is personally involved and subjective</td>
</tr>
<tr>
<td>Researcher and reality are separate</td>
<td>Researcher and reality are inseparable</td>
</tr>
<tr>
<td><strong>Research Approach</strong></td>
<td></td>
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<tr>
<td>Begins with theory and hypotheses</td>
<td>Uses grounded theory to generate hypotheses</td>
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Table 1 – Positivist Paradigm vs Interpretivist Paradigm

The research method proposed for this project was necessarily adapted to accommodate the demands of two major stakeholders in the case study organisation – employers and employees – and to allow for the nature of the questions being asked, which were not always applicable across both parties. Rather than adapt to the quantitative vs qualitative dichotomy, this use of dual methodologies strives to achieve a balance between the benefits and disadvantages of each methodology, and thus offers greater reliability and validity. It allows the methodologies to be adapted to the nature of the research that is required for each stakeholder. Therefore, a triangulation or mixed method approach was used, adopting a range of data collection and analysis techniques from both the qualitative and quantitative spectrum.

As such, this project featured a case study methodology, employing a hybrid approach that sought data from both the qualitative (interpretivist) and quantitative (positivist) data collection methods (Collis and Hussey, 2003). This is due to the belief that there is no single methodology which is inherently superior to the other (Kaplan and Duchon, 1988) and, as a result, a combination of both methodologies is better suited to the nature of the target stakeholders and the questions being asked.
Eisenhardt (1989) defines a case study as “a research study which focuses on understanding the dynamics present within a single setting”. According to Yin (2003), the case study approach usually belongs to the interpretivist paradigm and is an in-depth study of a particular setting such as an organisation. Thus, the case study methodology follows an exploratory research path through the use of four stages from inception to conclusion:

1) Design the case study
2) Conduct the case study
3) Analyze the case study evidence
4) Develop the conclusions, recommendations and implications

This method was selected as it allows for multiple means of data collection whilst exploring and understanding the case study setting e.g. an organisation functioning within its unique parameters (size, location etc.) and environment. In order to ensure the validity of the case study approach, the organisation was studied on location, and a range of ‘how’ and ‘why’ questions were asked in a series of in-depth interviews with management, and also via a survey instrument made available to employees. Metcalfe-Davison (1998) argues that this approach is useful to supplement the researcher’s understanding of complex processes that are unique to each case study.

After conducting both qualitative and quantitative research within the chosen case study organisation, the results were expected to signify a range of different perceptions held by employer and employee groups. It was hoped that these results would lead to the identification of major advantages and disadvantages of personal workplace technologies, and the differences in perception held by the two key stakeholder groups.
3.2 The Case Study Organisation

The identification of a suitable environment for the conduct of research was based on the specific needs of the research itself. These needs included the desirability of focus on a hierarchical organisation with a wide range of job functions and departments, and a consequently varied range of perspectives on the implications of personal workplace technologies. Many such organisations are currently contemplating, or are part way through introducing, personal workplace technologies, and may therefore be expected to have valuable opinions related to employee affirmation or rejection of this technology. In addition, the presence of extensive and varied departmentalisation, a formalised management structure, and a comparatively large number of employees within a single case study organisation was necessary to ensure a fair and balanced approach that would assist the research to make a useful contribution to the literature, and to enable further research by other colleagues, both nationally and worldwide.

As such, the initial intent was to seek the co-operation of a large, multi-departmental, and multi-faceted organisation that has openly and overtly introduced a range of personal workplace technologies in recent times. Preliminary research included the analysis of potential case study organisations based upon their size, the nature of their hierarchical structure and the stability of the climate in which they were functioning (e.g. not undertaking major organisational restructuring). The case study organisation eventually chosen was a provider of multiple consumer services which we have called ‘Rural Services Limited’ (not the organisation’s real name).

Rural Services Limited is located within a local government area that holds a population of an estimated 26,800 people spread across seven townships on a land mass of 2,297km². The actual town where Rural Services Limited is headquartered has a population of approximately 7,500 people, though Rural Services Limited has three other service centres/branch offices located throughout the district. There is a need for a number of mobile service provision agents due to the travel distances involved, and many organisational staff are currently working from home. These
characteristics suggest that a range of personal workplace technologies may be of potential advantage to Rural Services Limited.

The organisation consists of 204 staff members, including management, and also those who are currently working off site – from home, or on satellite-sites. Rural Services Limited contains a spread of departments including, but not limited to, Human Resources, Information Technology, Customer Services/Help Desk, Finance, and Accounting, all of which were included for the purposes of this study.

### 3.3 Qualitative Data Collection

The qualitative approach was decided upon as a result of choice between two possible data collection methods – interviews or focus groups. A focus group is used to gather and record the perceptions, beliefs and opinions of a group of people seated within one room. Collis and Hussey (2003, p.167) state that “listening to other group members’ views encourages participants to voice their own opinion” however, due to ethical and privacy concerns, as well as the varied and busy schedules of the three relevant managers, the decision was made to proceed with the one on one interviews.

Therefore, the qualitative approach was represented by a series of interviews with senior management at the headquarters of Rural Services Limited. A research interview is defined by Kvale (1996, p.1) as an “attempt to understand the world from the subject’s point of view, to unfold the meaning of peoples’ experiences, to uncover their lived world prior to scientific explanations”. The interview is strongly respondent focused, where the researcher/interviewer directs the interview through specific open ended questions that reveal the respondents’ perceptions on a given subject. The benefits of using the interview as a means of qualitative data collection include:

- The possibility of building a rapport with the respondent, ensuring a higher validity and reliability of the results gathered.
- The interviewer has the opportunity to investigate a particular response in further detail where either the data provided lacked in depth or
clarity, or data that were held to be of interest had emerged during the interview.

- The interviewer can ensure a question was interpreted correctly via the use of stimulus equivalence (Collis and Hussey, 2003) – the ability to ensure the interpretation of a question matches both the definition of the interviewer as well as the respondent, and remains identical throughout the entire interview data collection process.

- The respondent has the ability to freely express their perceptions, opinions and what they hold of value without being constrained by prearranged responses such as those within a questionnaire.

- One on one interviews take the pressure off a respondent, making for a more candid response, whereas in a focus group setting they may be less likely to do so.

In addition, the qualitative approach ensured that the employer group was able to fully articulate their personal and professional opinions on the use of personal workplace technologies, and to more thoroughly describe their perceptions of advantages and disadvantages of such measures. The interview was also more likely to be completed in full, as a paper or electronic survey adds to the already significant volume of paperwork that employers must attend to during their working day.

The downside of conducting an interview is that it is very subjective and it can be a personally challenging task for the inexperienced student interviewer who may not be confident and assertive in leading an interview – this in turn can allow the respondent to discuss what they are most comfortable with, rather than what the researcher is trying to uncover. On the other hand, if the interviewer is pushy, the respondent may provide too much information they were not ready to share or comfortable providing. The interviewer may also introduce bias by choosing what to quote from an interview in the research. Interviews used for data collection are also time consuming and expensive due to the purchasing/hiring of equipment (i.e. Dictaphone) and travelling to the location of the respondents. It is also more difficult
to secure sufficient time with the required respondents, as well as initially being refused access due to reasons of confidentiality (Collis and Hussey, 2003).

Rural Services Limited has a relatively simple and well established management structure, which readily lent itself to the identification of a panel of key individuals who might collectively be seen as an appropriate ‘employer’ group for the purposes of the qualitative part of the process. The three interviews in this case were conducted with Mr Thomas Wilkins, CIO of Rural Services Limited, Mr Richard Roberts the Human Resources manager, and Mr Harold Smith the Information Technology manager (names have been changed to protect identities). All three interviews were conducted on the 7th of April, 2009, each interview took approximately 35-50 minutes, and was recorded using a micro cassette recorder.

In order to increase the benefits and avoid as many of the disadvantages as possible, the interview was structured systematically so that key topics were covered, but led by the researcher in a manner that enabled the respondents to freely express their views. Although based on the research objectives identified earlier - why did Rural Services choose to introduce personal workplace technologies, what technologies were currently being used, and what were the primary advantages and disadvantages that had emerged – the interview followed a panel of 10 free format response questions as noted below (also located in Appendix A):

1. What types of personal workplace technology (PWT) exist in your organisation?
2. For what reasons were they introduced?
3. Is there a formally documented policy on the use of PWT?
4. Do you feel your workplace has become more effective since the introduction of PWT?
5. Do you feel you have become personally more effective since the introduction of PWT?
6. How has the use of PWT impacted on staff morale?
7. How has the use of PWT impacted the organisational culture?
8. What are the main benefits arising from the use of PWT in your workplace?
9. What, if any, are the main shortcomings or drawbacks arising from the use of PWT in your workplace?

10. Overall, do you believe your workplace has gained advantage or suffered disadvantage from the introduction of PWT?

The interviewer then prompted where necessary for positive and negative feedback, whilst seeking specific examples related to a person’s role in the case study organisation. Further questioning prompted by the interviewer was purely in order to gain added insights into respondent perceptions. Where possible the interview followed the flow and logic of the staff survey, in order for the researcher to be able to ascertain the differences in perspectives between the employer and the employees. On the 5th of May, 2009, a professional secretarial services provider was assigned to transcribe the micro cassettes on which the interviews were stored.

### 3.4 Questionnaire Construction and Refinement

The quantitative part of the research design included the administration of a series of specific, non leading, and unbiased questions in regard to the current use of personal workplace technologies, and the expression of current employee attitudes to these technologies. These questions were split into four sections, where the first section contained questions purely concerned with demographics (e.g. age and gender) and the remaining sections contained cognitive, behavioural and affective questions, following Zikmund’s (2003) definition.

Cognitive questions focus on the beliefs or knowledge of a respondent, behavioural questions target the intentions and expectations of respondents, whereas affective questions target the respondents’ feelings or emotions towards the particular topic covered by the question (Zikmund, 2003). The questions included in the survey instrument were designed to flow logically from the basis of the pre-determined objectives of the research, namely:

- To establish the extent to which personal workplace technologies were used in the subject organisation
• To identify the initial rationale for the introduction of these technologies
• To identify the impact of these technologies on organisational productivity
• To identify the impact of these technologies on organisational culture
• To evaluate the extent to which initial objectives had been achieved
• To suggest ways by which to maximise the positive impacts of these technologies

Overall, reasons for using a survey instrument included:

• This option allows respondents to complete the survey in their own chosen time and location.
• The option is resource efficient (time and money) as it does not require a vast amount of time on the part of employees or employers – the respondents can complete the survey in their own time.
• The survey is uniform in its distribution – questions are not tailored to suit the industry, occupation or employee.
• Mailed and emailed surveys are not linked geographically, therefore location is not an issue.
• Quantitative data makes drawing inferences via the use of analytical techniques more manageable and less subjective (Metcalf-Davison, 1998).
• More variables can be gathered, ensuring a better cross section of data for statistical analysis.

However, Metcalf-Davison (1998) explains that, the instrument contains disadvantages in that it is only a snapshot taken at one point in time, can be self-selecting by the respondents (i.e. only those that feel strongly in regards to a particular situation may respond) and the researcher may in fact have introduced bias by providing questions which only a particular group of respondents may answer.

The questions provisionally chosen were a reflection of the main issues identified through the literature review in the previous chapter, and were all seen as necessary for the collection of primary data, derived straight from the source – the
organisational employees. A draft survey was thus produced, which focused on addressing the key points raised in the literature review, as well as ultimately meeting and answering the demands of the overall research objectives. Incorporated into the draft survey were questions based on McGregor’s Theory X and Theory Y, and relating specifically to staff morale, interpersonal climate and organisation culture. These questions were introduced in order to confirm whether there is a difference between a positive or negative outcome, depending on the extent to which the employer has worked towards the formation of trusting relationships with staff.

Questions related to staff productivity and health or wellbeing were also introduced. In this respect, the literature review had identified the possible effects upon staff and the employer, as well as the organisation as a whole. The main focus here had been on potential reasons why the employer may have introduced personal technologies into the workplace, whether it was mainly due to lack of trust in the staff, or whether it was done for their own benefit or personal safety. The need to discover answers to these questions arose in order to address the research objectives, and further draft questions were therefore added to the survey in order to meet this need.

In order to check that the phrasing, language and content of the questions was effective, the survey was firstly piloted by ten individuals from four different organisations and industries. This was done in order to discover any potential ambiguity in the questions rather than to actually test the sample’s perceptions of personal workplace technologies. The changes that ensued after this process included the rewriting of ambiguous questions, and the splitting of complex concepts into separate questions. Certain questions were also felt to be biased or misleading, in addition to displaying a tendency to specifically seek out controversial answers. Thus, significant question rewording ensued, with a greater attention to the balance between positive and negative elements, and some questions were entirely removed as they were deemed to be potentially offensive or excessively prying.

The pilot study also revealed an issue with the on-line survey instrument – Survey Monkey – in that the software did not make it obvious that a respondent had missed a mandatory question. As such, the respondent was unable to progress
through the survey, though no reasons were given. Thus, an instruction was added to the effect that ‘all questions marked with a ‘*’ required a response in order to proceed to the next page’.

The survey was again reviewed after the management interviews, with questions then edited to include personal workplace technologies that arose from the experiences of mobile service agents and employees working from home. Further options were added in response to specific use of personal workplace technologies at the case study organisation, and questions seeking any further potential benefits and problems of these technologies were added.

The final version of the survey was primarily structured in a combination of open and closed questions, where the closed questions included dichotomous variables (yes or no answers), a rating scale using a continuum, and multiple choice answer questions. This was designed for the purpose of easier analysis as part of the quantitative data collection process. Open-ended elements such as ‘Other – please specify’ were used where a question could potentially have multiple possible answers that were not produced as part of the multiple-choice answer set, thus introducing a qualitative element to the method. In addition, a number of ‘overview’ questions were included as open-ended options with space to discuss the answer in free format comment. A copy of the final survey is included as Appendix B to this report.

3.5 Quantitative Data Collection

All 204 staff at Rural Services Limited are internally connected to each other via a formal company Intranet system. It was therefore possible to approach all of the employees in the organisation as a census study. Statpac (2007) defines this approach as the gathering of data from each individual within a population, thereby eliminating the need for any sampling process, and permitting every individual to receive an equal opportunity to complete the survey. The target number of responses required in order to ensure accuracy and confidence in the results as well as to minimise extrapolation was set at n=100, and this ambition was judged to be
viable by the management at Rural Services Limited. The desired response rate was to be achieved with the help of the Human Resources Manager, who would prompt staff via email after the first week had passed.

Employees were given a choice of completing the 34-question survey either online or via a paper based method. The benefit of using a mailed survey is in the confidence of the respondents that the employer will not be able to intercept their responses, but it is a costlier option with the potential to have responses lost in the mail. On the other hand, gathering responses via an electronic survey requires that all respondents have access to the internet otherwise the population will no longer be equally eligible. The benefits of an electronic response format include the easy transferral of raw data between the online questionnaire tool and the software used for statistical analysis.

The electronic survey was conducted through the use of Survey Monkey, a professional online questionnaire tool that allows for the creation and distribution of surveys via a link to a webpage. On the 24th April 2009, after confirming that all staff members had access to the Internet, the manager of Human Resources posted a link to the questionnaire on the company Intranet, encouraging everyone to participate if they so wished. Completion of the survey was entirely voluntary, and no incentives to complete were offered. All data collected were confidential to the survey design team, and no features of any individual response that could assist in identifying its author were discussed with the employer or any third party. The data collection lasted two weeks, in order to provide all employees with ample opportunity to participate. An email reminder was sent by the Human Resources manager after the end of the first week for those employees who had not yet seen the link posted on the intranet.

Though respondents initially experienced some minor technical difficulties, these were resolved within two days of the release to staff. From a possible 201 respondents (not including the three managers), a total of 100 usable responses was received, all of which were received via the electronic version of the survey. This was a response rate of 49.76%, similar to what has traditionally been received in other electronic surveys (especially where a reminder is sent out to respondents). There is
little difference in response rates between electronic questionnaires and those in hard copy form (Kaplowitz, Hadlock & Levine, 2004).

### 3.6 Data Analysis

In order to conduct analysis on the data derived from the interviews and the survey, a number of methods were employed in order to produce information that is of value to the research, whilst remaining high in validity and reliability. The two forms of data, qualitative and quantitative, have been split and individually described in their own sub-sections.

#### 3.6.1 Qualitative Data

The qualitative data was analysed using a combination of manual methods and the software package Microsoft Office Excel 2003. Excel was used in order to visually display data after it went through the steps and processes required by the selected manual methods.

The types of manual (non software required) analysis used for qualitative data involves the quantifying method, in particular the use of content analysis. Content analysis is a formal method which is designed to systematically convert text into numbers in order to prepare for analysis (Collis and Hussey, 2003).

Content analysis as a formal method is useful, as the reliability and validity of the analysis is significantly increased. This is due to the systematic way in which the content analysis is carried out. However, it requires a great deal of data reduction early on during the research, meaning data that may be of use later can sometimes be unfairly dismissed too quickly.

Therefore, the quantifying method of content analysis was supplemented by a non-quantifying method. As per Collis and Hussey (2003), the four key elements of this type of analysis involve comprehending, synthesising, theorising and recontextualising the data without converting any text into quantitative means. The
general analytical procedure will be used as it also requires a systematic and methodical approach, much like content analysis, but instead focuses on the coding of data, allocating the code to a variable, and thereafter grouping the codes into categories (Collis and Hussey, 2003).

3.6.2 Descriptive Analysis of Qualitative Data

The three interview transcripts were read and a data reduction process was applied. This involved highlighting the key points of interest that were discussed during the interview, provided they contributed to the ten questions asked. All data was ignored that did not answer the ten questions, nor impacted those questions were ignored. The highlighted key points were then categorised into related groups, such as a particular reason for the implementation of personal workplace technologies. A table was built in Excel 2003 and populated by each of the related groups and their responses. A similar method was applied to the open-ended questions located within the survey, where all responses to a given question were analysed and thereafter grouped into similar categories.

3.6.3 Quantitative Data

The quantitative data was analysed using a variety of statistical and supplementary software packages. In particular, the following software was used:

- SPSS for Windows, version 14.0.0
- Microsoft Office Excel 2003

SPSS is a professional statistical software package which analyses the inputted data and converts it into statistical information that can then be analysed in the context of research objectives and questions. This tool was chosen due to its flexibility, and the degree of sophistication and functionality in the types of statistical output it can produce. This tool also adds a statistical and visual supplement to the written research, and thus enables a better representation of the information gathered via the chosen research method. Microsoft Office Excel 2003 was chosen
due to the ease of designing aesthetically pleasing graphs and charts of statistical data, and the wide array of tailoring functionality it provides.

**Extraction of Raw Data**

Raw data are considered to be data that are unrefined or yet to be processed for use, but which may become useful as they are converted into information via statistical analysis and formatting for display purposes. The raw data for the survey were stored online, on a secure database belonging to SurveyMonkey.com. In order to extract the raw data from the database, it was necessary to download the responses. SurveyMonkey.com provides a wide array of summarised raw data options in many formats (Excel, Html, PDF etc) depending on how/where they would be inserted or used. For the purpose of this analysis, the full response set was downloaded and inserted straight into Excel. A sample of the full dataset is provided below, containing the header of the question as well as any options the respondent was given to choose from. In column A, an identifying number is ascribed to a particular respondent.

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>What is your gender?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Male</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Male</td>
<td>Female</td>
<td>16-25</td>
<td>26-35</td>
<td>36-45</td>
<td>46-55</td>
<td>56 and above</td>
</tr>
<tr>
<td>3</td>
<td>Male</td>
<td>Female</td>
<td>16-25</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Male</td>
<td></td>
<td></td>
<td>36-45</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Male</td>
<td></td>
<td></td>
<td></td>
<td>46-55</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Male</td>
<td>Female</td>
<td>36-45</td>
<td></td>
<td></td>
<td></td>
<td>56 and above</td>
</tr>
<tr>
<td>7</td>
<td>Male</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>56 and above</td>
</tr>
<tr>
<td>8</td>
<td>Male</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>56 and above</td>
</tr>
<tr>
<td>9</td>
<td>Female</td>
<td>16-25</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Figure 3 - Sample of Dataset*
Insertion and Coding of Raw Data into SPSS

In order to turn the raw data into meaningful information, the Variables had to be manually entered into the *Variable View* function of the tool, specifying amongst other things whether a variable uses a nominal, ordinal or scale measurement, the data type, its label and variable values. The variable values represent the various responses provided to the respondent where 1=Yes, 2=No and so forth. The full dataset of raw values (not including open ended questions) had to be manually entered into the *Data View* function of the tool.

### 3.6.4 Descriptive Analysis of Quantitative Data

Descriptive analysis can be defined as the conversion of a raw dataset into information, presented in a way that is simple to interpret and understand (Zikmund, 2003). Thus, the main focus in analysing the data was to provide information in a concise, aesthetically-pleasing manner that avoids potential misunderstandings in what it is trying to present.

The types of analysis for the quantitative data found within the questionnaire included exploratory data analysis of univariate data, which is the analysis of a single variable (Collis and Hussey, 2003). This includes presenting and describing frequencies via tables and graphs, measuring central tendency via the mean, mode and median, as well as measuring dispersion or spread by techniques such as standard deviation and interquartile range. Exploratory data analysis of bivariate data (that is, the analysis of two variables), (Collis and Hussey, 2003) was conducted through the use of cross tabulations. The analysis and comparison of bivariate data was predominantly around the age, gender, department or length of employment against questions that aid in answering the objectives of the project.

The information will then be interpreted by splitting it into two main categories – perceptions of the employer and perceptions of the employees in regards to personal workplace technologies. This will aid in identifying how the use of personal workplace technology could be implemented to better suit both parties.
Chapter Four – Results

The results chapter focuses on the qualitative and quantitative data gathered from both the interview and the survey, presenting these data in a summarised format. These results founded the basis upon which the discussion located in chapter five is held upon.

4.1 Interview

This section begins with the results derived from the interviews in which three managerial figures, Mr. Tom the chief information officer of Rural Services Limited, Mr. Dick the Human Resources manager and Mr. Harry, the Information Technology manager, were asked to contribute their thoughts and perceptions. These managers will now be referred to as Tom, Dick and Harry.

Q 1) What types of personal workplace technology (PWT) exist in your organisation?

A wide variety of personal workplace technologies have been implemented within Rural Services Limited. They are either provided to all employees, or specifically targeted to meet the particular needs of a job description or working environment.

All three managers agreed that the Internet was provided, though it was noted that casual employees are not necessarily granted access. However, all staff members have access to the Intranet, a network maintained by the organisation in order to communicate with employees whilst providing tailored services and information. It is also a source of knowledge transfer that is only accessible to employees and not external parties.
Electronic messaging was also confirmed as an existing and prominent personal workplace technology, allowing for communication between staff members and between staff and customers. “Tom” also noted a use of personal digital assistants (PDA), though issued only in very specific cases.

The phone system consists of direct dial in (DDI) technology, as well as voicemail. Some use of toll bars, and restrictions on the diverting of phone calls from a landline to cellphone, was in place to prevent potential abuse. Mobile phones were not common, but they were available at the company’s cost where the usage bill was monitored. It was not mentioned within the interviews which job description has access to the use of this technology.

Personal computers and laptops were offered to some staff, requiring a log on and log off, with a mandatory time out period where the employee was requiring to log back into their machine. This technology is monitored via a firewall and anti-virus software, with access o the Internet monitored. Certain websites, including Facebook, Bebo, online auction sites and anything that could potentially be abused by employees is blocked. Managers received a regular report that identifies the top Internet users who had used the most bandwidth in the company.

“Dick” noted that where employees working in the field alone, and in situations that could potentially turn hazardous, devices like Emergency Position-Indicating Radio Beacons (EPIRBs) are issued, which allow the employee to set off a device that alerts the organisation that they are in difficulty. This technology is in use instead of Global Positioning Systems (GPS), which are not yet available within the organisation for this purpose.

Interestingly, internal security concerns were not mentioned by any of the managers. This may be linked to an observed lack of swipe cards, closed circuit televisions or global positioning tracking systems in the organisation.
Q 2) For what reasons were they introduced?

Personal workplace technologies were introduced in order to increase the productivity of staff, targeting an increased effectiveness and efficiency in conducting their duties. “Dick” noted that it was vital to make the technologies unobtrusive and integrated within the business processes, making technologies readily available to staff guaranteed that the technology is used and eventually solidifies their presence as a core business component.

Improved communication was another reason mentioned by all three managers. Personal technologies were used at Rural Services Limited to enhance and promote further communication between all staff members and with clients. Through providing various options such as email or cell phones, the organisation was able to introduce varying channels of communication and thus reduce the time and effort required to communicate purely face to face. Due to the spread of offices throughout the region, face to face was also inefficient when attempting to hold meetings that required the physical presence of other staff members. Scheduling and coordinating the time of all parties, and meeting their travel costs, at times, outweighed the benefits.

“Harry” mentioned the need for personal workplace technologies due to the demands of legal compliance; that is, ensuring the organisation meets governmental and business regulations, and is working within accepted legal and ethical boundaries. Though it was not clear as to which personal technology provided this service, it appears to be implemented via a range of staff monitoring activities to ensure they are not conducting activities that could be in breach of the organisation’s legal compliance e.g. breaching legal compliance can be done in the form of an employee running their own business during working hours at Rural Services Limited.

However, the managers added that they see no need to be ‘draconian’ about monitoring, but instead use an exception-based system rather than monitoring all staff. It is the responsibility of immediate managers of staff to issue tasks and
objectives and follow them up, rather than relying on technology to ensure staff are productive and meeting their set work duties.

All three managers discussed the need to offer flexibility in the working environment and working hours, in order to attract and retain a productive workforce. They encourage this through the introduction of a Virtual Private Network, allowing staff to work from their own homes whilst being connected to the organisation’s network, thus gaining access to all information and resources they would normally require to be in the office for.

Safety was also a reason for personal workplace technologies, when staff were in remote locations or in areas where they might require emergency assistance. An EPIRB-type safety system is issued on a need basis, which removes the need to constantly track the whereabouts of staff working outside of the office.

Q 3) Is there a formally documented policy on the use of PWT?

There is an existing formally documented policy on the use of personal workplace technologies. This includes a policy on staff use of computers, the internet, the telephone, and cell phones.

All staff members prior to beginning their employment are required to sign the contract stipulating that they understand their rights and privileges, to prevent any misunderstanding if the provided technologies and services are misused. However, the managers stipulate that personal use is allowed due to practical realities such as the need to check a personal bank account online or receive personal calls from family.
Q 4) Do you feel your workplace has become more effective since the introduction of Personal Workplace Technologies?

Overall, management believes that the workplace has become more effective due to the introduction of more channels of communication, which have decreased the face to face interruptions which often lead to a loss of train of thought from staff members who were interrupted. Employees are also offered the opportunity to work from home, thus offering greater flexibility, improving the effectiveness of staff and increasing productivity.

Q 5) Do you feel you have become personally more effective since the introduction of Personal Workplace Technologies?

Managers feel that they have become more productive and effective, both within the office and in their own home. They are no longer required to carry around heavy files to and from their workspace, and attempt to locate these files physically. Rather, they can access all the necessary data through the network.

However, “Tom” noted that having flexible hours, and not having a set working location, requires good time management skills, and that flexibility can lead to burn out or becoming a workaholic. This is especially threatening if the organisation applies pressure for greater output volume, due to the time saved on reengineered business processes and avoiding the morning traffic.

Q 6) How has the use of Personal Workplace Technologies impacted on staff morale?

Staff morale has improved, due to an increase in trust arising from the flexibility offered. Staff have the ability to work from the comfort of their own home, and the only monitoring under these conditions is via the tasks and objectives set by their immediate manager.
Due to increased efficiency in conducting previously manual tasks, staff are less stressed and rushed than previously. Staff are now able to access the required software, and search for the required document(s), in a matter of seconds, without fearing the data may be misplaced or unavailable.

However, certain technologies may be written into a contract for a particular employee, and this may cause others to look on with envy or distrust. In these cases, the loss of morale is minimised by setting up key member user groups when a new technology is to be introduced.

Q 7) How has the use of Personal Workplace Technologies impacted the organisational culture?

Organisational culture has been impacted by a shift from a conservative and bureaucratic management style to more rewarding flexible working environment which increases the loyalty and retention of staff. On the other hand, this key shift is not yet fully realised, and still requires a change in leadership style to one which is more trusting of the staff – a McGregor-style move from Theory X to Theory Y.

Nonetheless, due to changes resulting from the introduction of certain personal workplace technologies, such as the virtual private network, more preparation and scheduling is now required to get people to the office to return and mingle with other team members through various work functions. “Tom” also noted that it is important to achieve a balance between the time spent working out of the office and the hours worked within, as it is more difficult to be understanding of the company culture and its objectives when working offsite or from home.

“Dick” stated that resistance to change is an issue, and this is attributed to the introduction of new technologies. Personal workplace technologies require a ‘buy-in’ from upper management, and staff involvement in the implementation process. For this reason, staff surveys are in place to monitor the impacts of new technologies on organisation culture.
Q 8) What are the main benefits arising from the use of PWT in your workplace?

There was a general consensus that the main benefits that arose from the use of personal workplace technologies included the productivity of staff, an increase in their effectiveness and efficiency in conducting their duties, and an overall staff task performance improvement. “Tom” noted that there is also improvement in specific jobs such as in the customer service department, where managers can run statistics that allow them to check which staff members are not clearing their voice mail. The enhancement of staff flexibility to work from home and at varying hours was noted, and attributed to an increase in staff loyalty.

The increase in communication channel options and their effectiveness was noted by all three managers, as well as staff retention statistics which continue to improve as a rewarding work environment attracts and retains people. In addition, legal compliance was easier to accomplish with the introduction of personal workplace technologies due to the prevention of possible breaches in legal regulations.

Personal workplace technologies for the purpose of ensuring staff safety in the field was also mentioned, especially in areas that could be seen as potentially dangerous to the staff member, such as those prone to landslides or in remote locations.

Q 9) What, if any, are the main problems arising from the use of PWT in your workplace?

Management saw an issue with communication, where it was believed more difficult to communicate face to face with staff working offsite; however this was offset by the ability to communicate using telephone or email. Although, overall, there was a positive increase in communication qualities it is always easier to communicate without having to rely on email or telephone media.
“Dick” saw a difficulty in introducing new technology to staff who had been employed with the organisation over a longer period (four years or more). He added that not enough time is provided for staff members to accept a new technology; there is insufficient understanding of the organisational shift required which in turn affects the productivity of the staff members in question. It was also noted that staff prefer to discuss issues with personal workplace technologies amongst themselves rather than with their managers.

It was conceded possible that the organisation does not appear to embrace change, and there is a lack of the necessary ‘push’ to get staff to consider and believe in a new technology. Staff appear to require the technology to be ‘sold’ to them, thus causing the technology to languish and grow outdated. “Dick” provided an instance where there still remains a legacy/manual system running alongside the new technology, causing higher maintenance costs in ensuring both sets of data are up to date and valid.

The practicality of personal workplace technologies are also dependant on the job role. For example, “Tom” commented that it is simply not feasible to have customer service representatives working from home. Thus, it is costly and time consuming to research potential technologies and their applications throughout the organisation, as well as consider how these technologies will affect other staff members and who may not be able to benefit from their introduction.

Certain personal workplace technology, such as the web tracking and blocking software, means staff members are unable to access certain websites although they may wish to do so for legitimate reasons. This is because the web tracking and blocking software is unable to discern what a valid work need is and what is not; there are problems with how technology and service can be provided whilst still protecting the infrastructure and the organisation.

Technology, monitoring of the Internet also provides potentially deceptive information, requiring increased knowledge of the technology’s application to departmental and job role needs. For example, the Information Technology department has the highest downloads per month in the entire organisation;
however, these are all legitimate needs even though the web tracking software may have already flagged an alert on these users. Similarly, USB calls used to be blocked until a genuine business need arose when staff were attempting to download images from a digital camera. Allowing the USB calls inevitably allows MP3 devices and other personal equipment to be brought into work and used for personal purpose. This illustrates the complexity in maintaining boundaries between justifiable, legitimate business needs and excessive personal usage.

Q 10) Overall, do you believe your workplace has gained advantage or suffered disadvantage from the introduction of PWT?

All three managers stated that, overall, their workplace has gained an advantage attributed to the introduction of personal workplace technologies. However personal workplace technologies remain a work in progress and an ongoing effort to protect the investments of the organisation whilst allowing staff to do their jobs effectively.

<table>
<thead>
<tr>
<th>Question Number</th>
<th>Summary of Key Points Raised By Managers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Question 2 – Reasons for Introduction</td>
<td>Increasing productivity of staff, efficiency and effectiveness of job performance, communication, legal compliance, staff flexibility, attract and retain workforce, safety of staff.</td>
</tr>
<tr>
<td>Question 3 – Formal Policy</td>
<td>Yes, covering amongst other things the staff use of computers, the Internet and telephone usage. Staff are required to sign a contract prior to beginning employment.</td>
</tr>
<tr>
<td>Question 4 – Increased Workplace Effectiveness</td>
<td>Yes, due to the introduction of more communication channels and increased flexibility to work from home.</td>
</tr>
<tr>
<td>Question 5 – Increased Personal Effectiveness</td>
<td>Yes, due to the work flexibility. However, can lead to ‘burn out’ and requires good time management.</td>
</tr>
<tr>
<td>Question 6 – Impact on Staff Morale</td>
<td>Improved staff morale due to an increase in trust and job efficiency whilst decreasing stress. However, allowing certain employees to access some technologies may lead to loss of morale in the other staff members.</td>
</tr>
</tbody>
</table>
| Question 7 – Impact on Organisation Culture | Key shift from conservative management style to flexible working environment induces loyalty and retention but not yet fully implemented. Increased scheduling required to accommodate staff that are working from home. Resistance to change exists due to lack of ‘buy-in’ when
<table>
<thead>
<tr>
<th>Question 8 – Main Benefits</th>
<th>Increase in productivity of staff, and efficiency and effectiveness of job duties, more improved communication channels, increased staff retention, loyalty, trust, and morale. Easier to accomplish legal compliance and ensure staff safety.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Question 9 – Main Problems</td>
<td>Decrease in communication due to difficulties in reaching staff working offsite, resistance to change leading to staff unhappiness and higher maintenance costs, cost of researching potential technologies as not all technologies are suited to a particular job role, Internet restrictions mean staff can be prevented from conducting real work, difficult to distinguish whom is misusing company resources.</td>
</tr>
<tr>
<td>Question 10 – Overall Opinion</td>
<td>Gained an advantage as per question 8, but still a work in progress. Disadvantages included resistance to change, and not allowing staff enough time to adapt to a new technology. Scheduling required has increased, so that staff spend an even amount of time between the office and working from home.</td>
</tr>
</tbody>
</table>

Table 2 – Summary of Key Points Raised by Managers

To summarise, management sees some negative issues, such as the implementation of personal workplace technologies. Greater attention was paid to ensure communication was upheld through regular events to improve organisational culture, as well as ensuring staff that were connected remotely to the network from home spent some time working in the office.

However, there was a wide range of benefits to both the organisation and the staff, including legal compliance, ensuring staff safety, increasing productivity, effectiveness and efficiency and overall staff task improvement.

### 4.2 Survey

The following section provides the results derived from the staff survey on a question by question basis. It firstly presents respondent demographics, followed by questions specific to the types of personal workplace used. Thereafter, it explores employer policies relevant to personal workplace technologies, and lastly presents the data regarding personal attitudes and opinions. The full instrument as it was presented to the employees at Rural Services Limited via Survey Monkey, is provided in Appendix B.
### 4.2.1 Part One: About Yourself – Demographics

<table>
<thead>
<tr>
<th>Demographic Data (n=100)</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Item</td>
<td>Options</td>
<td>Proportion</td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td>Female</td>
<td>66%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>34%</td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>16-25</td>
<td>12%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>26-35</td>
<td>20%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>36-45</td>
<td>26%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>41-55</td>
<td>26%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>56 and above</td>
<td>16%</td>
<td></td>
</tr>
<tr>
<td>Years of Service</td>
<td>Up to a Year</td>
<td>21%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1 to 3 Years</td>
<td>33%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4 to 7 Years</td>
<td>27%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>7 Years and Above</td>
<td>19%</td>
<td></td>
</tr>
<tr>
<td>Employing Department</td>
<td>Administration and Support Services</td>
<td>28%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Customer Service Delivery</td>
<td>23%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Policy and Planning</td>
<td>15%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Environmental Services</td>
<td>15%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Other</td>
<td>14%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Not Disclosed</td>
<td>12%</td>
<td></td>
</tr>
</tbody>
</table>

Table 3 – Demographic Data of Employees
Analysis of Variance based on Age and Years Worked at the Organisation

Application of Analysis of Variance (ANOVA) testing to these data revealed that there is a significant positive relationship between respondent age group and years worked at the organisation \((F = 6.275, p < 0.05)\). There were no other significant correlations and Levene’s test for Homogeneity of Variance was similarly inconclusive.

4.2.2 Part Two: Personal Workplace Technologies

1) Personal Workplace Technology used in the organisation vs Personal Workplace Technology used in current job role

<table>
<thead>
<tr>
<th>Type of Technology</th>
<th>Proportion of respondents aware of use in the organisation</th>
<th>Proportion of respondents using in current job role</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internet</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>Intranet</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>Email</td>
<td>97.2%</td>
<td>97.2%</td>
</tr>
<tr>
<td>DDI/Voice Mail</td>
<td>93.1%</td>
<td>88.9%</td>
</tr>
<tr>
<td>Cellphones</td>
<td>81.7%</td>
<td>27.8%</td>
</tr>
<tr>
<td>Internet Security/Monitoring</td>
<td>65.3%</td>
<td>51.4%</td>
</tr>
<tr>
<td>Virtual Private Network</td>
<td>48.6%</td>
<td>35.2%</td>
</tr>
<tr>
<td>ID Cards/Electronically enabled personal identifiers</td>
<td>18.3%</td>
<td>8.3%</td>
</tr>
<tr>
<td>GPS in Vehicles</td>
<td>17.4%</td>
<td>4.3%</td>
</tr>
<tr>
<td>Closed Circuit Television</td>
<td>7.2%</td>
<td>2.9%</td>
</tr>
</tbody>
</table>

Table 4 – Usage of personal technology within the organisation vs usage within employee’s own job role
2) **Main reasons for the organisation to introduce personal workplace technologies**

<table>
<thead>
<tr>
<th>Main Reason</th>
<th>Proportion of Respondents that Acknowledge this Reason</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enhance Productivity</td>
<td>88.9%</td>
</tr>
<tr>
<td>Legal Liability</td>
<td>56.9%</td>
</tr>
<tr>
<td>External Security</td>
<td>55.6%</td>
</tr>
<tr>
<td>Legal Compliance</td>
<td>48.6%</td>
</tr>
<tr>
<td>Internal Security</td>
<td>48.6%</td>
</tr>
<tr>
<td>Awareness of Staff Location</td>
<td>38.9%</td>
</tr>
<tr>
<td>Staff Safety</td>
<td>34.7%</td>
</tr>
<tr>
<td>Assist Performance Reviews</td>
<td>33.3%</td>
</tr>
<tr>
<td>Awareness of Staff Conduct</td>
<td>22.2%</td>
</tr>
<tr>
<td>Identify Areas for Task Improvement</td>
<td>16.7%</td>
</tr>
<tr>
<td>Recognising Individual Accomplishments</td>
<td>8.3%</td>
</tr>
<tr>
<td>Recognising Team Accomplishments</td>
<td>8.3%</td>
</tr>
<tr>
<td>Other</td>
<td>6.9%</td>
</tr>
</tbody>
</table>

Table 5 – Main Reasons for Introducing Personal Workplace Technologies

3) **Extent that the main reasons are being achieved**

<table>
<thead>
<tr>
<th>Extent Achieved</th>
<th>Proportion of Respondents that Acknowledge this Reason</th>
</tr>
</thead>
<tbody>
<tr>
<td>Achieved</td>
<td>14%</td>
</tr>
<tr>
<td>Mostly Achieved</td>
<td>64%</td>
</tr>
<tr>
<td>Partially Achieved</td>
<td>22%</td>
</tr>
</tbody>
</table>

Table 6 – Extent to which Main Reasons Achieved
Analysis of Variance based on Gender/Age/Years Worked and Employee Perceptions

Both Levene’s test for Homogeneity of Variance and Analysis of Variance (ANOVA) were used to examine the impact of gender/age/years worked on employee perceptions of extent that the main reasons for implementation are being achieved. However all three tests proved negative, without any significant variation being recorded.

4) Benefits and Problems arising from currently implemented personal workplace technologies

<table>
<thead>
<tr>
<th>Benefits and Problems arising from Personal Workplace Technologies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Impact</td>
</tr>
<tr>
<td>Productivity</td>
</tr>
<tr>
<td>Day to Day Routine</td>
</tr>
<tr>
<td>Working Relationships</td>
</tr>
<tr>
<td>Levels of Trust</td>
</tr>
<tr>
<td>Health and Wellbeing</td>
</tr>
<tr>
<td>Individual Morale</td>
</tr>
<tr>
<td>Team Morale</td>
</tr>
<tr>
<td>Organisational Loyalty</td>
</tr>
<tr>
<td>Other</td>
</tr>
</tbody>
</table>

Table 7 – Benefits and Problems arising from Personal Workplace Technologies
5) Awareness of employer imposed limitations on the use of personal workplace technologies

<table>
<thead>
<tr>
<th>Personal Workplace Technology Usage Limitations</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Type of Personal Workplace Technology</strong></td>
</tr>
<tr>
<td>Internet Access</td>
</tr>
<tr>
<td>Email Access</td>
</tr>
<tr>
<td>Computer Access</td>
</tr>
<tr>
<td>Personal Electronic Records</td>
</tr>
<tr>
<td>Telephone</td>
</tr>
<tr>
<td>Virtual Private Network Access</td>
</tr>
<tr>
<td>Other</td>
</tr>
</tbody>
</table>

Table 8 – Personal Workplace Technology Usage Limitations

4.2.3 Part Three: Employer Policies

6) Employer Policies and Levels of Agreement

<table>
<thead>
<tr>
<th>Employer Policies – Levels of Agreement</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Item</strong></td>
</tr>
<tr>
<td>Formal Policy exists</td>
</tr>
<tr>
<td>Formal Policy is readily available</td>
</tr>
<tr>
<td>Formal Policy has been read by the employee</td>
</tr>
<tr>
<td>Formal Policy has been understood by the employee</td>
</tr>
<tr>
<td>Formal Policy covers all necessary rights and responsibilities</td>
</tr>
<tr>
<td>Formal Policy is fair and equitable</td>
</tr>
<tr>
<td>Further training would be useful</td>
</tr>
<tr>
<td>Training has been undertaken regarding Personal Workplace Technologies</td>
</tr>
<tr>
<td>Formal Policy requires significant change and/or adjustment</td>
</tr>
<tr>
<td>There have been major technological enhancements in the last three years</td>
</tr>
</tbody>
</table>

Table 9 – Employer Policies – Levels of Agreement
### 4.2.4 Part Four: Technology and You

7) Employer Impressions upon the Impacts of Personal Workplace Technologies

<table>
<thead>
<tr>
<th>Item</th>
<th>Options</th>
<th>Distribution of Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level of Competency</td>
<td>Novice</td>
<td>1.6%</td>
</tr>
<tr>
<td></td>
<td>Adequate</td>
<td>58.1%</td>
</tr>
<tr>
<td></td>
<td>Highly Competent</td>
<td>35.5%</td>
</tr>
<tr>
<td></td>
<td>Expert</td>
<td>4.8%</td>
</tr>
<tr>
<td>Impact on Productivity</td>
<td>Positive</td>
<td>88.7%</td>
</tr>
<tr>
<td></td>
<td>Negative</td>
<td>6.5%</td>
</tr>
<tr>
<td></td>
<td>Both Positive and Negative</td>
<td>4.8%</td>
</tr>
<tr>
<td>Impact on Health and Wellbeing</td>
<td>Positive</td>
<td>59.7%</td>
</tr>
<tr>
<td></td>
<td>Negative</td>
<td>30.6%</td>
</tr>
<tr>
<td></td>
<td>Both Positive and Negative</td>
<td>9.7%</td>
</tr>
<tr>
<td>Impact on Interpersonal Climate/Organisational Culture</td>
<td>Positive</td>
<td>58.1%</td>
</tr>
<tr>
<td></td>
<td>Negative</td>
<td>24.2%</td>
</tr>
<tr>
<td></td>
<td>Both Positive and Negative</td>
<td>17.7%</td>
</tr>
<tr>
<td>Heightened Consciousness of behaviour during working hours</td>
<td>Yes</td>
<td>64.5%</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>35.5%</td>
</tr>
<tr>
<td>Confidence in raising technology related concerns with manager</td>
<td>Very High</td>
<td>51.6%</td>
</tr>
<tr>
<td></td>
<td>High</td>
<td>35.5%</td>
</tr>
<tr>
<td></td>
<td>Moderate</td>
<td>4.8%</td>
</tr>
<tr>
<td></td>
<td>Low</td>
<td>4.8%</td>
</tr>
<tr>
<td></td>
<td>Depends</td>
<td>3.2%</td>
</tr>
<tr>
<td>Overall Impact</td>
<td>Positive</td>
<td>71%</td>
</tr>
<tr>
<td></td>
<td>Negative</td>
<td>8.1%</td>
</tr>
<tr>
<td></td>
<td>Both Positive and Negative</td>
<td>21%</td>
</tr>
</tbody>
</table>

Table 10 – Employee Impressions upon the Impacts of Personal Workplace Technologies
Chapter Five – Analysis and Discussion

The following chapter focuses on presenting the most significant findings of the research, and on considering the implications of these findings in comparison to previous studies in the existing literature. It is based on a discussion of the reasons why the organisation chose to implement personal workplace technologies, and includes a review of the positive and negative points raised by employers. These issues are reiterated through consideration of the perceptions of employees, and these two sets of opinion are then compared to establish primary points of agreement and points of difference. Throughout this evaluation and analysis, the most significant research findings are related back to Douglas McGregor’s Theory X and Theory Y, as initially discussed in Chapter Two: Literature Review. The chapter begins with a re-statement of research objectives.

5.1 Research Objectives

1 Determine the specific types of personal workplace technologies used by the case study organisation
2 Determine why the organisation originally chose to implement personal technologies in the workplace
3 Establish employer perceptions concerning the advantages and disadvantages associated with the use of personal workplace technologies
4 Establish employee perceptions concerning the advantages and disadvantages associated with the use of personal workplace technologies
5 Establish the points of agreement and the points of difference between the perceptions of employers and employees
6 Categorise each of the identified advantages and disadvantages in terms of its level of impact on organisational effectiveness
5.2 Types of Personal Workplace Technologies

Though it did seem reasonable to suppose that there might be a variation in perceptions between managers and staff, in terms of the different types of personal workplace technologies that are in place at Rural Services, it was surprising to note that the direction of difference was employee-biased. In other words, rather than employees not being aware of existing technologies in their workplace, there seemed to be a pattern of employees claiming knowledge of technologies that did not actually exist – or, at least, that managers were unaware of.

For example, both employers and employees agreed on the existence of the Internet, Intranet, email, personal computers, virtual private networks, and Internet security. In particular, when employees were asked whether they were aware a specific technology was in use by the organisation, and whether it was actually in use within their own job role, they claimed to be highly aware of what technologies were in existence. This is relevant to any evaluation of organisational transparency and trust, as it shows a high level of staff awareness of what technologies are in place.

On the other hand, though management interviews suggest that closed circuit television is not used at Rural Services, 7% of employees asserted that this technology was present. In addition, though management claim that ID/swipe cards are also absent from the workplace, fully 18% of staff believe that these technologies are in use, and 8% of staff state that they personally use them! In the same vein, 17% of employees were aware of the existence of vehicles that contained global positioning systems (GPS) and 4% stated that they used them in their own job role – this is contrary to the comments made in the management interviews, that these systems were not yet in place, but were a future goal.

According to both “Dick” and “Harry”, wireless hot spots will be provided in future, thus allowing staff to work from anywhere within the main office/headquarters building of Rural Services. Video conferencing was also talked about by all three managers as another technology to be provided in the future, to assist communication with staff in different locations/offices, and on other occasions when
meeting face to face is not a feasible option. It was not clear from the discussion whether more employees would be issued with laptop computers in order to take advantage of these opportunities, or whether this facility would be purely intended for out of town or visiting clients and employees from other branches. However, a policy is being prepared in order to provide guidance in the use of these technologies.

From a staff perspective, the primary perceived enhancements to personal workplace technologies introduced during the last three years were represented by software upgrades such as the installation of Minutes Manager. Phone system upgrades were also acknowledged, including the installation of DDI and voicemail, as well as the provision of new installations on an “as needed” basis. Other innovations noted by staff include GPS and Emergency Position-Indicating Radio Beacons (EPIRBs), while less positive changes were represented by Internet restriction software that monitors access to, and usage of, websites such as social networking and on-line auction services.

Clearly, there are a number of discrepancies between what management and employees thought had been implemented and used within the workplace, though this could potentially be due to a lack of specific clarification in the questions presented. For instance, a technology such as ID/swipe cards could be viewed by either employee or management as a card that provides access to authorised areas via electronic means, or as a simple staff identification card to be shown at reception. This could possibly have resulted in misinterpretation, where management was thinking of an electronic card, while staff believed that the question referred to the manual display of an identification card.

Similarly, global positioning systems can be thought of as a device providing driving instructions to the driver of the vehicle, but also as a device that provides the location of the driver to another person, and a similar confusion may have arisen from these optional interpretations. However, employees clearly believed that they did have access to vehicles using global positioning systems that direct them to an offsite location, regardless if they thought it was also used to monitor their location.
Alternatively, management may have possibly assumed that the use of global positioning systems within staff vehicles was such a common practice that it did not warrant a mention. In this context, if the technology and its uses were made clearer, the discrepancies between responses could have been significantly reduced. In many organisations the definitive version of what the organisation has resolved to do can be found in its policies and procedures documentation, and consideration of this issue is included in the following section.

5.3 Reasons for Introducing Personal Workplace Technologies

The initial secondary research presented in the literature review chapter suggests that there may be some difference of opinion, between management and employees, in relation to the main reasons for an introduction of personal workplace technologies. Although both parties clearly agree that the standout reason for introducing these technologies was to increase organisational productivity, staff also recognise that management may have other motives. These additional reasons became quite clearly apparent in the outcomes of survey analysis, and are individually discussed in the following sections.

One possible interpretation of the scope and scale of opinion difference can be found in the X and Y theories of Douglas McGregor (1960). According to McGregor, the high level of agreement that was shown in relation to the issue of improved productivity would suggest that clear communication and a high degree of trust was present in the workplace; however, the supplementary reasons mentioned only by staff and not by management suggest that, in these cases, the organisation may display elements of the less desirable theory X. The first place to look for evidence of this level of agreement is suggested to be the extent to which organisational policies and procedures were recognised and adhered to by staff.

In this respect, fully 90% of survey respondents stated that they were aware of a formally documented policy on the use of personal workplace technologies, and 89% confirmed that this policy was readily accessible in terms of being available to read. However, only 79% of employees have read, and only 77% have fully
understood, the policy, and this may have possibly been a contributing factor in some respondents’ negative perceptions of technologies, especially those concerning restricted access and subsequent monitoring of Internet usage. However, those staff who had read and understood the formal policy agree that it fully explained the implications of personal workplace technologies as they related to their staff rights and responsibilities, and that it provides a fair and equitable foundation for current job roles.

Further comments suggest that, by and large, the content of formal policy provisions was felt to be appropriate, with only 19% of employees stating they believed changes were necessary. However, 60% of this group of employees stated that greater involvement and support was required for employees impacted as a result of the introduction of personal workplace technologies, while another 40% of employees stated that they would like fewer restrictions and monitoring of their web and email usage. For these respondents, breach of an internet or email policy should be considered a minor, rather than a major, misconduct.

So, in summary, how does organisational policy reflect the original reasons for the introduction of these technologies? In this context, three key elements were predominantly mentioned - by either staff, management or both – and these included the productivity of staff and their effectiveness at carrying out their duties; a series of legal, safety and security concerns; and a range of issues related to operational human resources management.

5.3.1 Staff Productivity and Effectiveness

The main reason that both employer and employees associated with personal workplace technologies was that of introduction to increase the productivity of staff, including management. Management interviews revealed that these managers felt that they themselves had become more efficient, as technology had reduced the amount of files they had to carry around whilst switching between work time spent within their offices and whilst working from home. Further reasons for staff
productivity improvement were also mentioned by management, such as attracting and retaining high quality staff, and being able to offer them job flexibility in terms of the ability to work from home.

Though no employee identified any of these reasons, this may simply indicate the differing perceptions that result from different positions held within an organisation (e.g. employer versus employee). Indeed, 89% of staff believed that productivity enhancement was the predominant reason why personal workplace technologies had been introduced into the organisation, increasing their efficiency and effectiveness in carrying out their duties. This was achieved by the conversion from a manual approach to automated systems that enable staff to conduct their business faster by reducing the amount of paperwork needed. The introduction of such technologies also offered an opportunity to provide better service to clients whilst increasing the quality of internal communication between departments and staff members.

However, even though they did not appear to see this as the main reason for the introduction of personal workplace technologies, it was apparent that staff appreciated the job flexibility offered, and saw this as evidence of management trust in their behaviours. As such, the shared views on this aspect of the technology seem to indicate the character of a Y organisation, and provide a useful example of the leadership shift that Rural Services is currently striving to attain.

5.3.2 Safety and Security Concerns

Though showing a significantly lower level of agreement between staff and management, a second group of opinion arose around the need to address issues related to legal liability and compliance, and to protect against internal and external security threats.

Legally, the organisation is bound to take appropriate measures to secure the protection of its staff members, regardless if they are on site or off site, and staff
have a right to feel safe at all times within working hours. Therefore, management claims to have introduced personal workplace technologies in order to protect its staff, not only from the impact of natural environmental conditions when working in the field, but from the actions of any disgruntled employee with sinister motives or from a member of the public wishing to cause trouble within the organisation's offices.

From the reverse perspective, the organisation is liable for the actions of its staff in the event that records or files are tampered with, and this liability includes (but is not limited to) the deliberate or involuntary defamation of another, breach of confidentiality, privacy or trust, and partial or complete misuse of information belonging to another organisation or client. Internally, management may also be wary of staff who abuse access to their own records, such as issuing out unapproved pay increases, increasing their annual leave, or negatively editing the personal records of another staff member.

In this respect, almost half of all survey respondents believe personal workplace technologies were introduced in order to protect them from internal security threats, with an even greater proportion (55%) citing external issues as a possible reason. Though no specific internal examples were mentioned, key issues located within any organisation are the need to protect against breach of confidentiality and privacy concerning personal, client, and business records. Internally, staff may have access to any of the above records, and the distribution, destruction, manipulation or sale of such information is at least theoretically possible. Therefore, steps must be taken to prevent such an event from occurring and this can be achieved through the use of personal workplace technologies - such as the provision of audit records of who had requested which file and when, and if that file had then been tampered with or edited.

External issues can include unlawful physical entry in order to access confidential records and files, as well as the theft of physical plant and equipment for personal gain. Physical equipment, such as personal computers and servers, poses a potential risk of unauthorised access to a vast volume of information normally not available to the public. Staff may also need to be wary of members of the public
entering the premises and posing a threat to their personal safety, such as when demanding money or access to information.

Finally, staff who are working remotely in dangerous areas, or who are isolated away from other people, require the organisation to know their whereabouts via the use of global positioning systems, or to at least have access to emergency services or help when required through the use of Emergency Position-Indicating Radio Beacons. For example, this could include a staff member located in an area without cellular reception, whose car has malfunctioned, leaving them stranded away from a town and without access to basic amenities such as food or water.

Management interviews suggest that external security does not feature strongly as a priority in management’s thinking, with greater concern expressed in relation to protection of staff from internal security threats, particularly in terms of breaching legal and regulatory conditions such as previously mentioned. However, one third of all survey respondents believed that the introduction of personal workplace technologies was done for their own safety, and this could incorporate consideration of both physical and professional safety in the context of the internal and external threats described previously.

5.3.3. Operational HR Management

No-one on the management team indicated any interest in knowing the whereabouts of staff during working hours, but claimed to be more concerned with the monitoring of activities, conduct, and performance in a manner that served to minimise the threat of legal liability. In contrast, 38% of employees held the belief that personal workplace technologies were introduced in order to monitor their day to day whereabouts, while 22% believed it was to monitor their actual conduct - only 8% believed that technology could assist with positive recognition of team and personal achievements.
It is arguably reasonable to accept these survey comments at face value, for there are no obvious grounds to suppose that staff may wish to mislead or obscure their reasoning. However, it is clearly possible that management may have taken a generously optimistic view of this question, or perhaps, for any number of reasons, wished to avoid the offering of responses that could be viewed in a less favourable light. They may have also felt legally obliged to suppress some of the actual reasons for adopting personal workplace technologies, such as the possible monitoring of staff in a covert manner, for fear of a legal response if that information were to be made public. In an environment where management readily admit to difficulty in attracting and retaining staff, due to geographical constraints, any such response could prove fatal to an already difficult working situation.

In summary then, the stated intention of management was to enhance the working environment whilst minimising legal liability; whereas a significant proportion of staff view certain personal workplace technologies as tools used to monitor not only their conduct, but also their whereabouts. There is an interesting contrast between perception and reality here, as the technologies that can produce immediate monitoring include swipe cards, global positioning systems, and closed circuit television, all of which are largely absent in the Rural Services environment. In contrast, many of the technologies known to be in existence - such as the monitoring and reporting of internet activity, use of voicemail and cell phones - do not have the capabilities to provide immediate monitoring. These technologies require conscious effort on behalf of management to firstly monitor and record, via telephone logs and internet usage printouts, before viewing and acting upon these reports as the data demand.

5.3.4 Extent Main Reasons Were Achieved

Though the previous section may suggest that there is a less than perfect coincidence of opinion between management and staff on the issue of personal workplace technologies, the direct survey questioning of this issue reveals a different picture. In this respect, three quarters of staff believed that the objectives of personal workplace technologies were being successfully achieved, with 14% of respondents
stating that these objectives were being achieved in their entirety, and a further 64% stating that they had been mostly achieved. The remainder of staff believed that objectives had been only partly achieved or not at all.

Those respondents who entirely agreed with this question tended to emphasise the contribution that technology has made in assisting them to carry out their job roles with greater speed, and to also improve their capability to comply with legal and regulatory conditions. For those who mostly agreed with the proposition, there was a moderating concern that technologies were under-utilised or were not being used consistently, and this contention effectively mirrors a managerial opinion that high maintenance costs are accrued due to the running of a legacy system side by side with new technologies.

Respondents who disagreed appeared to believe that new technologies were being implemented inconsistently, and not made available to all staff members, with a resulting inconvenience to many in order to benefit a few. This may in fact be a reasonable criticism, as management interviews did acknowledge that certain employees have access to technologies that other employees do not. Some respondents were also disappointed with the low level of performance improvements they perceived as a result of technology implementation, observing that some technologies are outdated. As such, these respondents felt that the same results could in fact be achieved via manual methods, with less frustration and loss of productivity.

Overall, there was a broad and general consensus between management and staff as to the main reasons why personal workplace technologies were introduced. Nevertheless, some employees hold a perception that certain technologies are being used to monitor them, and it is arguably possible that this perception may translate into a management belief, expressed during interview, that staff can be resistant to change and see technology as a negative aspect of their employment rather than a positive.
This again resonates with McGregor’s ideas, where Theory X implies that if management feels that staff are change resistant, then so shall they be. However, if management were to consciously adopt a Theory Y perspective, they may then have been able to foresee a resistance to change and attempted to amend it. A Theory Y perspective also implies that management would have been both willing and capable, when implementing the necessary changes, to get the best possible benefits out of personal workplace technologies – on the basis that this approach presents a positive message to staff and thus reduces or even eliminates resistance to change. Thus, even although software limitations may well restrict staff effectiveness, many contentious issues could have been largely resolved with further training, as any lack of training in using/working with a particular personal workplace technology will clearly hinder staff from seeing its benefits and how to derive maximum productivity from them.

In this respect, 60% of survey respondents believe that formal training initiatives would ensure a greater level of shared understanding of personal workplace technologies. However, just 51% of employees believe that there have been formal training initiatives undertaken in order to ensure full understanding of personal workplace technologies, and how these technologies will impact them and their job role. In addition, though the management interviews suggested that there had been a high level of consultation with staff when introducing new technologies, the survey respondents appear to differ quite sharply. Indeed, 26% of respondents felt that there was no consultation at all, while a further 19% felt that the consultation levels were inadequate.

This body of opinion closely coincides with the dissatisfaction noted by employees in regard to the lack of training, and with negative perceptions of personal workplace technologies. In particular, those employees who were able to identify both positive and negative impacts of personal technologies tended to feel that supplementary training initiatives were necessary. Interestingly, though there was considerable support for the idea that both consultation and training had been lacking, 98.4% of respondents felt that their level of competence with these technologies was adequate or better.
Such a positive response in terms of the level of staff confidence in the use of personal workplace technologies, when compared to a perceived need for further training, suggests a level of miscommunication that may indicate an underlying Theory X culture in the organisation. If this is indeed the case, it is at least possible that both willingness and capability, in respect of attitudes to personal workplace technologies, are absent. Thus, a level of distrust in the workplace may be assumed – a management belief that, if employees cannot be monitored and seem, then they are probably not working. In these circumstances, initial indications of an encouraging relationship between staff and management may in fact be less positive than first presented.

This is supported by comments made during the management interviews, in that staff are seen as somewhat reluctant to discuss any concerns they may have with their manager, preferring to converse amongst themselves. In contrast, the survey results reveal that 86% of employees say they are confident in raising their concerns in regards to personal workplace technologies with their manager, and that any potentially damaging issues can be attended to before they escalate into declining morale, absenteeism, or eventual staff turnover. There is an apparent anomaly here that is investigated further in the following section.

5.4 Advantages and Disadvantages of Personal Workplace Technologies

The literature review included in this thesis suggests that there may well be a predictable range of issues that can generate either positive or negative outcomes as a result of introducing new personal workplace technologies. In this respect, it is vital to remember that any single issue is capable of attracting both positive and negative comments, based on individual beliefs, personal perceptions and placement within the organisation in terms of management or staff roles. This phenomenon is particularly apparent in the following sections, where research results are discussed under four categories – productivity, health and well being, organisational culture, and other impacts.
5.4.1 Impact on Productivity

The chief benefit arising from the personal workplace technologies currently implemented at Rural Services is a widely agreed increase in productivity, efficiency, and job effectiveness. All three managers noted that this had occurred to their satisfaction, and 80% of staff agreed to this positive impact on productivity. This outcome closely coincided with a perceived improvement in day to day routine, noted by 76% of survey respondents.

This is a very positive sign for Rural Services as, not only had management hoped for a noticeable increase in productivity, but this ambition was understood by staff as the main reason for the introduction of personal workplace technologies. Thus, both management and the staff agree that productivity, and efficiency and effectiveness in conducting workplace duties, has substantially increased. This can perhaps be attributed to a number of positive outcomes, such as more and better communication within the workforce, and also between employees and clients, and the option for many staff to work flexible hours from home.

However, even though the chief benefit was noted to be a positive impact on productivity, this aspect of performance also held negative connotations. Although just 55 respondents chose to answer this question, one third of these respondents challenged the idea that personal workplace technologies necessarily increase productivity. Six of the contributors to this question admitted that technology had actually decreased the speed with which they could accomplish their job, and also noted it had reduced their overall efficiency and effectiveness. The clear implication from these respondents was that, where employees were not provided with enough time to learn a particular technology, or had not been included in the decision making process, it became much more likely that productivity would decrease.

Pockets of productivity decline were acknowledged in the management interviews, though the cited reasons for this were different. According to management, where productivity and job effectiveness was hindered rather than enhanced, this was primarily because of resistance to change by staff and lack of knowledge in the use of technology. This in turn led to higher maintenance costs, in
cases where both the new technology and a legacy system were kept running for the transition phase.

Overall, this appears to be a case of “it is someone else’s fault”, with staff blaming management through a perception that they had not been included in the initiation of new technology, nor given any training, yet still feeling that they were unable to communicate their concerns to management. On the other hand, management appears to blame staff for unfairly resisting the technology, and for not discussing their concerns with management. According to the McGregor philosophy, this seems to indicate a shift towards Theory X, with a general sense of mistrust causing a breakdown in communication and an incomplete meeting of both managerial and staff needs.

5.4.2 Impact on Health and Wellbeing

In response to questions related to whether individual health and/or personal wellbeing has been positively or negatively impacted by the implemented workplace technologies, management interviews indicate high levels of satisfaction. Managers observed that increases in the quantity and quality of communication channels have allowed for more effective communication with both staff and clients, whilst seeing a reduction in stress amongst both themselves and their staff. However, one manager did observe that being able to work from home can sometimes lead to ‘burn-out’, and that it can be more difficult to manage one’s time when faced with a working environment other than the office.

A majority (60%) of survey respondents agreed that health and wellbeing impacts were positive, with the most frequently mentioned impact being a noticeable decrease in the stress levels that were present prior to the introduction of personal workplace technologies. This was believed due to an improved efficiency and speed in conducting job duties, and the minimisation of excess paperwork – for these people, a technologically enabled workplace was clearly preferable to a manual workplace, and this was reflected in their own self-assessments of stress.
However, some staff took an entirely opposite view, stating that they felt higher levels of stress as a result of having to learn a new technology and its impact on business processes. This has made some staff feel more restricted in their day to day activities, due to the introduction of such practices as the monitoring conducted on their email and internet usage. Specific physical health concerns were also raised by some staff members, such as the potential for repetitive strain injury and back, eye, shoulder and neck strain that comes from increased usage of personal workplace technologies. Due to a perceived reduction in having to walk around in order to retrieve files or to talk to other staff members, a lack of physical activity and decreased face to face communication were also noted as negative aspects.

Application of Analysis of Variance (ANOVA) testing on the impact of age and gender on the perceived (overall positive or negative) impacts of technologies proved to be inconclusive, with no significant result obtained. However, a similar test of relationship, between the years an employee had worked at the organization and the overall perceived impacts a technology, proved significant, where $F = 1.858$, and $p < 0.05$. This means that the length of employment impacts the overall attitude of staff towards personal workplace technologies, with older staff being more resistant to change. This may in turn be reflected in a finding that older staff may be more likely to find the new technologies to be more of a hindrance than a positive aspect.

These staff (those who have been employed for eight years and more) do tend to believe that the overall quality of organisational culture and climate has declined with the implementation of personal workplace technologies. Interestingly though, the technology has not made this group of employees any more consciously aware of what they do within working hours, suggesting that even though they are negatively impacted at times, it does not stop them from ‘getting on with the job’. This level of maturity, which may well reflect a comparable level of work experience, also generates a high degree of comfort in approaching managers with any concerns they may have in regards to the personal workplace technologies.

Findings from this part of the research suggest that, although staff health and wellbeing was predominantly positively impacted, there are still some issues concerning the adequacy of communication between management and employees.
It seems reasonable to suggest that, if staff were fully and completely consulted prior to the implementation of new technologies, management could achieve a decrease in the negative impacts staff are currently experiencing. In the absence of such consultation, staff may retaliate by seeking to prove that the organisation has breached legal compliance – for example, by not meeting the health and safety at work regulations in respect of adequate ergonomic standards. McGregor’s Theory X organisation would typically display little interest in minimising negative health effects, potentially causing a loss of morale, absenteeism and redundancy; while a Theory Y organisation would continuously strive to meet the health needs of staff, whilst coincidentally minimising any legal repercussions that might arise.

5.4.3 Impact on Interpersonal Climate and Organisational Culture

A rather more variable picture emerged from consideration of climate and culture impacts. Though management clearly believes that overall morale has improved, they acknowledge that some staff are unhappy with the introduction of personal workplace technologies. This is especially prevalent where some employees have been given more privileges with, and/or access to, technologies than others, thus leading to a perceived loss of personal status. In response, management claims to be committed to keeping track of such dissent via the use of regular staff attitude surveys, and by including relevant staff in the decision making process when it comes to introducing new technologies.

However, though management believe they are including staff as much as they can in the process of implementing new technologies, its definition of what is acceptable and what is required may be different to what some staff believe to be the case. This is reflected in the attitudes of some staff, who have either expressed discontent, requested further training, or prefer to communicate their problems to workmates rather than to management. This is reflected in the current staff survey outcomes, in which 58% of respondents believe that implementation of personal workplace technologies has had a positive impact on workplace climate; 24% disagree, believing that there has been a negative impact; and the remaining 18% have managed to see elements of both positive and negative impact in this regard.
However, earlier direct questions about impacts on staff morale revealed a contrary view, with just 16% of respondents believing that there had been a positive change in both individual and team morale. This positive response was offset by a much higher level of negative comment, with 27% of respondents stating that individual morale was negatively impacted and 19% who also saw a negative impact on team morale.

A contradictory pattern of response was also evident in questions about the impact of technology on levels of trust and levels of loyalty. Though 24% of staff believe that levels of trust were increased through the introduction of personal workplace technologies, 33% of respondents believe the opposite. In this respect, the positive responses cited a belief that personal workplace technologies allowed them greater access to shared information, and that the employer respected and trusted them; while the primary cause of negative response appeared to be a feeling that electronic monitoring was a sign they were not really trusted by their employer. This feeling does not apparently translate into a loss of loyalty to the employer, as the 12% of negative comments were slightly outweighed by the 15% of respondents who made positive observations.

Overall, the organisational culture appears to be undergoing a perceptible shift, from a conservative management style to a more rewarding and participative pattern of working, though this is conceded by management to be something of a work in progress, due to a need to ensure that the desired amendment in leadership style originates from the top down. As such, though management is clearly intent on moving the organisation from Theory X to Theory Y, there are still a number of outstanding issues that require attention – notably the reduction of negative impacts on staff health, morale and productivity.

At present, management believes that most of their staff are generally happier as a result of the introduction of personal workplace technologies, though it is conceded that a minority of staff are somewhat disgruntled or unhappy. From a staff perspective, the organisational climate and culture is generally seen as improved but there is a significant minority opinion that some personal and team morale has declined. This apparent contradiction may arguably interpreted as a cause and effect
continuation of how these staff felt prior to the new technologies – those who were already content with the workplace may have felt that morale had improved, whilst those who were already unhappy may have experienced an opposite reaction.

5.4.4 Other Impacts

Both management and staff were pleased with the introduction of virtual private networks, designed to allow staff greater freedom through the ability to work from home, and with flexible hours when they were feeling unwell. This may have been reflected amongst the views of those 43% of survey respondents who felt that working relationships at Rural Services had improved since the introduction of personal workplace technologies, though it would be unwise to overlook the 26% of respondents who felt that working relationships had deteriorated. It is of course possible that perceived deterioration in relationships may be a direct result of a reduced level of face-to-face communication amongst staff who had become accustomed to that form of interaction.

One point made during the management interviews was that difficulties had sometimes arisen in being able to distinguish the actions of those who were misusing organisational resources from those involved in genuine work-related activities. For example, one survey respondent stated that they regularly required access to particular web sites in order to conduct their duties but, due to the implementation of internet monitoring and blocking, they were no longer able to do so. This impacted their productivity, as they now had to manually research the information required, leaving them frustrated and ineffective in their job.

As a result of these difficulties, employees may sometimes have felt that they were unfairly prevented from performing legitimate components of their job description, including the conduct of research and meeting task objectives. In short, the level of monitoring used had made them feel uncomfortable, and they felt it was unnecessary. Taking a contrary view, management attributes the need for such behaviours to a need to maintain legal compliance in terms of government
regulation, and a need to minimise organisational exposure to the threat of legal liability.

5.5 Comparative Opinion and Organisational Effectiveness

In this section, it is suggested that the overall pattern of agreement and disagreement between management and staff suggests that the organisation is currently tending towards a Theory X type of orientation. In the following sections, this pattern is examined, in an effort to identify the core reasons for this positioning, and a number of priority issues and solutions have been suggested in order to help induce a shift from a Theory X to a Theory Y organisation.

5.5.1 Points of Agreement

The main points of agreement included a predominant consensus as to the types of personal workplace technologies in existence, as well as a broad recognition and acceptance of policies and procedures governing the use of these technologies. Both management and the staff also agree that personal workplace technologies were included in order to increase productivity, and that the monitoring of staff conduct was introduced in order to meet internal security concerns, ensure the safety of staff, and to address issues of legal compliance and legal liability.

Furthermore, both parties agree that there has been an overall improvement in productivity, efficiency and effectiveness in job performance, with an enhanced ability to deliver better and faster services to clients. Communication between staff, and between staff and clients, has improved, offering more communication channel options in addition to purely face to face contact. The health and wellbeing of staff has also improved, via the reduction of stress attributed to increased efficiency and speed in carrying out job duties, and the minimisation of excess paperwork after the implementation of automated systems.
However, the general consensus between management and staff was that the existing personal workplace technologies were under utilised, resulting in high maintenance costs where the previous legacy system is running alongside the newly implemented technology. On a further negative note, there was a tendency for both staff and management to blame one another for any discontent, such as the divergent views on resistance to change and increased maintenance costs that accompany the introduction of new technologies.

Nevertheless, morale is agreed to have improved, whilst acknowledging pockets of staff discontent and unhappiness. This was attributed to the allowing of access to certain technologies to a select number of staff, a move that was not applied across the entire team, and this caused some decline in individual and team morale. Also, though the introduction of Virtual Private Networks allowed for a greater working freedom and flexible working hours, there were difficulties in distinguishing between genuine business need and wasting company resources. This was a notable contributor to increased levels of staff discontent, a decrease in productivity as some tasks had to be conducted manually, and an overall increase in stress levels throughout the organisation.

5.5.2 Points of Difference

There were also a number of key points of difference between management and staff opinions, notably the perception of staff that three particular technologies – CCTV, swipe cards, and GPS – are currently in use within the workplace. In each of these cases, management deny that this is in fact the case, though this conflict was previously rationalised as being due to differences in understanding of what each technology is capable of, and what it is used for.

Though management perceives that currently existing formal policies and procedures are essentially complete, some staff would have appreciated an amendment in the policies to include clauses providing for the involvement of and support for impacted users, as well as offering more effective training in the new technologies. For these staff, policies should include fewer restrictions on the use of
personal workplace technologies, and should provide for decreased severity of punishment when these rules have been breached.

Differing perspectives were revealed in terms of the reasoning behind technology introduction, as management saw the main benefits of certain technologies, such as virtual private networks, to lie with the attraction and retention of staff through the availability of job flexibility. In addition, management was also interested in monitoring the conduct of employees, whereas some staff were under the impression that these technologies were there to monitor their whereabouts. Staff also placed greater emphasis upon external concerns, in contrast to management’s focus on internal concerns related to a need for legal compliance as a defence to legal liability risks for the organisation.

Key points of difference when it comes to health and wellbeing included the management perspective of “working from home pitfalls”, such as the potential for ‘burn-out’ if the employees’ time management skills are not good enough, or if they are unable to eliminate working after hours. Staff, on the other hand, regularly emphasised the issue of stress, and its inevitable increase when presented with the need to learn a new technology in a short period of time. The decreased face to face communication, and increase in physical health concerns, were also mentioned as a disadvantage, now that staff no longer have to physically access files on the other side of the building, nor communicate directly with other staff members, but rather exchange their views electronically or by the telephone. Some employees feel that this practice is responsible for a deterioration in working relationships between themselves and other staff members.

In this regard, there was also a difference of opinion related to the quality of interpersonal climate and organisation culture, despite management’s insistence that this had improved overall. Though management believe that they have a clear view of staff attitudes through regular survey processes, and that relevant staff are deliberately included in the decision-making process, employees tend to disagree.
Overall, there was a low-level acknowledgment that an improvement in morale had occurred, but this was accompanied by a variable verdict on the level of trust between management and staff – particularly where an increased access to shared information is believed to be accompanied by a parallel increase in monitoring and restrictions.

Finally, staff tend to believe that technology has generated a comparatively low level of performance improvement, in comparison to the high level of inconvenience caused, and that this has been accelerated by an observable decrease in productivity due to the lack of time made available to learn to use the new technology. Staff do claim to be comfortable in voicing their concerns to management in regard to these issues, though management do not appear to have a similar opinion – for the managers interviewed, there is a feeling that staff do not communicate with them, but rather choose to discuss these issues amongst themselves. This, in combination with a perceived lack of training and decision-making input, appears to have produced a sense of mistrust between staff and management, whilst simultaneously showing the signs of an imminent communication breakdown.

### 5.5.3 Key Points of Agreement and Difference

<table>
<thead>
<tr>
<th>Points of Agreement and Points of Difference</th>
<th>Issue</th>
<th>Points of Agreement</th>
<th>Points of Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Points of Agreement and Points of Difference</td>
<td>Formal Policies and Procedures</td>
<td>Policies exist, are readily available, have been read and understood.</td>
<td>Staff: Policies should contain clauses on involvement and support for impacted users, and offer training. Policies should have fewer restrictions on the use of technologies, and lesser punishments when breached.</td>
</tr>
</tbody>
</table>
| Reasons for Introducing Personal Workplace Technologies | Increased productivity, internal security concerns, ensuring safety of staff, ensuring legal compliance and minimising liability, monitoring conduct. | **Management:** Attracting and retaining staff, job flexibility and ability to work from home, monitoring of activities and performance.  
**Staff:** Greater focus placed on external security concerns rather than internal, monitoring day to day whereabouts, positive recognition of team and personal achievements. |
|---|---|---|
| Extent Main Reasons were Achieved | Consensus that technologies were under-utilised, leading to the accrual of high maintenance costs. | **Management:** Staff do not communicate their concerns.  
**Staff:** Staff are comfortable in voicing their concerns with management, inconsistent distribution of technologies, lack of training and decision-making input, technologies used to monitor staff, low level of improvements vs. inconvenience. |
| Impact on Staff Productivity and Effectiveness | Overall improvement in productivity, efficiency and effectiveness in conducting duties on a day to day basis, Ability to offer improved services to clients, more effective communication within the organisation and to clients, both staff and management blame one another. | **Staff:** Decreased productivity due to lack of time to learn to use the new technology, not included in the decision-making process, at times producing a sense of mistrust and communication breakdown. |
| Impact on Health and Wellbeing | Overall improvement in health and wellbeing, decrease in stress due to increase in efficiency and speed in carrying out job duties, minimisation of excess paperwork. | **Management:** Working from home can lead to 'burn out' if time management is sub par.  
**Staff:** Increase in stress from learning a new technology in a short period of time, decreased face to face communication, increase in physical health concerns. |
| Impact on Interpersonal Climate and Organisational Culture | Overall morale has improved, with some staff discontent present, acknowledgment of certain staff gaining access to technologies over others, partial shift from an X organisation to a Y as per McGregor’s Theories but requires further work to complete the shift. | **Management:** Monitoring staff morale via staff attitude surveys, including relevant staff in the decision-making process.  
**Staff:** Do not feel included in the decision-making process, request further training, low acknowledgment of improvement in morale, decrease in trust where |
Other Impacts | Introduction of Virtual Private Networks allows greater working freedom and flexible working hours. Difficulties in distinguishing between genuine business needs and wasting resources leads to discontent, decrease in productivity and increased stress. |
---|---
Management: | Requirement for monitoring activities is to aid legal compliance and minimising organisational exposure to legal liability |
Staff: | Deterioration in working relationships due to reduced face to face communication. |

Table 11 – Points of Difference and Points of Agreement between Management and Staff

5.5.4 Priority Issues and Suggested Low Level Solutions

Based upon the key points of agreement and disagreement between management and staff, the top priority issues that require addressing include the loss of both individual and team morale, an increase in stress and overall work dissatisfaction, as well as lowered productivity and health and wellbeing. A range of suggested low level responses is suggested below, as a prelude to the recommendations offered in Chapter Six.

1. Work with key staff members (i.e. head of department or team) through issues around technology usage restrictions that limit productivity
2. Establish an environment of trust, where staff feel able to communicate their concerns to management in the belief that they will be genuinely considered
3. Increase the extent of consultation with staff whilst implementing new technologies
4. Increase the amount of training that is conducted for all impacted staff members
5. Make more generous time allowances for learning a new technology and adapting it to the organisational structure
6. Carefully monitor staff morale via surveys tailored to the newly implemented technology
7. When monitoring staff and their conduct, ensure staff are aware of legal compliance and public liability justifications that underpin these measures
8. Encourage staff to continue communicating via face to face wherever possible

5.6 Strengths and Limitations of the Research

Key strengths of this research included a very satisfactory survey response rate, where almost 50% of the entire organisation participated. This contributed to ensuring that the data were not over-extrapolated, and thus unlikely to contain serious statistical error. The research was also based on a balance of qualitative and quantitative data collection methods and analysis, allowing for the tailoring of data collection based on the strengths that each paradigm offers, and contributing to a set of findings that incorporates both objective and subjective elements.

The primary limitations of this research are related to the potential for geographical, organisational and data collection bias, as shown in the examples below:

- Geographical Bias: This study was conducted in one specific New Zealand district. This district is not representative of the whole country, or of the world, and thus the results will be limited or restricted to the case study environment.

- Organisational Bias: The choice of organisation may challenge the validity of the research findings. The organisation chosen has its own unique culture that may not reflect the exact needs and values of other organisations. Each industry contains its own culture and values, and different industries face different levels and intensity of personal workplace technologies.

- Organisational Bias 2: The organisation used for the case study was based in a remote rural area that requires a different approach to staff recruitment and retention to that used by an organisation in the city. Thus, the results of the study will not be entirely applicable to a city-based organisation based in the city, nor to one where the number of staff is in excess of 200 employees.
- Organisational Bias 3: The case study organisation is located across a number of offices, which may or may not employ the same personal workplace technologies, implementation strategies, and training practices. Also, a number of staff routinely work from home. Ideally, future case study organisations should occupy one central location, in order for researchers to grasp a clear view of the varying perceptions occurring within the one locale.

- Data Bias 1: The study is limited by using just one organisation. Conducting a study with more than one case study organisation provides data that are more extensive, significant, valid and reliable than a single case study organisation (Yin, 2003)

- Data Bias 2: The study includes qualitative data collection methods in which the resulting analysis and interpretation of data can be subjective and arguable.
Chapter Six - Conclusions and Recommendations

This chapter provides the final conclusions that have been reached on the basis of analysis and discussion of the results gathered via management interviews and staff surveys. Based on this analysis, the performance of Rural Services Limited in relation to personal workplace technologies is evaluated in the light of Douglas McGregor’s Theory X and Theory Y (1960).

The recommendations that follow, though specific to this particular case study environment, may provide useful guidance for any organisation wishing to pursue the use of personal workplace technologies, whilst avoiding the potential disadvantages that have accompanied the introduction of those technologies in this case.

6.1 Conclusions

The original purpose of this research was to evaluate the positive and negative outcomes arising from the implementation of personal workplace technologies in an organisation, and to establish the points of agreement and disagreement between management and employees in respect of these technologies. The main reasons that Rural Services Limited chose to implement personal workplace technologies were based on a need to increase productivity, job effectiveness and efficiency, as well as maintain compliance with legislative obligations and minimise the risk of legal liability action. Both management and staff were largely in agreement over these reasons, though their opinions did tend to diverge in subsequent discussion. This divergence was especially apparent where employees believed certain technologies were introduced in order to monitor their activities and behaviour.

Rural Services Limited employs a wide range of personal workplace technologies that have the potential to monitor employees, and their catalogue includes a high penetration of personal computers, the Internet and Intranet, as well as electronic mail. Swipe cards and closed circuit television has yet to be introduced,
though management is planning to implement further technologies in future, both for safety purposes and to increase productivity. These technologies may include global positioning systems for employees working in the field, as well as wireless ‘hot spots’ within the organisation’s headquarters.

Though both management and staff noted a number of negative impacts on health and wellbeing, productivity, and organisation culture, the positive impacts were, overall, the predominant feature. As such, it is reasonable to conclude that Rural Services Limited is essentially on the right track in its methods in introducing personal technologies to the workplace. Though not all concerns have been successfully addressed - some staff feel restricted by what they view as a means to monitor their day to day activities and internet behaviour, and others feel that the benefits of technology have been bestowed upon ‘the privileged few’ at the expense of the majority – there has been an increase in the effectiveness and efficiency of staff in their job duties, and staff morale remains generally high.

Where instances of discontent have arisen, they usually appear to be due to a perceived lack of training in the use of a particular technology, as well as lack of interaction between management and impacted staff when it comes to introducing a technology. Though management appears to understand these issues, there is a need for continuous improvement in these areas in order to develop and refine processes to minimise the negative impacts and harness the positive.

This study has provided a number of insights into the ways in which personal workplace technologies with the ability to monitor employees impact both the employer and the employee, and how these stakeholders’ perceptions differ on the basis of the research questions posed in this thesis. However, as has been noted in the previous chapter, further research is required into the characteristics of technology introduction in settings that reflect different geographies, industries, structures, scope and size.
6.2 Recommendations

Overall, the results of this research were highly positive for Rural Services Limited, for it was clear that the opinions of managers were very often coincident with those held by employees. The core recommendations offered below reflect that positive outcome, and allow the thesis to conclude with a final focus on that organisation’s positioning on McGregor’s Theory X and Theory Y continuum.

The three key recommendations include the offering of further training initiatives, the inclusion of impacted employees when deciding/implementing a personal workplace technology, and the minimisation of staff monitoring where appropriate and possible.

6.2.1 Training Initiatives

It is evident that employees feel the need for further training when new personal workplace technologies are being introduced. The current training provisions are perceived as inadequate, and this results in staff feeling less productive, finding it difficult to keep up in their duties, and increasing anxiety about the new and unfamiliar technologies.

The provision of adequate training would increase productivity and morale, and should be offered to any staff member who may be impacted by the implementation of technology - such as new software packages or upgrade telephone systems.

6.2.2 Introducing Technologies and Impacted Staff

When new technologies are about to be introduced, it is vital to include the impacted staff members in a process of consultation that addresses what the technology will mean for them in terms of their job role. As such it is vital that staff be offered the opportunity to voice their concerns, opinions or alternative solutions.
If it not feasible to include all employees in this process, as in situation where a personal workplace technology will impact a large number of employees, a representative sample of staff should be appointed to represent the interests of their peers. Including employees in the decision making process increases staff morale and overall job satisfaction by reinforcing an organisational reputation for transparency and inclusiveness.

6.2.3 Monitoring

Employees have responded to the current research with a number of negative comments related to their discontent with the amount and type of monitoring that occurs at Rural Services, especially concerning their Internet usage.

The necessity to maintain a certain level of behavioural monitoring is recognised by the researcher and, it is suggested, by the majority of staff. However it is recommended that Rural Services re-evaluate the nature of restrictions placed upon employees whilst using the Internet, and how it affects their job duties – do these restrictions unduly interfere with their legitimate job performance and do they have an undue impact on their morale. This is not meant to imply that management should remove monitoring altogether; rather that the monitoring practices that do exist should contribute more to performance than they detract from it.

6.2.4 McGregor’s Theory X and Y Continuum

In the researcher’s opinion, Rural Services Limited has been significantly impacted by the adoption of personal workplace technologies, in terms of changes in the organisation culture from a conservative leadership style and working environment to one that is more flexible, trusting and rewarding. This change can be represented as a significant shift from a previous Theory X management style to a future that is much more closely aligned to Theory Y.

Where a Theory X management style is authoritarian, requiring coercion or monitoring in order to ensure productivity, a Theory Y management style reflects
participation and transparency. A Theory X management style does not believe in including staff in the decision process related to personal workplace technologies, and would be likely to openly use these technologies for monitoring purposes; the Theory Y workplace is much more likely to ensure that impacted staff are included throughout the process, and that technology is not used for subversive purposes.

As Rural Services Limited continues with its shift from one management style to the other, closer observation of this process should appease the fears of employees who believe they are being constantly monitored by management. In the end, those technologies are there to make their individual jobs easier, not more difficult.
List of References


Appendix A – Management Interview Questions

1. What types of personal workplace technology (PWT) exist in your organisation?
2. For what reasons were they introduced?
3. Is there a formally documented policy on the use of PWT?
4. Do you feel your workplace has become more effective since the introduction of PWT?
5. Do you feel you have become personally more effective since the introduction of PWT?
6. How has the use of PWT impacted on staff morale?
7. How has the use of PWT impacted the organisational culture?
8. What are the main benefits arising from the use of PWT in your workplace?
9. What, if any, are the main shortcomings or drawbacks arising from the use of PWT in your workplace?
10. Overall, do you believe your workplace has gained advantage or suffered disadvantage from the introduction of PWT?
Appendix B – Employee Questionnaire

1. A Quick Introduction

A research survey has been sent to you in order to assess and analyse the various types of personal technologies available within your organisation, the identification of the initial rationale for the introduction of these technologies, the identification of the impact of these technologies on organisational productivity and so forth.

Before you begin, please note:
- This survey has been authorised by Mr. “Tom”

- Completion of the survey is entirely voluntary and should take approx. 15 minutes

- All data collected is confidential to the survey design team, and no features of any individual response that could assist in identifying its author will be discussed with the employer or any third party

- The survey has been designed for on-line electronic completion. If any participants prefer to avoid responding electronically, they may contact the survey designer at the address shown below to request a hard copy version of the survey - nr1_researcher@yahoo.com

Thank you for your time, your responses are very much appreciated
2. Part One: About Yourself

Please note, all questions marked with an * require a response. If a response is not provided, you will not be able to continue with the survey.

* 1. What is your gender?
   - Male
   - Female

* 2. What is your age group?
   - 16-25
   - 26-35
   - 36-45
   - 46-55
   - 56 and above
   - Prefer not to disclose

* 3. For how many years have you worked at this organisation?
   - Up to a year
   - 1-3 years
   - 4-7 years
   - 8 years and above

4. Which department of the organisation do you currently work for? (I.T, H.R, Accounts, Help Desk etc)
5. For each of the personal technologies shown below, indicate whether you are aware of that technology being used anywhere in your organisation.

<table>
<thead>
<tr>
<th>Technology</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Issue of 'smart' ID cards or other electronically enabled personal identifiers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Access to your own DDI with voice mail messaging</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Access to your own individual email address</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Access via a Virtual Private Network</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Individual access to the world-wide web (Internet)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Individual access to an internal web network (intranet)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Individual access to an employer-funded cellular telephone</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Individual access to GPS-equipped vehicles</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Installation of CCTV or similar recording devices</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Installation of an Internet Security and Acceleration Server over the Network</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other Personal Technologies (please specify)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

6. For each of the personal technologies shown below, indicate whether that technology is used in your own current job role.

<table>
<thead>
<tr>
<th>Technology</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
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<tr>
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<td>Individual access to an employer-funded cellular telephone</td>
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</tr>
<tr>
<td>Individual access to GPS-equipped vehicles</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Other Personal Technologies (please specify)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**7.** What do you think were the main reasons for the organisation choosing to introduce these technologies into the workplace? Tick and/or add any that apply

- [ ] Legal Liability (protection of organisation interests)
- [ ] Legal Compliance
- [ ] Performance Reviews
- [ ] Enhancement of Staff Productivity
- [ ] Measure of Areas for Staff Task Improvement
- [ ] Internal Security Concerns
- [ ] External Security Concerns
- [ ] Safety of Staff
- [ ] Awareness of Staff Whereabouts
- [ ] Awareness of Staff Conduct within working hours
- [ ] Individual Recognition for Accomplishments
- [ ] Team/Group Recognition for Accomplishments
- [ ] Other Reasons (please specify)

**8.** To what extent do you think that the main reasons for these technologies are currently being achieved?

<table>
<thead>
<tr>
<th>Achievement of Main Reasons for Personal Workplace Technologies</th>
<th>Not Achieved</th>
<th>Partially Achieved</th>
<th>Mostly Achieved</th>
<th>Achieved</th>
</tr>
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</tbody>
</table>

**9.** Please respond as to your reasoning behind your response for question 8

- [ ]

**10.** What, if any, are the most noticeable benefits from the currently implemented personal workplace technologies? Tick and/or add any that apply

- [ ] Impact on Productivity
- [ ] Impact on Health and Well Being
- [ ] Impact on Working Relationships
- [ ] Impact on Trust
- [ ] Impact on Loyalty
- [ ] Impact on Individual Morale
- [ ] Impact on Team Morale
- [ ] Impact on Day to Day Routine
- [ ] Other (please specify)
* 11. What, if any, are the most noticeable problems from the currently implemented personal workplace technologies? Tick and/or add any that apply

- Impact on Productivity
- Impact on Health and Well Being
- Impact on Working Relationships
- Impact on Trust
- Impact on Loyalty
- Impact on Individual Morale
- Impact on Team Morale
- Impact on Day to Day Routine
- Other (please specify)

* 12. Are you aware of any employer-imposed limitations on your use of each of the technologies shown below? Tick all that apply

- Telephone usage (e.g. toll bars, call monitoring and recording etc.)
- Computing access in general (e.g. mandatory log-on and log-off, keyboard usage monitoring etc.)
- Your own electronic records (e.g. monitoring and review of your computer files, websites visited, web downloads etc.)
- Email access management (e.g. spam filters and blocking, monitoring and review of your messages etc.)
- Internet access management (e.g. filtering and blocking of websites such as Trade Me, You Tube and Facebook)
- Virtual Private Network access management
- Other (please specify)
4. Part Three: Employer Policies

Please note, all questions marked with an * require a response. If a response is not provided, you will not be able continue with the survey.

* 13. Has the organisation developed a formally documented policy on the use of personal workplace technologies?
   - Yes
   - No
   - Unsure/Not applicable

* 14. Is it readily available to you to read?
   - Yes
   - No
   - Not Applicable

* 15. Have you read it?
   - Yes
   - No
   - Not Applicable

* 16. Do you understand it?
   - Yes
   - No
   - Not Applicable

* 17. Does it fully explain the implications of personal workplace technologies as they relate to staff rights and responsibilities?
   - Yes
   - No
   - Not Applicable

* 18. In general, do you find the current policy on personal workplace technology to be fair and equitable on your current job role?
   - Yes
   - No
   - Other (please specify)
19. Have any formal training initiatives been undertaken to ensure shared understanding of personal workplace technologies and its impact on your working environment?
- Yes
- No
- Not Applicable

20. Would formal training initiatives undertaken to ensure shared understanding of personal workplace technologies be important to you?
- Yes
- No

21. Have any major enhancements to personal workplace technologies been introduced during the last three years? If so, what were they?
- Yes
- No
- Not Applicable

If Yes, please specify what

22. To what extent was an appropriate level of staff consultation conducted during the introductory phase of this technology?
- None
- Very Little
- Below Average
- Average
- Above Average
- Excellent

23. Is there any specific element of policy that you feel should be changed to any significant degree? If so, what?
- Yes
- No
- Not Applicable

If Yes, please specify what
5. Part Four: Technology and You

Please note, all questions marked with an * require a response. If a response is not provided, you will not be able continue with the survey.

* 24. How competent do you feel you are with the use of personal workplace technologies?
   - Novice
   - Adequate Competency
   - Highly Competent
   - Expert

* 25. Do you feel that the introduction of personal workplace technologies has positively impacted and/or negatively impacted your own personal productivity at work? Tick any that apply
   - Positive impact
   - Negative Impact

* 26. Please explain your reasoning behind your response to question 25

* 27. Do you feel that the introduction of personal workplace technologies has positively impacted and/or negatively impacted your own personal health and wellbeing? Tick any that apply
   - Positive impact
   - Negative impact

* 28. Please explain your reasoning behind your response to question 27

* 29. Do you feel that the introduction of personal workplace technologies positively impacted and/or negatively impacted the interpersonal climate or organisational culture at work? Tick any that apply
   - Positive impact
   - Negative impact

* 30. Please explain your reasoning behind your response to question 29
* 31. In general, does the existence of personal workplace technologies make you more consciously aware of what you do during working hours?
   - Yes
   - No

* 32. To what extent do you feel comfortable about discussing any concerns about personal workplace technologies with your manager?
   - Not Comfortable
   - Somewhat Comfortable
   - Comfortable
   - Very Comfortable
   - Depends on the Technology or the Concern (please specify)

* 33. Overall, do you believe that increasing incidence of personal workplace technology has a positive or a negative impact of your current workplace?
   - Negative impact
   - Positive impact
   - Other (please specify)

34. Are there any further comments about any aspect of this technology you wish to add?