NELSON MANDELA UNIVERSITY

A FRAMEWORK FOR MANAGING THE IMPACT OF INFORMATION COMMUNICATION TECHNOLOGY ON EMPLOYEE WELLBEING

By

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ABSTRACT

Employees who work with Information Communication Technology (hereafter referred to as ICT) face a risk in a rise of portable work. This in turn provides a means for employees to be connected to work, even when at home. Flexible work solutions and ability to work any hour of the week creates non-standard work schedules, which in turn can lead to a condition of work-a-holism. In most cases, this phenomena is driven by the belief that being constantly available to work demonstrates a devotion to one's career and employer. The higher demands placed on employees, are in most cases at the expense of employees' health, work-life balance and overall well-being.

The primary objective of this study is therefore to establish whether the use of ICT outside of normal working hours affects employee well-being, as measured in terms of work-life balance. The second objective of this study is to provide the Target Company within the automotive component supply industry located in Port Elizabeth, in the Republic of South Africa, with a framework for managing the impact of ICT on employee well-being. The research paper has been prompted by the Target Company having recently introduced flexible working solutions for its employees.

Research on the topic of alternative forms of work schedules, has shown flexible working arrangements gives employees more choice and control over where, when and by how much they work. Flexibility allows employees to actively shape their working conditions which helps them solve the demands of integrating personal life and work commitments. Whether management should encourage or permit the use of ICT amongst its employees to extend beyond normal working hours however remains unclear. In order to answer the research questions, this study has applied a quantitative, positivistic and deductive research based methodology. The approach applied within this study included conducting an extensive literature review on the effects of ICT use after hours on employee well-being. Thereafter using literature as a foundation, a measuring instrument was constructed in the form of an online questionnaire. The questionnaire was emailed to respondents to collect primary data, in order to measure the dependent and independent variables in terms of the hypothesised relationships. Testing of the variables followed, in order to establish whether the use of ICT use after hours negatively impacts employee well-being as

measured in terms of work-life balance and stress. Secondly, the study set out to establish whether flexible working conditions linked to ICT use after hours negatively impacts on employee work-life balance. Thirdly, the relationship between physiological aspects such as age, gender and ethnicity were interrogated to establish an employees' ability to adapt to changing work conditions, brought about as a direct result of ICT. Lastly, this study set out to establish which ICT tool (email, cellular phone, smartphone or other) has the highest impact on employee wellness.

The data collection process yielded a sample of 103 respondents in middle and senior management levels of the Target Company, with 97% being recipients of employer provided ICT tools. These respondents represented the employees who are most likely to be affected by the phenomena under investigation. The survey data was captured and analysed using descriptive statistical techniques. The interpretation revealed aspects which formed the basis for managerial recommendations in the form of a proposed framework to manage the impact of ICT on employee well-being.

The findings of the study found that the use of ICT outside of normal working hours has a negative influence on employee well-being as measured in terms of work-life balance and stress. The literature review findings were confirmed as supporting the statement that flexible working conditions linked to ICT use after hours having a positive influence on employee work-life balance. A further finding of the study was the confirmation of physiological aspects affects an employees' ability to adapt to changing working conditions, thereby having a negative influence on employee work-life balance. Lastly, to the question of which ICT tool has the biggest impact on well-being, it was found that differing ICT tools (email, cellular, smartphone, or other) do not have a negative influence on employee wellness.

These findings formed the basis for the recommendations in the form of a framework which has been proposed to manage the impact of ICT on employee well-being. The most pertinent aspect of the framework includes the employer communicating a well-defined ICT usage policy, which clearly outlines a standard operating procedure in relation to ICT use to all its employees. The findings furthermore propose that the employer should take the time to explain and train its employees as to what is

considered acceptable and non-acceptable use of ICT devices, especially in relation to after hour use and leave absences from work. To ensure employee well-being, employees should be encouraged to implement defined time blocks for when they are available for work and when they are not. This can be applied through the act of switching off their ICT devices, which constitutes a boundary work tactic as an action in order to prevent work-related interruptions in the private sphere.

While the employer can take described measures, it should also be noted that there is responsibility on the part of the employee to ensure personal wellness, including regular exercise, relaxation, and taking appropriate breaks when necessary. Moreover, employees can apply work and life boundary management techniques through the selective use of devices. By not applying automatic work email updates on ICT devices such as smart phones is yet another boundary management technique which can be utilised by employees.

There are a range of practical suggestions which are proposed as a method to minimize the risk of ICT use on employee well-being within this research document. The above proposals have only served to highlight a select few aspects. While it is acknowledged that there are important advantages associated with the development and use of ICT, it is equally important to allow employees to recharge their batteries in the form of appropriate downtime to regain perspective, thus allowing the organisation to maintain its competitive advantage, with the well-being of its employees taken to heart.

Keywords: Information Communication Technology (ICT), Work-life Balance, Employee Well-being, Stress, Flexible Working Conditions, After Hour Use, ICT Tools.

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LIST OF ABBREVIATIONS USED WITHIN THE DOCUMENT

CA (SA)	Chartered Accountant of South Africa
DV	Dependent Variable
EWB	Employee Well-being
EWL	Employee Work-life balance
FWC	Flexible Working Conditions
H	Hypothesis
Ho	Null Hypothesis
ICT	Information and Communication Technologies
IV	Independent Variable
MBA	Master's in Business Administration
PA	Physiological Aspects
PO	Primary Objective
PRQ	Primary Research Question
RP	Research Problem
S	Stress
SO	Secondary Objective
SRQ	Secondary Research Question
WLB	Work-life Balance

CHAPTER ONE: SCOPE OF THE STUDY

1.1 INTRODUCTION

1.1.1 Background, nature and extent of the research problem

Increasingly challenging business conditions and the faster pace of work environments, in most cases brought about directly as a result of digitisation, creates an even higher pressure for employees to perform. This situation can lead to human disadvantages in terms of employee's state of mental and physical well-being.

The extent of the problem is a global one. Due to the limited research material available in connection with South African statistics, globally available data has been sourced in support of this research document. Actual statistics on the number of employees applying the flexible working practices seem to vary. In 2004, it was estimated that twenty four million employees in the United States of America (roughly eighteen percent of the workforce at that time) worked from home during conventional business hours at least one day per month. Of these employees, about seven million people were employed by a company and worked remotely. By 2006, the number of employees working for an employer from home had risen to twelve million, representing a sixty percent increase in just two years according to the World at Work (2007) report. Similar studies have offered somewhat different figures, owing mainly to how teleworkers are defined. Despite this, researchers in this field have concluded that the proportion of employees practicing teleworking continues to grow, with one study suggesting that telework increased by seventy percent between 2005 and 2011 (Telework Research Network, 2012). A study conducted by Business Wire in 2012, indicated more than one billion individuals worldwide were considered mobile workers, a figure which included at that time, seventy five percent of those individuals being employed in Canada, South America and the United States of America (Business Wire, 2012).

ICT plays an important part in the continued rise of the reported numbers of global teleworkers (Ciolfi and de Carvalho, 2014). ICT provides employees with the opportunity to work anytime, anyplace (Davis, 2002), supporting connectivity across various locations, which extend beyond traditional centralized office arrangements.

Despite the good intentions of employer provided ICT tools and flexible working solutions, it has been found that these arrangements can lead to negative consequences. Direct consequences for the employee can include for example, high levels of stress for the affected individual, fatigue, burnout, and higher absenteeism which can ultimately lead to leaving employment from that organisation (Poelmans, Kalliath and Brough, 2008). Indirect consequences of this phenomena includes the ability for the affected organisation to maintain higher organisational performance, and thereby competitiveness in the industry within which it operates. This in itself leads to financial and monetary losses within organisations, which vary according to the size and nature of the affected entity.

1.1.2 What triggered the study and how serious is the problem?

The diverse needs of employees call for flexible working conditions. Digitisation has created new opportunities for innovative employment policies such as mobile work, flexible working hours, compressed work week and part time work for the benefit of employees (Pitt-Catsouphes, Kossek and Sweet, 2006). The advancement of Information Communication Technology (ICT) solutions facilitating these flexible working solutions can have negative consequences, including side effects of continued connectivity for employees outside of normal working hours (Poelmans et al., 2008), which includes the blurring of boundaries between work and private family life (so called work-life balance).

1.1.3 What seems to be the problem?

Changing patterns of modern work-life balance and after hours work connectivity has created a situation where the work and home life spheres are no longer separate. This places competing demands on employee resources, with undesirable side effects such as workplace spill-over into the home environment. This in turn impacts on employee's family life and can lead to higher employee stress levels, fatigue, burnout, and absenteeism (Dall'Ora, Ball, Recio-Saucedo and Griffiths, 2016).

1.1.4 What is the possible solution to the problem (management question)?

This research paper attempts to establish what impact after hour use of ICT connectivity has on work-life balance. The findings will be used to inform management

whether to encourage or permit the use of ICT to extend beyond normal office hours. One possible solution might include for example, switching off email servers over weekends and public holidays, and implementing policies limiting the use of smart phones for business purposes after work hours.

1.1.5 What is the intended contribution of the study?

While a considerable amount of research has been conducted exploring various facets of the work-life interface (Bianchi and Milkie 2010), less research has been done specifically investigating the effects of ICT on employees' well-being. The intended contribution behind this paper is therefore to provide a framework for the Target Company to use in minimizing after hour impact of the use of ICT on employee well-being and work-life balance.

1.2 PROBLEM STATEMENT

How does the use of ICT outside of normal working hours influence employee well-being as measured in terms of work-life balance? Moreover, can a framework be developed to improve employee well-being associated with the use of ICT outside of normal working hours?

1.2.1 Importance of solving the problem

A happy work force is a productive work force. The extent of the research problem is not limited to the Target Company, as the phenomena has been noted in global statistical studies mentioned earlier in this research document.

Work-life balance refers to a person's ability to exert control over the responsibilities between his or her workplace, family, friends and self (Thulasimani, Duraisamy and Rathinasabapathi, 2010). It has been found that ICT impacts the control an employee may or may not have within the context of these responsibilities. Cropley and Milward (2009) published an article describing how workers recover and unwind from work during leisure time. Poor unwinding was proven to be associated with negative health. Moreover, this study investigated the recovery process of employees in order to gain an understanding as to how individuals switch-off from work-related thoughts after work. The results highlighted the need for employers to develop positive work-life

balance initiatives for their employees in order to prevent them from becoming fatigued and burnt out.

Examples of direct and indirect risks for management include financial losses for the employer due to a progressive lack of competitiveness, and paid leave absence of staff. For the employee, the human disadvantages have been highlighted to include negative spill over of work into family life, poor health linked to stress, fatigue, burnout etc. Should this situation continue unabated, threats which the employer faces include further financial losses in terms of training costs, and loss of existing human capital. Risks for the employee include side effects manifesting themselves in substance abuse as a means of escape from work pressures, breakdown in relationships at home with family and friends, financial losses linked to doctor consultations, medication and unpaid leave (Bellavia and Frone, 2005).

In summary, society and business in general therefore cannot afford the impact of ICT usage after normal working hours on employee work-life balance to continue unabated. The benefits and opportunities of addressing and solving the identified problem are therefore obvious, including positive financial measures and overall human and societal well-being.

1.2.2 Potential causes of the problem

The first potential cause of the problem links to employees feeling an obligation to contribute more in terms of time and commitment. It has been reported that employees while on leave, start checking emails either on their computers, smart phone's or other ICT devices to reconnect with work. This is largely due to increased anxiety about what might be happening during work absence (Rutter, 2014). This anxious attachment is driven by fear of losing one's job, supported by a belief that being constantly available to work demonstrates devotion to one's career and employer.

The second possible cause of the problem is the perception by some managers that their employees are available and willing to continue to put in extra time and effort outside of defined working hours as being a good thing, which in real terms ignores the psychological impact on employees (Rutter, 2014). By checking in outside of

normal working hours, employees inadvertently end up responding to unimportant or non-urgent tasks instead of allowing themselves to detach from the workplace long enough to regain their perspective and recharge their batteries.

The third potential cause of the problem was highlighted by Towers, Duxbury, Higgins and Thomas (2006), where technological developments of ICT as a tool itself, was found to be a contributor leading to increased expectations from employers for staff to be online after normal working hours. Employees who work with ICT are exposed to portable work. This platform provides employees with the ability to connect with work, even when at home (Kossek and Lautsch, 2008). This in turn leads to a negative impact on family life, specifically as a result of ICT being a contributing factor in lengthening the working day, leading to conflict with family members (Middleton, 2008).

Employees have exhibited certain physiological responses when under pressure. The increase in anxiety levels which causes more adrenaline to develop in the human body, encouraged by thinking the worst, could possibly be a fourth contributor to the problem. Situations arise in which most employees would rather know what a new email contains, instead of dealing with the uncertainty of not knowing. Rutter (2014) provides more insight into the reasons why employees find it difficult to switch off. This largely due to employees being programmed to respond to incoming ICT communications throughout the working day. The fact that employees have left the office or gone on holiday does not stop new notifications and emails from coming in via ICT. Despite the fact that there is no longer the same responsibility to respond, it appears that employees find it very hard to overcome the pre-programmed desire to reply.

A fifth potential cause of the problem includes the psychological ability of employees to differentiate between when to be connected and when to disengage. The constant state of connectedness to the workplace could potentially be damaging mental health, by indirectly forcing employees into a constant state of anxiety (Rutter, 2014). Despite some reports of users of ITC after work hours demonstrating the ability to check into emails etc. without any sense of unease, this cannot be said to be true for all

employees. Just the sound of a phone or the sight of an unread message has been found to raise anxiety levels for the greater proportion of employees.

A sixth possible contributor towards this problem involves lack of proper training, and clearly defined and communicated user policies provided by employers themselves. Employers should review policies and clarify areas around what is or what is not expected of employees with regard to use of ICT outside of normal working hours. This could include for example, the checking of email messages while on holiday or leave. Other methods which could be used to reduce the anxiety of employees could be as simple as automatically forwarding emails to appropriate personal or insisting that managers contact employees only in the case of absolute emergencies. This could go a long way to alleviate the anxiety experienced by employees, who will feel far less compelled to check emails if they cannot access them, or if they have been officially banned from doing so.

1.2.3 Previous studies on the problem

The first study reviewed in the preparation of this research paper involved the work conducted by Kossek and Michel (2011). Kossek and Michel's (2011) study showed that alternative forms of work schedules give employees more choice and control over where, when and by how much they work. The study identified flexibility allowing employees to actively shape their working conditions which helped solve the daily demands of integrating personal life and work commitments. While the study contributed to the discussion surrounding the benefits of flexible work arrangements, Kossek and Michel failed to investigate the negative aspects of the impact of ICT on these telework arrangements. This oversight therefore provides an opportunity to close the research gap in terms of assessing whether the use of ICT and flexible working conditions linked to ICT use after hours negatively impacts on employee work-life balance.

The second research document dealing with the effects of ICT on employee well-being included a study conducted by Business Wire in 2012. That study indicated the number of individuals worldwide who were considered mobile workers. Unfortunately Business Wire's research document only made reference to Canadian, South

American and the United States of America employees, and fell short in terms of drawing out correlations and conclusions on the similarities experienced by employees located in other parts of the globe. This presents a research gap opportunity, in terms of concluding on the correlation of South African employee experiences in relation to the findings of the employees from that report.

The third research document consulted was that of Rutter (2014), who provided insight into the reasons why employees find it difficult to switch off. This study identified some of the causes and resultant symptoms from an employee view point, but failed to adequately investigate whether physiological factors such as age, gender, and ethnicity influence an employees' ability to adapt to changing ICT, or whether there was indeed a correlation of this independent variable to employee well-being. This oversight therefore provides an opportunity in this research paper to build on those findings.

The fourth research study contributing to the impact of ICT on employee well-being was prepared by Aguilera, Lethiais, Rallet, and Proulhac (2016). Their research document dealt mainly with the topic of home based telework in France, and focussed on formal and informal teleworking patterns, external contributing factors such as distances to place of work, city congestion and cost of transportation forcing employees to adapt to flexi-work arrangements. While contributions were made to discuss the effects of ICT on employee work-life balance and teleworking, this study failed to investigate which ICT tool (email, cellular phone, smart phone, etc.) impacts greatest on employee well-being. This research paper will attempt to establish the links between this independent variable and the dependent variable of employee well-being, as part of the empirical study.

The fifth previous study dealing with the impact of ICT on work / home spill over was performed by Berkowsky, (2013). Berkowsky's research paper explored the use of ICT in facilitating negative spill over in both the work-to-home and home-to-work directions. The investigation utilised data collected from a cross-sectional study conducted with a sample of United States of America employees to determine if the use of ICT at home for work purposes served as a predictor for negative work–home spill over and

if use of ICT at work for personal reasons serves as a predictor for negative home–work spill over. Limitations of these findings, included insufficient number of respondents (one thousand one hundred) who were sampled in relation to the total number of employed individuals in the United States of America. This represents a central limitation to this study in that the results derived from the analytic sample cannot be generalised and extrapolated over the United States of America employed population as a whole. Moreover, due to the work-life and technology use survey utilising a non-probability sampling technique, the sample attained was largely homogeneous with regard to a number of demographic characteristics, as compared to the results of the 2010 United States of America census. This meant that the research did not adequately match the characteristics of the general United States of America employee population. This error in sampling approach represents a research gap for this research paper, in that the Target Company has a clearly defined population, and the sample which was selected, is a better representation of the actual situation at that company.

1.2.4 The management question

The management question for the purpose of this research paper is: Should management encourage or permit the use of ICT amongst its employees to extend beyond normal working hours?

Given the management question, the following proposals have been formulated based on the literature review conducted, as possible solutions to solve the problem.

Firstly, employers should provide training and introduce appropriate user policies for its employees on the correct use of ICT after hours. Employers should clarifying areas around what is or what is not expected of employees with regard to use of ICT outside of normal working hours. These policies could include for example, rules surrounding the checking of email messages while on holiday or leave. Other methods which could be used to reduce the anxiety of employees include automatic forwarding of emails to appropriate personnel or insisting that managers contact employees only in the case of absolute emergencies. Large multinationals such as German automotive vehicle manufacturer, Volkswagen AG have already implemented policies and procedures to

mitigate the harmful side effects of ICT connectivity outside of normal working hours for its employees. This includes measures such as deactivating email service on weekends and public holidays.

The second possible solution is for management to clarify either verbally or in the form of a corporate code of conduct, the perception that it is not expected that employees are available outside of defined working hours. This will then address the negative psychological impact on employees, who might be under the impression that their line managers expect them to be on call twenty four seven.

A third possible solution could include management limiting the extent of company provided ICT tools themselves to its employees. This in turn will limit the effects of portable work, further restricting the spill over effects of work impacting on employee family life.

A fourth possible solution, would involve employers implementing education programs to train their workforce on the implications of negative work-life balance. Larios and Parry, (2000) highlight areas such as time management, independent working skills, networking, personal development, health, and safety and communication skills as areas for which employers should be providing wellness training interventions to its employees. Employers should provide training to its employees on how to identify warning signs of spill over effects on private life. Stress management programs, taking regular holidays, burnout prevention programs are just some of the interventions which could be used to promote employee wellness.

It should be noted that there is also responsibility on the part of the employee to ensure personal wellness, including regular exercise, relaxation, and taking breaks when necessary. Through the above suggested interventions, it is certain that overall employee well-being will be positively influenced.

1.2.5 The research design, approach and methodology

This study has applied a quantitative, positivistic and deductive research based approach. A quantitative research methodology has been identified as being

appropriate for this study, given the guidelines put forward by Collis and Hussey (2014).

A positivistic paradigm requires a specific research question, followed by a number of hypotheses, both of which are discussed in Chapter Three. The relationships between dependent and independent variables are considered to be unambiguous, and imply the possibility of empirical testing, through use of hypotheses testing (Collis and Hussey, 2014). The null hypothesis (Ho) is used to test for no relationships between variables, and the alternative hypothesis (H1 – H5) have been used to test for relationships that exist between variables.

The following conceptual framework was constructed from known variables that are said to exist. This study investigates the relationship between the Dependent Variable (DV) and the Independent Variables (IV), for which areas of measurement have been described below. It should be noted that the elements do not represent an exhaustive list, but rather one which is believed to be the primary influencers of the DV. The argumentation which has been designed to solve the problem in terms of a conceptual framework is described as follows:

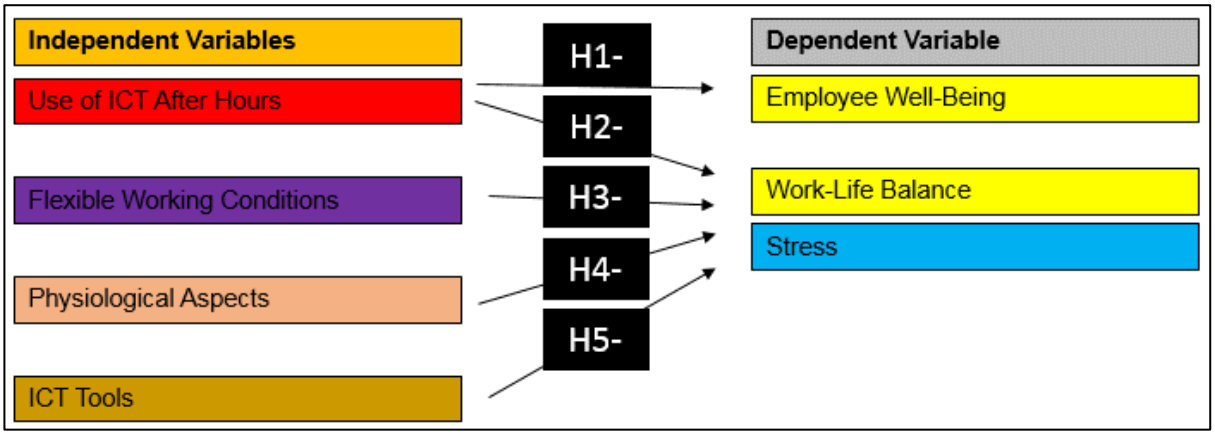
Dependent Variable:

1) Employee well-being is measured in terms of work-life balance. The DV will either decrease with an increase in the IV, or alternatively the DV will increase with a reduction in the IV. This has been graphically presented in Figure 1.1.

Independent Variables expects that:

2) As the use of ICT after hours (IV) increases, employee well-being (DV) decreases.
3) As flexible working conditions (IV) increases, employee well-being (DV) decreases.
4) As physiological aspects such as age (IV) increases, employee well-being (DV) decreases.
5) As the ICT tool (email, cellular phone, smart phone etc.) (IV) increases employee well-being (DV) decreases.

Figure 1.1: Conceptual framework for the research problem



Source: Authors' own construction

1.3 RESEARCH OBJECTIVES

The primary and secondary research objectives for this study are presented as follows:

1.3.1 Primary objective

The Primary Objective (PO1) of this study is to establish whether the use of ICT outside of normal working hours is affecting employee well-being as measured in terms of work-life balance. Moreover, this study establishes whether a framework can be developed to improve employee well-being associated with the use of ICT outside of normal working hours (PO2).

1.3.2 Secondary objectives

The following secondary objectives have been formulated to investigate and resolve the primary objective:

1. To conduct an extensive literature review on the effects of ICT use after hours on employee well-being, in order to establish what literature reveals on this subject matter (SO1);
2. Using the literature as a foundation, a measuring instrument was constructed in the form of a questionnaire, which was used to collect primary data in order to measure the dependent and independent variables included in the hypothesised relationships of the study (SO2);

3. Data was then collected via a sample of 103 employees from the Target Company, who are most likely to be affected by the phenomena under investigation (SO3);
4. The data was captured on Microsoft Excel and analysed using descriptive statistics. The data was also tested for validity and accuracy by using the STATISTICA computer software program (SO4);
5. Thereafter the results were recorded and interpreted based on the empirical data captured (SO5); and
6. Finally, conclusions were drawn which provides the basis for managerial recommendations. During this stage, identification of information gaps for further research was documented and presented in the study (SO6).

1.4 THE RESEARCH QUESTIONS

The underlying motivation for research is to enhance knowledge on a specific subject matter. Within an ever changing business environment, knowledge can be the difference between success and failure, depending on how it is used. As such, knowledge can never be complete and there will always be questions which require answering.

The main problem which this study aims to address is whether the use of ICT outside of normal working hours contributes to employee well-being as measured in terms of work-life balance (Primary Research Question 1), and more specifically, whether a framework can be developed to improve employee well-being associated with the use of ICT outside of normal working hours (Primary Research Question 2)?

The questionnaire as determined by the literature review was based on the following research questions:

1) Does the use of ICT after hours negatively impact on employee work-life balance?
2) Does flexible working conditions linked to ICT use after hours negatively impact on employee work-life balance?
3) Does physiological aspects such as age, gender and ethnicity influence an employees' ability to adapt to changing work conditions, and therefore affect work-life balance?

4) Which ICT tool (email, cellular phone, smartphone or other) has the highest impact on employee wellness?

Table 1.1 indicates null hypotheses which was tested in terms of the Primary and Secondary Questions above.

Table: 1.1: Null hypothesis for the primary and secondary questions

No:	Hypothesis
Ho1:	The use of ICT outside of normal working hours does not have a negative influence on employee well-being
Ho2:	The use of ICT after hours does not have a negative influence on employee work-life balance
Ho3:	Flexible working conditions linked to ICT use after hours does not have a negative influence on employee work-life balance
Ho4:	Physiological aspects affecting an employees' ability to adapt to changing working conditions does not have a negative influence on employee work-life balance
Ho5:	Differing ICT tools (email, cellular, smartphone or other) does not have a negative influence on employee wellness

Source: Authors' own construction

1.5 RESEARCH METHODOLOGY

The research strategy and sampling methods used in this study are introduced to demonstrate how the research objectives were examined (Collis and Hussey, 2014).

1.5.1 Research paradigms and motivation of choice

Research methodology has two main research paradigms that can be followed, being either the positivistic or the phenomenological paradigms (Collis and Hussey, 2014). Positivism is associated with the quantitative, objective, scientific and traditionalist approaches. A phenomenological approach is associated with the qualitative, subjective and humanist aspects of interpretivism. It should be noted that these terms are not automatically interchangeable (Collis and Hussey, 2014). For the purposes of

this research study, the preferred terms used, are either referred to as quantitative or qualitative paradigms for ease of reference.

Quantitative research as described by Collis and Hussey (2014) uses large samples, and tests hypothesis. It is unbiased and the results can be generalised to a wider population. The process of quantitative research is formal and uses quantitative words. The basic assumption of quantitative research is that reliability and validity can be objectively measured. In contrast, qualitative research according to Collis and Hussey (2014) is more subjective as the researcher interacts with what is being researched. Qualitative research uses small samples and generates theories. It is biased and the results obtained from the qualitative research cannot be generalised to a wider population. Qualitative research is informal and uses qualitative words. The basic assumption of qualitative research design is that reliability can be tested through verification.

The scope of this study is to determine the influence of ICT tools on employee well-being. This requires a quantitative approach to measure the levels of impact on employee well-being, as well as the inter-relationships between the previously described dependent and independent variables, which can be generalised over the population.

1.5.2 Sample and data collection

Collis and Hussey (2014) describe sampling design as a subset of the population that is selected in order to draw conclusions for the entire population. There are two types of sampling: probability sampling and non-probability sampling. This research study makes use of non-probability sampling, and more particularly a targeted judgemental sampling based approach. The research instrument used in this study was a questionnaire. The questionnaire was designed specifically for this purpose, for which primary data was captured so as to draw conclusions on the units of analysis. In order to ensure that the main problem and research questions are addressed appropriately it is important to establish the scope and boundaries of the research. This is referred as the delimitation of the research (Leedy and Ormrod, 2005). Judgemental sampling has been used to gather respondent’s answers to the emailed survey questionnaire,

who are employed by the Target Company. The sample population included those employees at the manufacturing and sales head office located in Port Elizabeth, Eastern Cape, as well as those employees employed by the Target Company at the Regional Sales Offices located at the various regional branches across South Africa. The branches are located in Cape Town, Johannesburg, Bloemfontein, Durban and Port Elizabeth. Employees who are employed on the manufacturing production line have been specifically excluded from the sample selection process, as they do not have employer provided ICT tools. The nature of their employment is largely skilled, semi-skilled and unskilled manual labour which is provided to the Target Company. They are not provided with laptops, company issued cell phones, etc. and therefore fall outside of the ambit and scope of this study. This study focused solely on the employees in current employment at Target Company, with employer provided ICT tools. This range of respondents represents mainly the middle to senior executive management of the Target Company who are most likely be impacted by the use of ICT after normal working hours. The data collection process included fieldwork undertaken by way of emailed questionnaires to this target group of respondents. The results of this fieldwork were extensively analysed and discussed in Chapter Four, upon which conclusions and recommendations for inclusion into a framework for managing the impact of ICT on employee well-being were presented in Chapter Five.

The survey was distributed following Ethical clearance from the Nelson Mandela University Business School having been obtained. This is included by way of the signed Form E, attached as APPENDIX D: Form E and Ethical Clearance. Moreover, a suitably qualified and experienced statistician was engaged to ensure proper and professional design of the survey.

The unit of analysis are those employees with employer provided ICT tools. As stated earlier, the sample frame excludes those employees who are not the recipients of employer provided ICT tools. This was ensured by including a specific question on the survey questionnaire asking the respondent to confirm that they are recipients of employer provided ICT tools, in order for the researcher to delimitate responses from employees, which could potentially influence the survey results.

The data collection process secured 103 respondents through the survey. The respondents included employees within the middle to senior management levels of the company. Of these 103 respondents, 97% of the sample indicated being recipients of employer provided ICT tools. These statistics reveal the data collection process managed to secure responses from the target group successfully. The respondents represent the most informed and suitable group for the purposes of data analysis in this research study.

1.5.3 Measuring instrument

This research study is centred on a quantitative approach, therefore the measuring instrument was constructed from closed questions only. The nature of the measuring instrument was that of an online survey questionnaire, which were emailed to employees of the Target Company. The actual survey is included in this research paper as APPENDIX C. The questionnaire comprises two sections, namely a Part A, which deals with the demographic and biographical elements of the respondents, and a Part B, which is anchored to a five (5) point Likert scale ranging from responses of (1) strongly disagree to (5) strongly agree. No opportunity exists for multiple selections of the same question in either Part A or Part B. Only one answer is possible for each question by employing the use of electronic radio buttons on the online questionnaire. No check boxes for multiple selections were employed in the survey questionnaire.

Part A of the survey questionnaire had either yes / no type questions, or questions requiring the selection of a specific category or answer. This section intended to gather important demographic and biographical data which was used for further data analysis and interpretation. Part B of the survey deals with questions related to the Dependent Variable, including the Impact of ICT on overall employee well-being, as measured by Work-life Balance and Stress. Work-life Balance was measured by using an instrument adapted from Fields and Blum (1997) which originally consisted of 8 items, for which 5 items were utilised for this research investigation. Furthermore Work-life Balance was measured by using and instrument adapted from Khan, Wolfe, Quinn and Snoek, (1964) which originally consisted of 15 items, for which 2 items were utilised for this research investigation. Stress was measured using an adapted version of existing measurement instrument found in House and Rizzo (1972), which consists

of 7 items. This measurement instrument was scaled down to 3 items for the purposes of measuring Stress. A second Stress measure was employed using an adapted version of the existing measurement instrument developed by Parker and Decotiis (1983), which consists of 5 anxiety items. The measurement instrument was scaled down to 2 items and applied in this research study.

1.6 OUTLINE OF STUDY

This study has five chapters, which follow an outline discussed below.

Chapter One of this research paper presents the scope of the study, and introduces the problem at hand. The research questions, primary and secondary research objectives have been defined, as well as mapping out the research methodology which was followed.

Chapter Two encapsulates the literature review, covering a discussion on the impact of ICT on employee well-being as measured in terms of work-life balance and stress. The second chapter further examines and explores the effects of the impact of the use of ICT tools after hours, flexible working conditions, physiological aspects and which ICT has the largest impact on employee well-being. This has been presented in terms of a hypothesised model based on a theoretical framework.

Chapter Three provides details on the research paradigms, the choice of research methodology and the measuring instrument employed. It also incorporates information as to how the sample and data collection (including the analysis of the demographic and empirical results) was performed. This chapter summarises the demographic data collected.

Chapter Four presents the descriptive statistics and focuses on the interpretation of this data. A summary of the hypothesised model is also presented with respect to the studies' actual findings.

Chapter Five is the final chapter which presents the conclusions arrived at from the research conducted, including a framework for managing the impact of ICT on

employee well-being. The final chapter also provides a description on limitations from the research study, recommendations and areas for further research.

1.7 RESEARCH ALIGNMENT PLAN

The research alignment plan and research alignment grid presented below serves to link the title, research problem, primary objectives (PO) and secondary objectives (SO). Additionally, it presents the secondary objectives (SO's) and highlights the primary (PRQ's) and secondary research questions (SRQ's). It is a useful matrix which is used to present and define each chapter's deliverables. The research alignment plan furthermore provides a quick reference guide to the document structure, research methodologies, strategies and design.

Table: 1.2: The research alignment plan

Title: A Framework for Managing the Impact of Information Communication Technology on Employee Well-being.
Research Problem: Increasingly challenging business conditions and the faster pace of work environments, brought about as a result of digitisation and ICT technologies, creates an even higher pressure for employees to perform. This situation can lead to human disadvantages in terms of employee's state of mental and physical well-being.
Treatise Statement: To develop a framework which will assist in managing the impact of information communication technology on employee well-being.
The management question: Should management encourage or permit the use of ICT amongst its employees to extend beyond normal working hours?
Primary Objectives (PO): The Primary Objective (PO1) of this study is to establish whether the use of ICT outside of normal working hours affects employee well-being as measured in terms of work-life balance. Secondly, this study establishes whether a framework can be developed to improve employee well-being associated with the use of ICT outside of normal working hours (PO2).
Secondary Objectives (SO): 1. To conduct an extensive literature review on the effects of ICT use after hours on employee well-being, in order to establish what literature reveals on this subject matter (SO1);

2. Using the literature as a foundation, to construct a measuring instrument in the form of a questionnaire, which is used to collect primary data in order to measure the dependent and independent variables included in the hypothesised relationships of the study (SO2); 3. To collect data via a sample of at least 103 employees from the Target Company, who are most likely to be affected by the phenomena under investigation (SO3); 4. To capture the survey data on Microsoft Excel and analyse it using descriptive statistics. To test the data for validity and accuracy by using the STATISTICA computer software program (SO4); 5. To record the results and interpret them based on the empirical data captured (SO5); and 6. Finally, to draw conclusions which will provide the basis for managerial recommendations. During this stage, identification of information gaps for further research is documented and presented in the study (SO6).
Primary Research Questions (PRQ): The main problem which this study aims to address is whether the use of ICT outside of normal working hours contributes to employee well-being as measured in terms of work-life balance (PRQ1), and more specifically, whether a framework can be developed to improve employee well-being associated with the use of ICT outside of normal working hours (PRQ2)?
Secondary Research Questions (SRQ): 1. Does the use of ICT after hours negatively impact on employee work-life balance (SRQ1)? 2. Does flexible working conditions linked to ICT use after hours negatively impact on employee work-life balance (SRQ2)? 3. Does physiological aspects such as age, gender and ethnicity influence an employees' ability to adapt to changing work conditions, and therefore affect work-life balance (SRQ3)? 4. Which ICT tool (email, cellular phone, smartphone or other) has the highest impact on employee wellness (SRQ4)?

Source: Authors' own construction

Table 1.3: The research alignment grid

Primary and Secondary Research Objectives (PO's and SO's)	Primary and Secondary Research Questions (PRQ's and SRQ's)	Chapters	Deliverables
The Primary Objective of this study is to establish whether the use of ICT outside of normal working hours affects employee well-being as measured in terms of work-life balance (PO1).	Does the use of ICT outside of normal working hours contribute to employee well-being as measured in terms of work-life balance (PRQ1)?	Chapter Two: Literature Review.	Identify whether use of ICT outside of normal working hours affects employee well-being.
The second Primary Objective of this study is to establish whether a framework can be developed to improve employee well-being associated with the use of ICT outside of normal working hours (PO2).	Can a framework can be developed to improve employee well-being associated with the use of ICT outside of normal working hours (PRQ2)?	Chapter Five: Conclusions and Recommendations	Framework to improve employee well-being associated with the use of ICT outside of normal working hours.
To conduct an extensive literature review on the effects of ICT use after hours on employee well-being, in order to establish what	Does the use of ICT after hours negatively impact on employee work-life balance (SRQ1)?	Chapter Two: Literature Review.	Identify the impact of ICT use after hours on employee work-life balance.

literature reveals on this subject matter (SO1).			
Using literature as a foundation, to construct a measuring instrument in the form of a questionnaire, which is used to collect primary data in order to measure the dependent and independent variables included in the hypothesised relationships of the study (SO2).	Does flexible working conditions linked to ICT use after hours negatively impact on employee work-life balance (SRQ2)?	Chapter Three: Research Design. Chapter Four: The analysis and interpretation of the empirical study.	Identify the impact of flexible working conditions linked to ICT use after hours on employee work-life balance.
To collect data via a sample of at least 103 employees from the Target Company, who are most likely to be affected by the phenomena under investigation (SO3). To capture the survey data on Microsoft Excel and analyse it using descriptive statistics. To test the data for validity and accuracy by using the	Does physiological aspects such as age, gender and ethnicity influence an employees' ability to adapt to changing work conditions, and therefore affect work-life balance (SRQ3)?	Chapter Three: Research Design. Chapter Four: The analysis and interpretation of the empirical study.	Identify the impact of physiological aspects such as age, gender and ethnicity influence an employees' ability to adapt to changing work conditions.

STATISTICA computer software program (SO4).			
To record the results and interpret them based on the empirical data captured (SO5). Finally, to draw conclusions which will provide the basis for managerial recommendations. During this stage, identification of information gaps for further research is documented and presented in the study (SO6)	Which ICT tool (email, cellular phone, smartphone or other) has the highest impact on employee wellness (SRQ4)?	Chapter Three: Research Design. Chapter Four: The analysis and interpretation of the empirical study. Chapter Five: Conclusions and Recommendations	Identify which ICT tool has the highest impact on employee wellness. Presentation of conclusions, identification of information gaps for further research and Framework is available.

Source: Authors' own construction

1.8 CHAPTER SUMMARY

This first chapter has set the scene for the scope of the study undertaken. The problem has been defined, the aim of the research has been established and the manner in which the research was conducted has been determined. Key concepts have been defined and a roadmap for the process has been drafted. The ever changing business environment and the way business is done globally, has a direct human impact which appears to be gaining considerable momentum. The impact of after hour use of ICT

on employee well-being is not isolated to the Target Company. Literature has highlighted this pattern as being a global phenomenon. This has been brought about directly result of technological advances, and the desire for businesses to maintain and grow their market positioning, thereby pushing its employees to work harder, and for longer duration. While some argue in favour of the benefits of flexible working arrangements and connectivity to work after hours, it can be concluded that only with a proper framework in place, which is communicated by employers to its workforce, can the harmful side effects be properly managed. This in itself will result in a happy and productive workforce. The next chapter will consist of a literature review aimed at gaining a better understanding of key concepts, dependent and independent variables outlined within this introduction.

CHAPTER TWO: LITERATURE REVIEW

2.1 INTRODUCTION

Chapter one of this research paper served to introduce the scope, the reasons for and the research objectives of this study. This chapter forms the departure point for investigating and documenting what literature reveals on the ICT effects in connection with employee well-being. Furthermore, this chapter provides an overview of the current and most significant discussions on the impact of ICT on employee well-being as measured in terms of work-life balance and stress. The literature supporting the impact which the independent variables have on employee well-being are investigated and documented. In doing so, this Chapter deals with the primary research question (PO1) which includes establishing whether the use of ICT outside of normal working hours contributes to employee well-being as measured in terms of work-life balance (RQ1). This objective is achieved by conducting an extensive literature review on the effects of ICT use after hours on employee well-being (SO1).

Using the literature as a foundation, a measuring instrument has been constructed in the form of a questionnaire. This tool has been used to collect primary data in order to measure the relationships between the dependent and independent variables, as included in the hypothesis section of this study (SO2) and described in this chapter.

The ease of communicating through various ICT platforms has become both a blessing and burden (Beal, 2016). Mellner, Aronsson, and Kecklund (2014) point out that fundamental changes are taking place within working life, where boundaries between work and personal life are being challenged by increasing global competition, evolving markets, and the rapid development of ICT. These ICT platforms, together with flexible working solutions, has led to the possibility of working outside the confines of a traditional office at any time of the day or night (Towers et al., 2006). ICT has provided employees with an opportunity to complete their work regardless of time and space (Grant, Wallace and Spurgeon, 2013). Additionally, employees can now avail themselves for their employers at any time of the day or night, and from any geographical location (Wajcman, Bittman and Brown, 2008). This trend marks a fundamental shift in the boundaries between the work and personal life domains

(Duxbury and Smart, 2011; Madden and Jones, 2008) from the traditional employer driven arrangement, to more of an individually driven self-regulation of work by employees themselves.

This chapter reviews the most important contemporary measures and measurement instruments of the ICT phenomena affecting employee well-being. From this, a hypothesised model based on a theoretical framework has been developed and tested in the succeeding chapters which follow.

2.2 OVERALL EMPLOYEE WELL-BEING (WORK-LIFE BALANCE)

2.2.1 Introduction

The subject of work–life balance has been discussed and examined from a wide range of perspectives over the past number of years. The relationship between work, in its many different forms, and personal life (usually implying domestic or home related activities) have been shaped by a number of factors. These factors typically include the modern trend of working longer hours for an employer, a growing proportion of families with working parents, and rapid changes in technology which affect when, and where work takes place (Maruyama, Hopkinson and James, 2009). Moreover, Sayah (2013) indicates that in the light of the increasing use of ICTs, it is important to gain a better understanding of the influences on work–life boundaries in the interest of sustainable employee well-being.

2.2.2 Work-life balance defined

Gopinathan and Raman (2015) point out that despite the jargon of work-life balance only having been used in the last twenty five years; the phenomena has been a factor which has been around for much longer. The concept of multi-tasking and work-life balance begun with women who worked multiple roles during World War Two. It would appear that no single definition of work-life balance currently exists. It has been put forward that work-life balance should therefore be viewed in a broad sense as being the ability for an individual to have well-balanced time allocation between work and other commitments (Susi and Jawaharrani, 2011). It would therefore appear that work-life balance incorporates the satisfaction derived from a good functioning work and

home with minimum role conflict between the two (Sturges and Guest, 2004). This description sheds some light on work-life balance seemingly being the ability for an individual to balance tasks, with an absence of unacceptable levels of conflict between work and non-work demands (Greenblatt, 2002).

More recently, the concept work-life balance has taken the form of not only just an individuals' ability to manage the conflict, but also to gain an understanding as to what creates the balanced state. Achieving balance between work and personal life is, according to an OECD-report (2013), key to ensuring individuals well-being. In a study conducted by Mellner et al., (2014), a distinction was drawn in terms of overall satisfaction with the balance between work and non-work. That study revealed that in a contemporary society, individuals can be assumed to have many other interests, priorities, and responsibilities outside work other than their family only. For the purposes of this research paper, Mellner's theory is considered most suitable within the context of balancing the demands of work and life.

2.2.3 Boundary and spill-over theories in the context of work-life balance

In essence, Boundary Theory considers an employee's ability to differentiate or divide the perceived interface between a series of domains or roles such as work and home life (Nippert-Eng, 1996; Ashforth, Kreiner, and Fugate, 2000; Clark, 2000), with an aim of achieving better organisation. The division results in the construction of boundaries separating various roles, within which an individual interacts (Nippert-Eng 1996). Sayah (2013), explains that boundaries in general, define the perimeter and scope of a domain, such as a for example a country, a role, a home or a workplace. These boundaries, while sometimes motivated by the needs and beliefs of the individual, are often socially constructed, and are based on societal norms, pressures, and expectations. This research paper therefore considers work to be all activities associated with gainful employment. Put differently, work is considered to be physical or mental activities that are carried out for remuneration. In contrast, home life, or personal life is considered to be the area of activities outside gainful employment. Activities under this construct would typically include personal relationships, family and leisure activities for example. While work and home life have distinctive times, rituals, rules, practices, values and ceremonies' (Felstead, Jewson and Walters, 2005), they

can also be closely intertwined and interdependent because the boundary between them can be permeable.

More specifically, with reference to boundaries between work and private home life, boundary theory suggests that influences from one sphere can enter the other to a degree, depending on the boundary's characteristics (Clark, 2000). Boundary Theory, includes the term Boundary Permeability, which refers to the degree in which an individual may occupy multiple roles simultaneously. This is achieved by the individual, either through physical, psychological, or behavioural means, despite the existence of role boundaries (Ashforth et al. 2000). As an individual occupies one role, aspects of another may impede upon or influence the currently occupied role due to a more permeable or blurred boundaries between roles. Boundaries are thus classified according to their permeability and flexibility (Ashforth et al., 2000; Clark, 2000). Boundaries between work and private life are considered permeable when an individual takes work related calls, or sends or receives work related emails while at home, or vice versa for example. Permeable boundaries also exist when thoughts and emotions that arise in one sphere, are allowed to enter the other sphere (Clark, 2000). The flexibility of a boundary is reflected in its ability to expand or contract to accommodate the demands of one sphere or the other (Ashforth et al., 2000; Clark, 2000). If for example, individuals can choose their working hours, the temporal boundary between work and private life is considered to be flexible.

Spill-over Theory in turn, is related to Boundary Theory. Spill-over occurs when microsystems of work-life and home life are able to influence one another as a result of a permeable boundary (Zedeck, 1992). Spill-over can be either positive or negative. This is largely dependent on the characteristics of the respective domains (Grzywacz and Marks, 2000). There is growing support to suggest that there are both advantages and disadvantages associated with having more permeable boundaries for allowing spill-over between roles.

Depending on the permeability and flexibility of boundaries, these two spheres are regarded as being either segmented or integrated. Integration is achieved when the boundaries between the two spheres of work and private life are permeable and

flexible. In contrast, when boundaries are impermeable and inflexible, segmentation takes place. Individuals tend to strive for different degrees of integration or segmentation (Nippert-Eng, 1996). In general, boundaries can be spatial, temporal or psychological (Clark, 2000).

Boundary Theory highlights the fact that individuals undertake boundary work. This means that they use and develop tactics to construct, maintain and dismantle their work–life boundaries (Nippert-Eng, 1996). Individuals tend to shape their work–life boundaries to a degree, depending on the characteristics and demands of the work and life spheres. Furthermore, the shaping of work-life boundaries is largely determined with respect to their ability and power to negotiate these boundaries with other members of the sphere. This could include for example their supervisors or managers at work (Clark, 2000). Individuals can therefore be seen to be active agents, who are able to shape their work–life boundaries to a certain degree, through negotiations and social interactions among different agents over time (Clark, 2000; Kreiner, Hollensbe, and Sheep, 2009). Despite this, it might not always be possible for individuals to achieve their desired or customised boundary style (Richardson, 2011), because of the demands placed on them by the respective spheres (Cohen, Duberley and Musson, 2009).

2.2.4 Arguments for and against: Is work-life spill-over all bad?

Literature supports arguments for and against work-life spill over. Arguments in support of advantages of work-life spill-over see suggestions that work and home roles have the ability to enhance and enrich the other through the transfer of positive moods. This is largely due to the fact that happiness, well-being or satisfaction in one role, translates to happiness, well-being or satisfaction in another. Moreover, arguments in favour of positive spill-over effects, include cross domain compensation, wherein success in one role assists the individual in dealing with deficiencies or failures in another. Additionally, there could be for example a transfer of competencies, wherein participation in multiple roles helps to buffer the negative stresses associated with the roles (Greenhaus and Powell 2006; Wiese, Seiger, Schmid and Freund, 2010).

On the contrary, disadvantages have also been noted. These disadvantages could include an individual having a more permeable work-home boundary being associated with role interference, wherein stresses from one domain inhibit activities in another (Voydanoff 2004, 2005). Moreover, job related demands and problems associated with the work environment may limit the time an individual may spend with family, or may drain the energy necessary for the individual to positively interact with others outside of work (Roehling, Moen and Batt, 2003; Schieman, Glavin and Milkie, 2009).

An increased level of permeability between the work and home roles therefore, has the potential to contribute either positively and negatively, depending on circumstances, and is largely dependent on the individual's personality type. Some individuals may prefer to have their work and home lives more segmented or separated such that there is as little overlap between domains as possible. Others may for example, prefer to have work and home more integrated (Nippert-Eng 1996; Edwards and Rothbard 1999; Ashforth et al., 2000). Kreiner (2006) argues that differences exist in overall conflict and stress between those who practice segmentation versus those who practice integration.

2.2.5 How is work-life balance affected by ICT?

Despite the many benefits of being able to connect with business whenever and wherever you want, there can be negative consequences. The extent of this impact is not limited to health considerations, but also employee performance. Work-life balance is a concern for individuals and organisations interested in the superiority of life and its relation to work performance and employee satisfaction. This is especially true given the increasing pressures from work, which has been intensifying in the recent years (Susi and Jawaharrani, 2011). Moreover, poor work-life balance has been associated with negative health and fatigue (Cropley and Millward, 2009).

As mentioned in the introduction to of this chapter, known factors which play a role in influencing and determining an employee's work-life balance include for example (Aguilera et al., 2016; Beal, 2016; Berkowsky, 2013):

- An increase in the number of hours worked;
- Advances in information technology;

- Complicated family commitments;
- Information load;
- Need for quicker / faster responses,
- Inconsistent working hours due to globalisation (supporting various time zones);
- Increased supervisory support; and
- Flexibility in working arrangements to name but a few.

The continuing evolution of ICTs, including internet connected cellular phones, computers, tablets, iPads etc. provides a means for increased work and home life permeability. Given global trends, one needs to consider the impact of ICT on work and home boundaries. As already noted, the transformation of work and home boundaries has the potential to expose an employee to increased levels of work and home spill over (Berkowsky, 2013). Studies conducted on the frequency of engaging in ICT related activities (for example the checking of emails) after hours, has been found to be associated with negative work and home life spill over, which suggests that ICTs play a significant role maintaining an appropriate work-life balance (Berkowsky, 2013).

Other work-life balance factors such as workplace culture, job enrichment and job satisfaction, role in the workplace and other behavioural factors play a role on work-life balance. Prior research on work-life balance by Guest (2002); Weinert (2014); and Kim, (2014), suggests three key areas where ICT specifically raises concern including pressure and intensification of work; focus on quality of home and community life; attitudes and values of people.

2.2.6 Concluding remarks on employee well-being (work-life balance)

The body of literature reviewed on the subject of ICT and work-life balance, points to four main aspects that affect employees' health and performance. These elements include:

- Expectations (for example the expectation of individuals in responding immediately to communications)
- Twenty Four Seven availability
- Increased workload

- Potential for poor communication

Moreover, there are a number of potential interventions which are possible to combat the negative consequences. ICT, if used correctly, can be an enormously important tool, but it needs to be managed, rather than allowing ICT to manage individuals. Susi and Jawaharrani (2011) supports the view that a positive work-life balance has a number of benefits to the employer and employee. These include reduced absenteeism, reduced employee stress, better job satisfaction among workers and retention of valuable workforce. These factors all lead to an overall better work environment. Furthermore, Susi and Jawaharrani advises that the requirements for appropriate work-life balance include the development of appropriate policies and standard operating procedures, which plays an important role in achieving employee well-being, which in turn reduces staff turnover. The demands of ICT, its consequences on employee well-being and more specifically, work-life balance, points to possible interventions, for which senior management should be responsible for implementing guidelines, clarifying expectations, encouraging better work-life balance and minimizing the potential negative effects of poor use of ICT.

Boundary Theory refers to one's ability to differentiate or divide the perceived interface between roles such as work and home life. The division results in the construction of boundaries separating various roles. Boundaries, are often constructed based on societal norms and expectations. Boundary Permeability refers to the degree to which an individual may occupy multiple roles simultaneously. This is achieved by the individual, either through physical, psychological, or behavioural means. Spill-over Theory in turn, is related to Boundary Theory. Spill-over occurs when work-life and home life are able to influence one another as a result of a permeable boundary. Spill-over can be either positive or negative. This is largely dependent on the characteristics of the respective domains, for which there is growing support to suggest that there are both advantages and disadvantages associated with having more permeable boundaries for allowing spill-over between roles. The ability to shape work-life boundaries is largely determined with respect to the power to negotiate these boundaries with other members of the sphere, such as supervisors or managers at work for example. Individuals can therefore be active agents, who are able to shape

their work–life boundaries to a certain degree, through negotiations and social interaction over time.

2.3 OVERALL EMPLOYEE WELL-BEING (STRESS)

2.3.1 Introduction

Studies have shown that the spill over effects of work, can have a significant impact on employee stress levels as well as on their physical and mental well-being (Grzywacz 2000; Grzywacz, Almeida and McDonald, 2002; Voydanoff 2005; Kossek, Lautsch, and Eaton, 2006; Amstad, Meier, Fasel, Elfering, and Semmer, 2011). Time and space aspects linked to ICT device use have been found to be a source of stress. These elements act as a further contributor towards the erosion of boundaries between work and personal life, which results in work related activities competing or colliding with personal or home life activities (Mellner et al., 2014).

2.3.2 Stress defined

Gopinathan and Raman (2015) highlight stress as having being defined in various different ways over the years. Earlier studies initially found that stress was deemed to be pressure from the environment (Michie, 2002). More recently, the contemporary definition of stress relates to the interaction between an individual and the situation revolving around work and family commitments (Gopinathan and Raman, 2015). Wells (2010) and Harrington et al. (2004) highlight the rapid growth of technology usage and the various number of ICT devices which allow working from remote locations, having raised several social issues with regards to employees' awareness of safe usage (Wells, 2010). For the purpose of this research study, the most appropriate description of stress is that put forward by Wells (2010), in that the rapid rise in ICT devices provide an entry point for an individual to be contacted in remote locations, thereby increasing one's perceived or actual stress levels.

2.3.3 How does ICT impact employee stress?

It has been reported that a greater number of individuals check their email while on leave, and thereby reconnect with work. This pattern is largely due to an increased anxiety about what might be happening during work absence (Rutter, 2014). The

anxious attachment by individuals to mobile phones, laptop computers, tablets, etc. and frequent checking of messages, results in individuals responding to unimportant or non-urgent tasks. The effect is such that individuals do not allow themselves to detach from the workplace long enough to regain perspective. It would seem that a perception exists to suggest that increased availability and willingness of employees to continue to put in extra time by going the extra mile outside of standard or normal working hours is a good thing. Rutter (2014) highlights that little consideration has been given to the psychological impact on employees. The anxiety driver stems from the feel good factor gained from ignoring work emails when individuals are calm and confident, which is normally associated when one is not experiencing the feeling of overload, or threat from the workplace (Rutter, 2014). Generally, if there is a perception that one could fail, or if something could go wrong, individuals struggle to switch off mentally, even after having left the workplace. When under pressure, increased anxiety levels cause more adrenaline to pump around the human body, encouraging individuals to think or imagine the worst. Research has shown that most individuals would rather know what a new email or message actually says, rather than deal with the perceived or imagined threat of not knowing.

Moreover, there have been reports that individuals find it difficult to switch off or disengage, because throughout the working day, there is a conditioned duty or obligation to respond. Once an individual has left the office or is on leave, there is no prevention for new emails and messages from making their way to employee's inboxes. Despite a lower obligation to respond during leave absences, it is very hard to overcome the pre-programmed desire to reply (Rutter, 2014). The psychological ability to differentiate between knowing when one needs to be immersed or connected and when one needs to disengage, has not kept pace with technological advancements of ICT tools which encourages an always connected culture. The extent to which employees are allowed to remain constantly connected to the workplace, could therefore be damaging their mental health, by keeping them in a constant state of anxiety (Rutter, 2014). This in turn can be linked to the Boundary and Spill-over Theory mentioned in Section 2.2.3. It would appear that those individuals who are able to appropriately manage boundaries and spill-over between the work-life

spheres are able to achieve a better work-life balance through differing management techniques.

Mill (2010) states that stressors and possible ill health consequences of modern workplace is largely attributable to the speed of change, technology and information overload that exists in the corporate world. The technological revolution of the last three decades has changed the workplace beyond all recognition. Laptop computers, mobile phones, e-mails, smart phones etc. have all directly and indirectly influenced the way in which we do business, for which the only constant is change. No longer can one switch off to recharge. Competition in the market place is driving individuals to work faster and harder, with the speed of change and technology starting to manage the users and humans are the sufferers. Moreover, the sheer quantity of data which bombards employees is increasing on a day-by-day basis. Research suggests that information overload is starting to outpace the human ability to process data, and information overload has been considered by many, as the main cause of increased stress levels, anxiety and depression (Mill, 2010). Side effects of the use of ICT on employee well-being therefore include the diminishment of interpersonal skills, as a result of individual down time reduction. This in turn lessens one's resilience which has a knock on effect on tolerance levels. The consequential effects of this downward spiral, includes individuals becoming exposed to more stressors, resulting in ill health and decreasing states of well-being.

2.3.4 Stress management techniques to mitigate the risks to employees

Studies have shown that some employees can easily check in and out of their emails as and when they need, without any lingering sense of unease. While certain individuals draw benefits from always being on call and available to respond to emails, ICT acts in itself as an enabler which allows more flexibly for these employees. Despite this and for the most part for employees with employer provided ICT tools, the blurring of home and work-life is doing more to increase anxiety and stress levels rather than helping to alleviate them (Rutter, 2014). Even when employees make a conscious decision not to read or respond to messages and emails from work while they are on holiday or on leave, the sound of a phone notification or the sight of an unread message can raise their anxiety levels. It has been suggested that employers review

and clarify those areas around what is or what is not expected of employees with regard to checking messages outside of work or while on leave (Rutter, 2014).

Mellner et al., (2014) highlight differing techniques being available for individuals to suitably manage the effects of stress. This could include for example, a segmented approach for work and life activities. Segmenters typically have a desire for keeping work and personal life separated or compartmentalised. Breaches in time and space are therefore considered to be evaluated as a significant boundary violation for these individuals. Integrators on the other hand, are those individuals who prefer the concept of blurring of boundaries, and do not seem to exhibit problems for their perceived boundary controls. An individual's capacity for self-regulation in work is thus vital for high boundary control (Mellner et al., 2014). In such cases, an individual would need to demonstrate capacities and capabilities such as being able to judge when a work assignment is completed for example. Additionally, individuals need to be able to work independently, organise work in a suitably efficient manner, and have the capacity to say no at appropriate times, which includes setting boundary limits. The capacity for individual self-regulation seems to be a central competence required for preserving employee boundary control, in situations characterised by increasing demands on flexible and permeable boundaries between work and personal life (Mellner et al., 2014).

Sayah (2013), mentions that the simple act of consciously switching off ICT devices proved to be a psychological boundary mechanism for individuals in managing stress. This approach has been found to effectively prevent ICT influences from moving from one sphere into the other. The study further revealed that while this tactic was used to prevent private influences via ICTs at work, it was mostly used to prevent ICT related influences from work on private life. Individuals who decide to switch off their technological devices, tend to internally justify that they had worked enough, and wanted to spend some time in the private sphere. Such individuals manage to defined time blocks, for when they were available for work and when they are not, through the act of switching off their ICT devices, which constitutes a boundary work tactic as this is an active action in order to prevent work-related interruptions in the private sphere (Sayah, 2013).

Other simple measures to assist with alleviating anxiety of employees include automatic forwarding service of emails. This together with employers insisting that contact is only made with employees if something urgent comes up, has the potential to alleviate anxiety levels (Rutter, 2014). In this way, employees will feel far less compelled to check emails if they cannot access them, or if they have been officially banned from doing so. Crucially, managers will have to think more carefully about whether or not they really need to contact someone who is on holiday, rather than wait for them to return or redirect the enquiry to an appropriate colleague.

2.3.5 Concluding remarks employee well-being (stress)

When ICT technology first appeared in the corporate world, it was thought to be a revolutionary tool which was intended to reduce strain and aid employees in progressive business. Because technological changes have increased in pace and momentum, individuals are now having to constantly keep up with the speed of this change. Surviving and flourishing in the increasingly pressurised environment of the new millennium calls for knowing how to respond and transform intolerance, negativity and stress effectively, into motivation and a thirst for learning and development.

A review on literature dealing with the stress side effects of ICT use, has revealed that it is important to acknowledge the affect that the always connected culture is having on employees' psychological health. This in turn gives a new responsibility to employers who should and create a policy for when it is acceptable to contacting people during their leave absence. Furthermore, the pressure on employees to manage increasing requirements for integration, boundary crossing, and spill over is making work-life balance more difficult to achieve (Mellner et al., 2014). Against this backdrop, employees perceived boundary control is therefore vital for appropriate work-life balance, and in particular, for those desiring segmentation between work and personal life.

Employers have the ability to improve the quality of work-life balance, by increasing knowledge about individual boundary management preferences and related perceptions of boundary control. Organisations should actively contribute by adapting the work situation so as to make it easier for employees to engage in boundary

management styles that are aligned with demands in other areas of life and during different life stages. This in turn will benefit both employers and employees in terms of increased boundary control and subsequent positive experiences of work-life balance.

2.4 AFTER HOUR USE OF ICT

2.4.1 Introduction

ICT's are defined as "technological devices consisting of any computer based or computer assisted application, which is used for the purposes of communication and the dissemination of information, examples of which may include internet connected computers and cellular phones" (Berkowsky, 2013, p.520).

It has been reported that managers in the United Kingdom work up to as much as an extra work day voluntarily, each week in unpaid overtime. This finding has been largely attributed to smartphone culture and tech pressure experienced by employees. De Wet and Koekemoer, (2016) has reported that technology has provided individuals with everyday functional tools, which provides widespread mobility. In South Africa alone, the number of internet users grew from 8,5 million to 24,9 million in only three years (2011-2014). More recently, an estimated ninety per cent of these users access this facility from their mobile devices. These statistics illustrate that South Africans are moving towards a continuously connected lifestyle.

2.4.2 Do Employees have a choice with respect to after hour use of ICT?

It has been reported that when there is a requirement for employees to stay connected to work around the clock, research has shown that work intrudes into non-work activities to an elevated extent (Sayah, 2013). In such cases, employees have little choice, and reports of intrusion negativity have been noted, especially during evenings, weekends and during leave absences including holidays. The extent of intrusions has even been known to prevent individuals from undertaking activities with friends and family. Where there is a need to be flexible, some individuals have reported that they had to be constantly available and to react spontaneously to incoming assignments for their employers. The state of constant availability has been enabled by ICT's (Besseyre des Horts, Dery, and MacCormick, 2011).

In the study conducted by Sayah (2013), it was noted that in particular individuals engaged in specific industries, for example the media sector, exhibited pressure to keep up to date with the news around the clock. The study highlighted negative affects afterhours connectivity had on media worker's work–life boundary, due to the expectation to pursue work related activities, such as following the news using media services, email and Twitter during their private time. It should be noted however, that not all respondents viewed this from a negative point of view, as they mentioned that being up to date was also of personal interest to them and not just a requirement of their work. The study pointed out that business trips were also mentioned as impacting on work–life boundaries because it meant absence from home and thus resulted in a spatial separation of spheres. The spatial separation was considered negatively by respondents, who admitted to using ICT's in order to stay in contact with family and friends. Despite spatial distance, individuals connected the two spheres by means of ICT's. Cases of not being physically present but using ICT platforms to coordinate various tasks, has been referred to as managing absent presence or connected presence (Gergen, 2002; Licoppe, 2004).

Sayah (2013) has reported that after hour use of ICT's allows work to intrude into non-work hours by enabling extra work to be done from home. Moreover, ICT's allow work to intrude into private life, which in turn leads to work–life conflict (Boswell and Olson-Buchanan, 2007; Fenner and Renn, 2010; Besseyre des Horts et al., 2011). The study however, portrays individuals as passive agents who are not able to actively shape their work–life boundaries. Literature suggests that the extent to which individuals use ICT's after hours can be suitably used to manage work–life boundaries (Golden and Geisler, 2007). ICT's themselves do not dictate the permeability of the work and home interface. They are instead tools which perpetuate the structural norms associated with work and home boundaries. Where workplace demands dictate the blurring of work and home boundaries, ICTs provide a means of facilitating this norm (Berkowsky, 2013).

Of the empirical studies conducted, ICT use after hours and the corresponding work and home interface for the most part show that ICTs play a significant role in work-life spill-over. ICT use is largely shaped by structural demands, with workers

demonstrating increased levels of ambition and job involvement being more likely to use ICT's after hours (Boswell and Olson-Buchanan, 2007).

2.4.3 Concluding remarks on after hour use of ICT

From the afore-going discussion, De Wet and Koekemoer, (2016) point to a two point approach to manage the impacts of after hour use of ICT. Firstly, organisations should consider implementing a code of conduct or provide guidelines to employees for eliminating the intrusive and excessive use of ICT, especially after working hours. Secondly, organisations should consider implementing flexible working arrangements or similar initiatives. Mill (2010) presents some ideas and business strategies for managers and leaders to encourage the implementation of staff training, accountability and consolidation to minimize the stressors thus influencing a positive work culture. Such interventions have seen significant changes within the workplace, which have had a direct positive effect on employee health and well-being. Within a culture of faster paced workplaces, it has become essential for leadership to apply emotional intelligence and an empathy in understanding of the needs of employees. It has been found that employee morale is positively influenced by enthusiasm, motivation and resilience, which are elements to a happy, healthy workforce, leading to reduced stress and business excellence (Mill, 2010).

Employees themselves can help manage interaction between their work and family domains by applying alternative approaches including for example, applying limits to their use of ICT's after hours, and using ICT's to create flexibility in their working arrangements. Mellner et al., (2014) points to some boundary management techniques, individuals preferring to keep work and personal life separate. Coping mechanisms include for instance, having separate e-mail accounts for work and personal use, turning cell phones off after the work day (Sayah, 2013), and take care of personal matters only at breaks or during leisure (Kossek, Ruderman, Braddy, and Hannum, 2012; Kreiner et al., 2009).

2.5 FLEXIBLE WORKING CONDITIONS

2.5.1 Introduction

Nelson, Jarrahi, and Thomson (2017) report that more than one billion individuals worldwide employ flexible working arrangements and are considered mobile workers. ICTs play a large part in the continued rise of this population (Ciolfi and de Carvalho, 2014; Su and Mark, 2008). Studies of different types of work conducted by Jarrahi and Sawyer (2015), and more importantly mobile work by Rossitto, Bogdan, and Severinson-Eklundh (2014), suggests that a vast majority of individuals are increasingly employing a suite of ICT devices, tools, and technologies in their daily work practices.

Mellner et al., (2014) research into flexible working arrangements points to the trend for a new type of employee, not only having a greater span of autonomy, but also increased accountability. These findings apply particularly to professionals who typically set their own work schedules and self-manage how and when they work (Allvin, Mellner, Movitz, and Aronsson, 2013). The underlying support structure to flexible working arrangements or mobile work includes the advent of technological advancements of ICT (Shagvaliyeva, 2014).

2.5.2 What are flexible working conditions?

Flexible work or flexible working arrangements can take various forms depending on the employer policies, with the most common including flexitime, compressed working hours and telework. (Hochschild, 1996; Papalexandris and Kramar, 1997). Telework is a generic term used to describe a wide variety of working practices that involve the use of ICTs, and the practice of a working at a location other than a traditional office. Teleworkers complete work related tasks, through the usage of ICT's such as laptop computers, smart phones, iPads, internet, and mobile telephones.

The intention behind flexible working arrangements is largely to facilitate or enable individuals to balance the demands of work and family needs effectively. Without affording employees the opportunity to balance the demands of the two domains, they would then experience an inability to cope with needs from the two different domains. This in turn would have the knock on effect of being unable to play an effective role in

either domain, leading to strain and a general sense of negative well-being. Time flexibility is therefore considered to enable flexi workers to meet family needs and activities (Standen, 2000; Casimir, 2001; Johnson, 2001; Tremblay, 2002; Madsen, 2003).

Among the reported approaches proposed in recent years for helping employees better manage the demands of work and family (such as on-site day care, concierge services etc.), flexible work arrangements have emerged as the most economically viable for organisations and likely to be taken up by workers (Council of Economic Advisers, 2010).

2.5.3 Flexible working conditions: Good or bad?

A number of employers have introduced flexible work, but it is still debatable as to how and to what extent flexible work arrangements help workers balance work and home life (Etherton, 2003; HM Treasury and DTI, 2003). Flexible working arrangements cannot be viewed in isolation to its interface with work-life balance. In a document by Dwelly and Bennion (2003), it was found that employees generally welcome flexible work, to the extent that it is considered one of the major incentives in choosing an employer.

There has been much discussion regarding flexible working arrangements and work-life balance, with past studies sharing conflicting views. Time flexibility is said to enable flexi workers to combine work and family chores more effectively (Duxbury, Higgins and Neufeld, 1998; Spinks, Steffensen, Shouzugawa and Yoshizawa, 1999; Mann, Varey and Button, 2000; Standen, 2000; Sullivan and Lewis, 2001; Perrons, 2003). Flexible working arrangements are considered to help combine a career with parenting (Duxbury et al., 1998; Standen, 2000; Harpaz, 2002). Having an office at home has the potential to encourage employees to work longer or over more days of the week (Hill, Hawkins and Miller, 1996; Johnson, 2001). While this trend has benefits for the employer in the short to medium term, regular occurrences of overtime work at home may encroach upon family time when considered from the employee's point of view (Duxbury et al., 1998; Madsen, 2003). Pressures from employers to increase productivity, requires teleworkers to increase productivity by between ten and twenty

percent (Tremblay, 2002). Findings in the research conducted by Maruyana (2009), revealed workers applying flexible work arrangements having reported positive work-life balance, good relationships with household members, and the ability to choose where / when to work. There is therefore support for the view that flexible workers experience positive effects to employees work and home life in general.

There are however, noted conflicts and tensions associated with the difficulties of negotiating domestic and work related activities when they take place at the same location (Hill et al., 1996; Hill, Miller, Weiner and Colihan, 1998; Huws, 1999; Jackson, 1999; Standen, Daniels and Lamond, 1999; Baines, 2002; Salaff, 2002; Tietze and Musson, 2002). These findings are indicative of marginalisation of domestic activities (Hochschild, 1996; 1997). Intrusion of work into the family sphere can make the work-life boundaries blurred, and can lead to conflicts (Harpaz, 2002). There are also suggestions that flexible teleworkers with certain demographic characteristics, or those who work a certain number of hours at home report unique work-life balance experiences. In terms of gender, Sullivan and Lewis (2001) have shown that men's position within households tends to be to help female partners with childcare, and caring for children is not their primary reason to adopt telework. Men tend to see flexibility as an opportunity to work longer, whereas women see it as an opportunity to balance work and family demands.

Overall, research is intensely equivocal about whether newer ICT's increase individuals' control over work and mitigate work-life conflict. There are arguments for and arguments against organisations extending the working day and their control over employees, with research pointing to these ICT tools feeding work-life conflict (Chesley and Johnson, 2010; Golden and Geisler, 2006; Valcour and Hunter, 2005).

2.5.4 Concluding remarks on flexible working conditions

While literature is unanimous that technology has mediated work in terms of increased flexibility, researchers have also identified positive and negative side effects (Brannen, 2005; Sabelis, 2001). Historically, flexible working arrangements typically involved working from home instead of a traditional office on an occasional basis, for example one or two days per month. The modern trend by employers has been to develop

policies to support employment arrangements whereby jobs are possible to be performed remotely (Moon, Linden, Bricout and Bake, 2014). These arrangements can provide employees with greater autonomy in choosing when to work, which seems to help balance work and life even if they work long hours.

The growing number of employees having adopted flexible working arrangements may be attributed primarily to employer responsiveness to environmental and traditional office costs. It is clear that there is an increasing demand by employees from employers for these flexible arrangements, which is considered to result in recruitment and talent retention benefits for employers. Moreover, increased productivity of employees, and reduction of employer operational costs such as fixed office rental charges, are just some benefits for organisations (Moon et al., 2014). Potential productivity increases are important company decisions as to whether to implement flexible working arrangements of its staff in most cases. There is of course a responsibility by the employer to carefully select appropriate functions and jobs when implementing flexible working conditions to avoid disruptions to core business activities.

Positive benefits for employees have been found to include improved levels of job satisfaction and increased worker morale. Where employees have the ability to schedule their own working hours to take care of family and / or personal responsibilities, such factors have been found to be important sources of job satisfaction. Despite the positive benefits, research has pointed to potential challenges, including employees having reported missing socialization which is part of working in a traditional office. Also, work-life balance and the work-home boundary for flexible workers, were shown to exhibit tensions between home and work roles. There have been findings in terms of concerns related to the unintentional exclusion of flexible workers from vital knowledge exchanges, which are essential for the accumulation of social capital. Aside from acknowledged concerns associated with increased productivity and possible tensions between work-life boundaries, evidence that flexible work arrangements results in significantly improved employee well-being remains unclear.

2.6 PHYSIOLOGICAL ASPECTS

2.6.1 Introduction

The use of ICT equipment and the internet has increased across the globe. Access to information has been made easier through various mobile and internet devices (Korpinen and Paakonen, 2010). The question remains however, as to whether the adoption of these new ICT technologies has been uniformly accepted across age, gender and cultural divides. This section investigates and documents what literature reveals on the physiological aspects of the use of ICT on employee well-being.

2.6.2 Do physiological aspects influence employee well-being?

Modern working life has become more intense. This has been associated to a large extent, with a higher level of internal and external organisational competition (Stenfors, Magnusson Hanson, Oxenstierna, Theorell and Nilsson, 2013). Changing conditions within the workplace has been compounded by the rapid changes in ICT technologies. These developments have placed higher cognitive demands on ICT users due to need to cope with a continuous bombardment of incoming emails, instant messages, and calls. The ability of users to keep pace with the higher cognitive requirements, has brought into question whether physiological aspects such as being an older user of ICT tools, influences the impact of ICT use on individual stress and work-life balance.

A study by Korpinen and Paakonen (2010) revealed that more than 70% of Finland's' middle-aged group (45 – 65 years old) of population used mobile phones. Despite this high percentage of users, the results of the study also revealed less than 20% of the middle-aged group (45 – 65 years old) actually used the Internet at least once a week. Some users only reported using the internet due to a requirement in terms of their employment. The ICT tools reported to have been used included desktop computers, laptops and other similar devices. It was noted that the percentage of users who used the internet after hours, decreased sharply from the age category of 40 years and older. Differing trends in ICT use between gender types were also highlighted by the research study. The paper revealed the number of women who used ICT devices, was notably different to their male counterparts.

Zetterholm's (2016) research into the interplay between ICT and humans highlights the digitalization of society and the rapid development of mobile technologies. Mobile technologies can register an increasing number of features, implying that the interconnection between human physiological and digital systems is increasing. The interaction between ICT devices and humans, creates new challenges, in terms of how humans relate to ICT devices. In the psychological context, smartphone use has been found to have increased, and previous studies imply that these devices are affecting human behavior, mental health as well as cognitive functions. Zetterholm's (2016) research furthermore found that human's need for being connected, seemed to be an important driving force in users being dependent on information and a converged life-style. From the psychological perspective, an emotional bond to the respective ICT device seemed to be stronger than the actual physical need of the user. This has been found to be more prevalent in the younger generation cohorts (Zetterholm, 2016).

Techno-stress has been documented as being a specific type of stress related to the use of ICT's, which arises as a result of the high speed at which technological change takes place (Salanova, Llorens and Cifre, 2013). Techno-stress refers to the psychological, physiological, or behavioural strain from using ICT tools (Al-Fudail and Mellar, 2008). Wang, Shu, and Tu (2008, p. 3004) define techno-stress as a ''reflection of one's discomposure, fear, tenseness and anxiety when one is learning and using computer technology directly or indirectly that ultimately ends in psychological and emotional repulsion which prevents one from further learning or using computer technology.'' Within the context of the working environment, Salanova et al., (2013) proposes that techno-stress experience at work can create a negative psychological state, which is associated with the use of ICT. The experience is related to feelings of anxiety, mental fatigue, scepticism and inefficacy related to the use of ICT. Anxiety is a component of stress, where the person experiences high levels of psychological activation coupled with feelings of tension and discomfort with respect to ICT.

Computer anxiety has been one of the most widely studied techno-strain experiences and is used to describe the fear, apprehension, and agitation that individuals experience when interacting with, or thinking about, computers (Gaudron and Vignoli, 2002). User fears include an anxiety associated with the pressing of a wrong key and

/ or losing information, fear of making a mistake, and finding computers intimidating (Ragu-Nathan, Tarafdar, Ragu-Nathan and Tu, 2008). These findings are however not unique to middle age groups (45 – 65 years old), but they represent the higher proportion of users within this category who have reported increased techno-strain levels.

The exact impact of physiological aspects on employee well-being are relatively unknown. ICT use has been found to be a contributor towards mental fatigue, resulting from the use of ICT (internet, email, smartphones, tablets, social networks) that has its origins in a society driven by information overload. There have been reported instances of negative impact on employee well-being through activating stressors. In some cases adoption by younger generations to ICT use have been shown to be easier when compared to their older counterparts. Stressors have been noted in the form of scepticism, and managed by individuals applying a distant attitude towards the use of ICT. More often than not, the scepticism is based by individuals on perceived job burnout (Maslach, Schaufeli and Leiter, 2001; Schaufeli and Enzmann, 1998).

2.6.3 Concluding remarks on the influence of physiological aspects

Stenfors et al., (2013) highlights increasing levels of cognitive functioning required by humans in order to manage workloads, especially where ICT tools are involved. The role that physiological factors might have on cognitive functioning is still in early stages of being investigated. Despite this, these aspects have become an increasingly important question, as work-life moves towards being more information intensive and cognitively demanding. Research by Berkowsky (2013) has shown that demographic characteristics, such as gender, or the presence of a child at home, can have a significant relationship with work and life spill-over, directly impacting employee well-being. Age has also been noted as having a significant role in the adoption level by employees in taking to new ICT technologies. Despite this, techno-stress and frustrations associated with the used and adoption of ICT tools has also been reported (Salanova et al., 2013).

Bianchi and Milkie (2010) have reaffirmed a number of demographic characteristics linked to ICT use, including marital status, race, age etc. as having correlations related

to employee well-being. There are also suggestions that flexible teleworkers with certain demographic characteristics, or those who work a certain number of hours at home report unique work-life balance experiences (Sullivan and Lewis, 2001). Generally, a male's position within households tends to be to help female partners with childcare, where caring for children is not their primary reason to adopt ICT tools to support telework. Males tend to see flexibility as an opportunity to work longer, whereas women see it as an opportunity to balance work and family demands, therefore having conflicting outcomes in terms of work-life balance.

2.7 ICT TOOLS HAVING THE BIGGEST IMPACT

2.7.1 Introduction

ICT tools comprise "any computer-based or computer assisted device or application used for the purposes of communication and the dissemination of information, examples of which may include Internet-connected computers and cellular phones" (Berkowsky, 2013, p.520).

ICT tools therefore comprise desktop computers, laptops, tablets, iPads, mobile phones, smart phones etc. These electronic devices provide autonomy, which are selected by users based on surrounding, available technology, and are based on subjective notions such as ease of use, aesthetics and personal preferences. While the advent of adding applications to mobile devices has made individuals more mobile, there is some uncertainty as to which ICT device actually have the biggest impact on users (Nelson et al., 2017). This section attempts to better understand the role the various devices play on employee well-being.

2.7.2 Which ICT tools have the biggest impact on employee well-being?

Sayah (2013) argues that some individuals apply work and life boundary management techniques through the selective use of devices. This is achieved by only using certain devices and clearly designating different functions to those devices. Some individuals have been reported as having separate work or private devices, or not possessing devices at all, which minimises the impact on work-life boundaries.

While the majority of ICT devices enable contact, it is not clear whether specific devices support a user's ability to avoid the trend of reading work emails during private time. Research findings point to individuals using mobile or cellular phones mainly in the case of emergencies (Nelson et al., 2017). While this tactic is aimed to keep work out of the private sphere, boundaries have been found to be permeable to a certain degree as availability was ensured for urgent situations. Designating different functions to specific devices can also be used by individuals to structure how they can be accessed at work by family and friends. In a study by Nelson et al., (2017), it was shown that preferences need to be understood within context of and employee's role in an organisation, level of management etc. The same research has indicated that some individuals have two laptops in order to be able to switch off their work-related device in their free time and vice versa (Nelson et al., 2017).

Sayah (2013), has reported cases, whereby individuals who worked from home have two different landline telephone numbers, with one being purely for the home-office use, and the other for private use only. With such constructs, individuals are easily able to classify incoming calls as being either work-related or private. They are thereby able to decide whether to answer the incoming calls depending on boundary sphere. In other cases, differentiation between landline numbers and mobile phone number have also been reported. Individuals with a landline telephone in their home office sometimes give this number to clients and in other cases, use call forwarding to their mobile phones. Others have been reported to keep their landline telephone number for private issues, and only gave mobile number to clients. Generally speaking coping mechanisms seem to fall into one of three broad categories, including:

- individuals answering all incoming calls,
- individuals selectively deciding which calls to answer by checking the display first,
- individuals ignoring telephone calls by not answering them and / or switching off their devices completely (Sayah, 2013).

Other trends that have been noted, include the avoidance of specific devices in their entirety. Studies have shown a trend amongst those who apply boundary management techniques, in having no smartphones at all, which goes somewhat against the requirements in specific occupational fields. This approach is largely due to the

possession of a smartphone facilitating one being online, and thereby increasing the expectations from employers and by their clients to be available after hours. Thus, by not having a smartphone, and not being able to disconnect from work was a boundary work tactic which has been reported in several studies (Nelson et al., 2017).

Sayah (2013) mentions that the manner in which individuals handle emails is another tactic used in work-life boundary management. Employees can have different email accounts, one being for personal use and the other being private use. While boundary management techniques include not applying automatic email updates on the devices such as smart phones, individuals have also been reported as avoiding reading emails completely or reading and selectively answering emails. Reports suggest that differing degrees of intrusion have been associated with reading and answering emails. Boundaries are therefore permeable enough to allow receiving of emails, but have been noted as being impermeable to a certain degree, as they restricted the active reaction to emails unless they were urgent (Sayah, 2013).

With the trend to smaller, faster and more powerful ICT devices, applications are able to fit perfectly into smart phones. These applications have been found to support the passing along and forwarding of more information to colleagues. The ability to make use of dead time to manage information, and to deal with received information outside of normal work hours is considered both a blessing and a burden. Information Technology security settings of employers, has also seen employees carrying two different laptops due to restrictions on employees from using specific software such as Google applications on employer provided laptops. In such cases, the requirement to work on two parallel laptops is needed due to the need to transfer the required files across the two laptops, because cloud storage services and external hard drives are restricted on work computers. Such situations amplifies how overly restrictive organisational policies and organisational digital infrastructures can alienate employees, through the act of constraining the use of personal and mandatory ICT's (Sayah, 2013).

2.7.3 Concluding remarks on ICT tools having the biggest impact

Understanding the role of ICT's and their impact on work-life interrelationships requires understanding the employing organisation, and the individual's ability to ensure appropriate boundary control across work-life boundaries. Where, as a condition of employment influences the likelihood of employees working across the work-home boundary, organisations frequently supply technology that facilitates this transfer (Chesley, Moen and Shore, 2003; Darrah, English-Lueck and Saveri, 1997; Ellison, 2004; English-Lueck, 2002). As to which individual device creates the biggest impact remains however unclear.

While employees and family members agree that technology mediates work-at-home advantages in terms of flexibility and efficiency, there have been noted concerns given the social impact. Despite the physical proximity ICT devices have afforded individuals with family members, having a broadband Internet connection installed at home or a portable ICT device, has been found to tempt employees to do work, or be contacted at home. What is evident from this section, is that it takes a conscious decision by the individual to refrain from checking into work after hours, or to apply appropriate boundary management techniques often mediated via the actual ICT device type. It therefore appears that the device itself is not the driver of impact on employee well-being, but rather the discipline of the user thereof.

2.8 MEASURING EMPLOYEE WELL-BEING AND STRESS

Employee well-being and stress has been measured in a number of different ways over years. Fields and Blum (1997), provides a number of guidelines to researchers as to how to measure these aspects within related work environments. Their measures provides guidance as to how to asses employee perceptions about the experience of work within organisations. Fields and Blums' work covers elements of:

- Job satisfaction
- Job characteristics
- Job stress
- Work and family conflicts
- Work behaviour

These measures have been tested and demonstrated with appropriate levels of statistical reliability and validity, which have been used time and time again in research studies published between 1990 and 1999, including a number of respected research journals. The reason for selecting Fields and Blum's measurement tools stems from the subject matter under review being specifically dealt with in this guide, coupled with high alpha coefficient levels exceeding 0.70. The value of 0.70 is considered to be an acceptable minimum level for reliable statistical testing, and drawing inferences of a sample over the population (Collis and Hussey, 2014). Furthermore, Fields and Blums' work provides a stable platform for scores across the time horizon, with test and re-test reliability providing no major changes in outcomes. The reliability aspect of the tests have been demonstrated since the 1990's, and show internal consistency of measure by the respective alpha coefficients. Moreover the tests are statistically relevant in terms of correlations with measures of variables that are consistent with the theory based expectations. Only those correlations which are reported by Fields and Blum, are those with a p-value < 0.5 as being statistically significant.

As can be seen from the afore going, work-life balance is dealt with by Fields and Blum (1997) in terms of work and family conflicts which is the subject of this research study. Moreover, employee well-being has been tested in terms of stress, which is handled by the section in Fields and Blum's job stress measures. Job stress commonly refers to those aspects which produce excessive or undesirable constraints or demands on the individual (Scheck, Kinicki and Davy, 1995). A general presumption of occupational stress is that work stress and strain ultimately lead to failing individual health and illness.

Work-life balance has been measured by using an instrument adapted from Khan, and Rosenthal, (1964) in terms of work-family conflict. Inter-role conflict occurs where the work and family domains are mutually incompatible. Generally, as people experience more conflict between these roles, their level of job and life satisfaction falls. Work-family conflict has been shown to affect not only the well-being of employees, but also their work related attitudes such as organisational commitment and their work related behaviours such as absenteeism, tardiness, and turnover (Aryee, Luk, and Stone, 1998). As a result a growing number of organisations have introduced family

responsible policies or benefits. The objective of these policies is to assist employed parents in managing their family responsibilities while also managing employment responsibilities. Despite the good intentions of organisations, these workplace policies designed to help employees better integrate work and family roles do not seem to have much effect on work-family conflict. These complexities are further compounded by the variability of gender differences, with some academics even pointing to work and family measures needing to be being measured separately (Wiersma and Van Der Berg, 1991). The work-family conflict scale as developed by Kopelman, Greenhaus and Connolly, (1983) has been used with a coefficient alpha of 0.78 – 0.90 to measure work-life balance. This measurement instrument uses an 8 item measurement scale, for which 5 items would be utilised for this research. This can be found in Table 2.1.

Table 2.1: The work family conflict measuring instrument

No:	Elements
1	My work schedule often conflicts with my family life.
2	After work, I come home too tired to do some of the things I'd like to do.
3	On the job, I have so much work that it takes away from my other interests.
4	My family dislikes how often I am pre-occupied with my work while I am at home.
5	Because my work is demanding at times, I am irritable.
6	The demands of my job make it difficult to be relaxed all the time at home.
7	My work takes up time that I'd like to spend with my family.
8	My job makes it difficult to be the kind of spouse or parent that I'd like to be.

Source: Author's own construction adapted from Kopelman, Greenhaus, and Connolly (1983)

For the purpose of this research study, stress is measured using an adapted version of an existing measurement instrument by House and Rizzo (1972), which consists of 7 items on the so called work tension scale. This measure describes an employees' psychological symptoms associated with tension experienced at work. It includes the

extent to which tension from work tends to keep employees awake at night, and to be constantly on employees' minds. The reliability measure of this scale has been found to be in the Cronbach Alpha range of 0.71 – 0.89 (Sanchez and Brock, 1996). The questions of this measuring instrument have been presented in Table 2.2 below. This tool was scaled down to 3 items for the purposes of measuring employee well-being, and more specifically the stress component.

Table 2.2: The work tension measuring instrument

No:	Elements
1	My job tends to directly affect my health.
2	I work under a great deal of tension.
3	I have felt fidgety or nervous as a result of my job.
4	If I had a different job my health would possibly improve.
5	Problems associated with my job have kept me awake at night.
6	I have felt nervous before attending meetings in the company.
7	I often take my job home with me in the sense that I think about it when doing other things.

Source: Author's own construction adapted from House and Rizzo (1972)

Another stress measure was employed by using an adapted version of the existing job stress scale instrument developed by Parker and Decotiis (1983), which consists of 5 anxiety items. This measure is used to measure stress along two dimensions, the first being time stress (the feelings of being under constant pressure) and the second being the dimension of anxiety (the feelings of job related anxiety). The Cronbach Alpha reliability measure of this measurement scale ranges from 0.77 – 0.82. This measurement tool was be scaled down to 2 items in this research study. The measurement tool by Parker and Decotiis (1983) has been presented in Table 2.3.

Table 2.3: The job stress scale measuring instrument

No:	Elements
1	I have felt fidgety or get nervous as a result of my job.
2	My job gets to me more than it should.
3	There are lots of times when my job drives me right up the wall.
4	Sometimes when I think about my job I get a tired feeling in my chest.
5	I feel guilty when I take time off from my job.

Source: Author's own construction adapted from Parker and Decotiis (1983)

2.9 HYPOTHESISED MODEL TO IMPROVE EMPLOYEE WELL-BEING

This study seeks to close the research gap with the purpose of measuring the effects of the identified and described Independent Variable's (IV) on the Dependent Variable (DV). The following conceptual framework has been constructed from the variables which have been described in detail, and are presented graphically in Figure 2.1.

2.9.1 Dependent variable: Employee well-being

Employee well-being has been linked to the ability for an individual to have a balanced time allocation between work and other commitments (Susi and Jawaharrani, 2011). This stems from the satisfaction derived from a good functioning work and home environment with minimum role conflict between the two (Sturges and Guest, 2004). Permeability between the work and home roles has the potential to contribute either positively or negatively to employee well-being depending on the circumstances (Nippert-Eng 1996; Edwards and Rothbard 1999; Ashforth et al., 2000).

For the purposes of this research study, employee well-being is measured in terms of work-life balance. It is expected that the DV will either decrease with an increase in the IV, or alternatively the DV will increase with a reduction in the IV. This expectation therefore provides the basis for the following hypothesis:

H1: The use of ICT outside of normal working hours has a negative influence on employee well-being.

This leaves the alternative hypothesis as follows:

Ho1: The use of ICT outside of normal working hours does not have a negative influence on employee well-being.

2.9.2 Independent variable: Use of ICT after hours

Spill over effects of work, can have a significant impact on employee stress levels, as well as on their physical and mental well-being (Grzywacz 2000; Grzywacz et al., 2002; Voydanoff 2005; Kossek et al., 2006; Amstad et al., 2011). Sayah (2013) has reported that after hour use of ICT's allows work to intrude into non-work hours by enabling extra work to be done from home. Moreover, ICT's allow work to intrude into private life, which in turn leads to work–life conflict (Boswell and Olson-Buchanan, 2007; Fenner and Renn, 2010; Besseyre des Horts et al., 2011). Of the empirical studies conducted, ICT use after hours and the corresponding work and home interface show that ICTs play a significant role in work-life spill-over.

Based on the afore-going, it is therefore expected that as the use of ICT after hours (IV) increases, employee work-life balance (DV) decreases. The above therefore provides the basis for the following hypothesis:

H2: The use of ICT after hours has a negative influence on employee work-life balance.

This leaves the alternative hypothesis as follows:

Ho2: The use of ICT after hours does not have a negative influence on employee work-life balance.

2.9.3 Independent variable: Flexible working conditions

Mellner et al., (2014) research into flexible working arrangements points to employees, not only having a greater span of autonomy, but also increased accountability and connectedness through the use of ICT's. These findings apply particularly to professionals who set their own work schedules and self-manage how and when they

work (Allvin et al., 2013). There are noted conflicts and tensions associated with the difficulties of negotiating domestic and work related activities when they take place at the same location (Hill et al., 1996; 1998; Huws, 1999; Jackson, 1999; Standen et al., 1999; Baines, 2002; Salaff, 2002; Tietze and Musson, 2002). Intrusion of work into the family sphere can make the work-life boundaries blurred, and can lead to conflicts in either domain (Harpaz, 2002).

Based on the afore-going, it is expected that as flexible working conditions (IV) increases, employee work-life balance (DV) decreases. The above therefore provides the basis for the following hypothesis:

H3: Flexible working conditions linked to ICT use after hours has a negative influence on employee work-life balance.

This leaves the alternative hypothesis as follows:

Ho3: Flexible working conditions linked to ICT use after hours does not have a negative influence on employee work-life balance.

2.9.4 Independent variable: Physiological aspects

This exploratory study attempts to establish whether the adoption of ICT technologies has been uniformly accepted across age, gender and cultural divides. Korpinen and Paakonen (2010) highlighted that more than 70% middle-aged population group used mobile phones, however despite this high percentage of users, the results of the study also revealed less than 20% of the middle-aged population group (45 – 65 years old) actually used the Internet at least once a week. Technological developments over the years have placed higher cognitive demands on ICT users, and it is therefore important to establish whether physiological factors play a role in the user's ability to adapt accordingly.

Based on the afore-going, it is therefore expected that as physiological aspects influences an employee's ability to adapt to changing work conditions (IV) increases,

employee work-life balance (DV) decreases. The above therefore provides the basis for the following hypothesis:

H4: Physiological aspects affecting an employees' ability to adapt to changing working conditions has a negative influence on employee work-life balance.

This leaves the alternative hypothesis as follows:

Ho4: Physiological aspects affecting an employees' ability to adapt to changing working conditions does not have a negative influence on employee work-life balance.

2.9.5 Independent variable: ICT tool with biggest impact

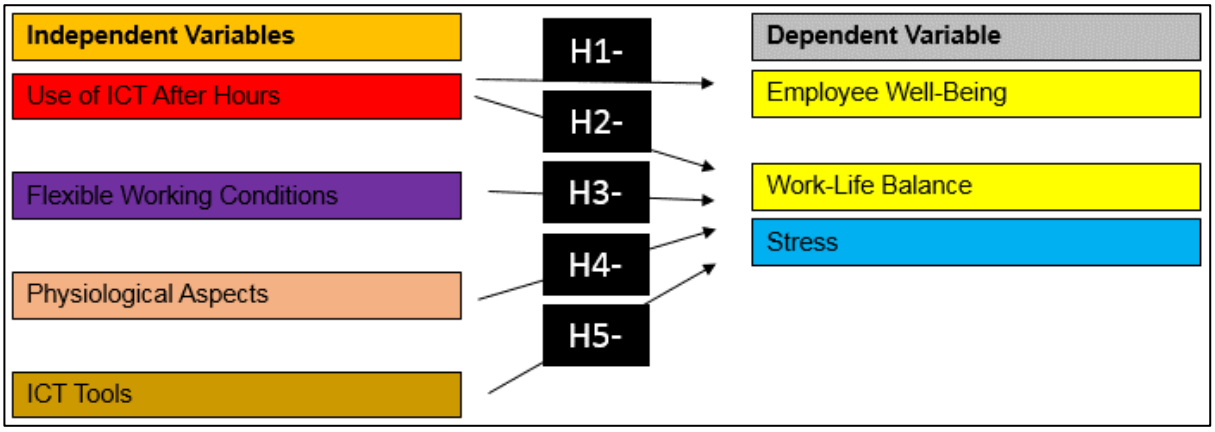
There is some uncertainty as to which ICT device has the biggest impact on users. While the majority of ICT devices enable contact, it is not clear whether specific devices support a user's ability to avoid the trend of reading work emails during private time. Given this, and the limited research material on the topic as to which ICT device has the greatest impact on employee wellness, the expectation is that differing ICT tools (email, cellular phone, smart phone etc.) do not impact (IV) on employee wellness (DV). The above therefore provides the basis for the following hypothesis:

H5: Differing ICT tools (email, cellular, smartphone, or other) has a negative influence on employee wellness.

This leaves the alternative hypothesis as follows:

Ho5: Differing ICT tools (email, cellular, smartphone, or other) does not have a negative influence on employee wellness.

Figure 2.1: Hypothesised relationships to increase employee well-being



Source: Authors' own construction

2.10 CHAPTER SUMMARY

This chapter encapsulates a literature review, covering a discussion on the after hour impact of ICT use on employee well-being as measured in terms of work-life balance and stress. Furthermore, this chapter has examined the effects of ICT tools after hours, flexible working conditions, physiological aspects and which ICT tool has the largest impact on employee well-being. The discussion and conceptualisations of the above dependent and independent variables, their importance, and measurement basis has been presented in terms of a hypothesised model, based on an appropriate theoretical framework. Moreover, a detailed narrative has been presented in terms of previous studies on the subject, which are grounded in theoretical evidence.

In doing so, this chapter has addressed the primary research objective (PO1) which included establishing whether the use of ICT outside of normal working hours affects employee well-being as measured in terms of work-life balance and the primary research question (PRQ1) as well. The secondary objective (SO1) has been achieved by conducting an extensive literature review on the effects of ICT use after hours on employee well-being. The secondary research question (SRQ1) has therefore been addressed in terms of establishing if the after hour use of ICT has a negative impact on employee work-life balance. It has been found that literature provides overwhelming body of evidence to suggest that there is a definite relationship between the impact of after hour use of ICT on employee well-being, work-life balance and

stress. The impact of flexible working conditions depends to a large extent on the permeability of an employee's perceived boundaries between work and life, and the actual or perceived control that they are able to exert on the two domains.

Using literature as a foundation from Chapter Two, a measuring instrument has been constructed in the form of a questionnaire, which has been used to collect primary data in order to measure the relationships between the dependent and independent variables, as included in the hypothesis section of this study (SO2). This has step has therefore met the requirement of SO2. The research methodology and approach to measure the variables in terms of the hypothesised model, is presented in more detail within Chapter Three which follows. A copy of the measurement instrument can be found in APPENDIX C.

Chapter Three provides detail on the research paradigms available to a researcher. It also incorporates information as to how the sample and data collection (including the analysis of the demographic and empirical results) has been performed. This will go some way to assist with the development of a suitable framework for managing the impact of ICT on employee well-being which is dealt with in Chapter Five.

Table 2.4: The research alignment grid

Primary and Secondary Research Objectives (PO's and SO's)	Primary and Secondary Research Questions (PRQ's and SRQ's)	Chapters	Deliverables
The Primary Objective of this study is to establish whether the use of ICT outside of normal working hours affects employee well-being as measured in terms	Does the use of ICT outside of normal working hours contribute to employee well-being as measured in terms of work-life balance (PRQ1)?	Chapter Two: Literature Review.	Identify whether use of ICT outside of normal working hours affects employee well-being.

of work-life balance (PO1).			
To conduct an extensive literature review on the effects of ICT use after hours on employee well-being, in order to establish what literature reveals on this subject matter (SO1).	Does the use of ICT after hour negatively impact on employee work-life balance (SRQ1)?	Chapter Two: Literature Review.	Identify the impact of ICT use after hours on employee work-life balance.
Using literature as a foundation, to construct a measuring instrument in the form of a questionnaire, which is used to collect primary data in order to measure the dependent and independent variables included in the hypothesised relationships of the study (SO2).		Chapter Three: Research Design.	

Source: Authors' own construction

CHAPTER THREE: RESEARCH DESIGN

3.1 INTRODUCTION

Chapter Two provided the theoretical overview of employee well-being, and its associated measurements. This chapter serves to provide insight into the research methodology, which was used to conduct the investigation into the influence of the variables identified. This has been achieved through a description of the research design selected, and a justification as to why a particular technique was chosen.

Furthermore, this chapter serves to connect the findings of the literature review with those of the empirical results and descriptive statistics which are presented in Chapter Four. The elements discussed in this chapter include:

- The research paradigms;
- The research method:
    - The population;
    - The sample design;
    - The measuring instrument;
    - Sample size and response rate;
- Data collection;
- Data analysis procedure;
- The pilot study;
- Ethical considerations;
- The presentation of the demographic and biographical data;
- The reliability and validity of the results;
- Statistical relationships amongst variables.

3.2 RESEARCH PARADIGMS

A research paradigm refers to the framework which guides how research should be conducted, based on philosophies and assumptions about the world and nature of knowledge (Collis and Hussey, 2014). Research plays an important role in both the business and academic environments. There appears to be no single definition of

research per say, as the significance of each changes according to situation. Research should be systematic and methodical, which is aimed at generating new knowledge. The process should include suitable data collection, to which analytical techniques are applied. While there are many research objectives, it is worth mentioning that the information which is reviewed, must undergo a process of synthesis in order to increase knowledge (Collis and Hussey, 2014).

Research studies are classified according to being either applied or basic research. Applied research is often undertaken to facilitate decision making with a view to solving a specific problem. Problem solving can be the focus of basic research, but it usually centres on increasing theoretical knowledge as opposed to having a practical orientation (Leedy and Ormrod, 2005). Within this context, the research study contained in this document can therefore be classified as a basic research study.

There are two distinct research design categories, incorporating:

- A Positivistic paradigm which is known as a quantitative research design;
- A Phenomenological paradigm which is known as a qualitative research design.

A **quantitative research** approach requires the observer to be independent with regard to the subject being observed. A positivistic methodological assumption assumes that social reality is singular and objective, (not being affected by the act of investigating it), which can be scientifically verified. This is deemed appropriate and relevant in terms of a quantitative paradigm undertaken for a deductive research design, with a view to determine cause and effect between variables, (whereby generalizations lead to predictions, explanations and understanding of the interplay between the Dependent and Independent variables). Positivists make hypothetical deductions that are tested by experiments and quantitative methods. Moreover, positivists often survey a large sample to produce accurate and reliable results that can be generalised to the population (Collis and Hussey, 2014). These characteristics make quantitative methods more attractive to researchers.

A **qualitative research** approach on the other hand, can be described as research that is not numerical and does not use statistical procedures. This paradigm has a

further disadvantage of being too simplistic and straightforward, as the qualitative paradigm covers a wide variety of research approaches under one heading. In a qualitative research based approach, the researcher forms an integral part of the research process, with the result that the research is subjective and biased. Interpretivists' also attempt to understand and explain the nature of a problem through an inductive process. In such cases, samples are usually smaller than those of quantitative studies, with the focus on gaining insight into perceptions with a view to formulating explanatory theories (Collis and Hussey, 2014).

Table 3.1: A comparison: Quantitative vs. Qualitative research methodologies

Aspect	Positivistic Approach	Interpretivistic Approach
Commonly referred	Quantitative	Qualitative
Purpose	To test hypothesis and make predictions	To gain a deeper understanding of the topic and interpret social interactions
Simple size	Larger sample size	Smaller sample size
Strategy of enquiry	Experimental designs Non-experimental designs such as surveys	Narrative Phenomenologies Ethnographies Grounded theory Case study
Instrument used	Predetermined instrument using closed ended questions	Emerging methods using open ended questions Interview data
Type of analysis	Statistical analysis	Text and image analysis
Objectivity vs subjectivity	Objectivity is critical	Subjectivity is expected
Biases of the researcher	The biases of the researcher remain unknown to participants	The biases of the researcher may be known to participants
Generalizability of the findings	Generalizable findings which can be applied to a wider population	Specified findings which are less generalizable

Source: Adapted from Donley and Grauerholz (2012)

As one of the main objectives of this study is to examine the impact of ICT use on employee well-being, work-life balance and stress, given the afore-going, it is therefore appropriate to apply a quantitative research based approach for this study. The sample is planned to be large enough in order to draw statistical inferences, and apply them over the population with a greater level of accuracy. This approach will facilitate a

statistical analysis of the information to verify reliability and validity. The approach has grounding in high validity measures (which refers to the extent to which the test actually measures what it is supposed to measure) and high reliability measures (which refers to the extent to which accurate and precise measures in terms of Cronbach Alpha values) (Collis and Hussey, 2014).

3.3 RESEARCH METHOD: SURVEY

Quantitative research applies data collection methods by means of a survey. This allows for statistical analysis to be conducted. Surveys may be descriptive in nature and aimed at gaining insights into phenomena at a certain point in time. Analytical surveys are conducted to ascertain if a relationship exists between variables (Collis and Hussey, 2014).

This study contains both descriptive and analytical elements. The descriptive element covers the demographic characteristics (such as age, gender etc.) of the employees of the Target Company referred to in Chapter One and Two. The analytical component examines the impact of the variables on employee well-being.

3.3.1 The population

The population is referred to by Collis and Hussey (2014) as a body of people or collection of items that are under consideration for statistical purposes. More specifically, a population can be viewed as a set of components of a research's focus to which the obtained results can be generalised. The population for the purposes of this study are those employees in current employment at the Target Company located in Republic of South Africa, with employer provided ICT tools. The range of respondents with employer provided ICT tools represents mainly the middle to senior executive management of the Target Company who would most likely be impacted by the use of ICT after normal working hours.

3.3.2 The sample design

In order to ensure that the main problem and research questions are addressed appropriately, it is important to establish the scope and boundaries of the research. This is referred to as the delimitation of the research (Leedy and Ormrod, 2005).
Collis and Hussey (2014) define a sample as a subset of a population permissible to draw a conclusion about a population. There are two sampling techniques which are available, namely probability sampling and non-probability sampling

Probability sampling refers to a technique which ensures that every participant of the population has an equal chance of being selected (Collis and Hussey, 2014). Probability sampling ensures that a random sample is selected. There are five types of probability sampling including: random sampling, systematic sampling, stratified sampling, cluster sampling and multi-stage sampling. Non-probability sampling refers to the technique of selecting a random sample, whereby a sample is selected from a predetermined population. Subjective methods are utilised in this sampling method in order to determine the elements which will be included in the sample. In this way, samples are gathered in a process which does not include the interviewer, thereby providing an equal chance for participants to be included in the sample. This technique is therefore cheaper, with the added benefit of being able to be implemented quicker (Collis and Hussey, 2014). Types of non-probability sampling are as follows:

- Convenience sampling, where the researcher chooses whoever he can find;
- Judgemental sampling, where members have to conform to predetermined criteria;
- Quota sampling where the researcher ensures the representation of the characteristics of the population; and
- Snowball sampling where a referral approached is used to reach respondents that are hard to find.

The unit of analysis for this research study are those middle to senior executive management employees, with employer provided ICT devices. The sampling method selected for the purposes of this study required the use of a non-probability, targeted judgemental sampling based approach. This was due to the study being limited due

to timing and funds to conduct the research. The selection was done by delimiting the study to focus solely on those employees with employer provided ICT devices. The variables were chosen, seek to find a relationship between employee well-being in terms of the after hour impact of the use of ICT on work-life balance, flexible working conditions on work-life balance, physiological factors, and which ICT tools have the biggest impact.

3.3.3 The measuring instrument

The research instrument which was used in the study was a questionnaire. The questionnaire was accompanied with a cover letter to inform respondents about the nature, importance and relevance of the research (Leedy and Ormrod, 2005). The contents of the cover letter, which can be found per APPENDIX B included:

- An explanation of the nature of the research;
- Stressed the importance of the participants involvement in the research;
- Promised anonymity and confidentiality of the participants details,
- Offered results to the participant; and
- Thanked the participant for their contribution to the research study.

The research instrument used in this study can be found per APPENDIX C. The development of the questionnaire was based on the literature review contained in Chapter Two, and categorised according to:

- Demographic and biographical information;
- Employee well-being (work-life balance);
- Employee well-being (stress);
- Impact of ICT Use after hours;
- Flexible working conditions;
- Physiological aspects; and
- Which ICT tools have the biggest impact.

A summary of the questionnaire section, respective coding, category description and reliability measures in the form of Cronbach Alpha values have been presented in Table 3.2 below.

Table 3.2: Categorisation applied within the research instrument

Questionnaire Section	Code	Category Description	Cronbach Alpha
Part A	A	Demographic and biographical information	n/a
Part B	WLB	Employee well-being (work-life balance)	0.72
Part B	S	Employee well-being (stress)	0.72
Part B	ICT	Impact of ICT Use after hours	0.71
Part B	FWC	Flexible working conditions	0.45
Part B	PA	Physiological aspects	0.46
Part B	ICT	Which ICT tools have the biggest impact	0.38

Source: Authors' own construction

The measuring instrument used to collect the primary data, was developed on Microsoft Word from the variables identified in the literature review section, as a draft questionnaire document. The contents of the draft document were then copied to an online survey tool. In line with the quantitative approach adopted for this study the measuring instrument was constructed from closed questions only.

The online survey tool provided the opportunity to customize the respondent's method of answering questions (including the use of check boxes, radio buttons, dialogue boxes etc.). The first section (Section A) of the questionnaire covered demographic and biographical information, which is made up of generic questions collecting nominal and ordinal data. The questions in Section A provide the respondent with an opportunity to select the most appropriate option. Examples of questions from Section A included respondents being required to indicate:

- (A1) Being either male or female;
- (A5) Highest qualification level, as being the holder of either a matric, diploma, undergraduate degree, post graduate degree, masters' degree or doctorate.

The questions in Section A are anchored on single selection type answers only, and are discussed and analysed in detail within this chapter.

The second section (Section B) of the questionnaire contained the dependent variable: employee well-being (work-life balance and stress) and independent variables: use of

ICT after hours, flexible working conditions, physiological aspects and ICT tools with the biggest impact. Section B questions revealed relevant information to the study, which is discussed in depth within Chapter Four. The questions in Section B are anchored on a five-point Likert scale which ranges from “Strongly Disagree” to “Strongly Agree”. Examples of questions from Section B, included respondents being required to indicate:

- (WLB2) Work-life balance is important to me;
- (S12) I check my emails regularly because I fear missing an important message;
- (ICT22) I do not think that my employer should promote the use of ICT after normal working hours amongst employees;
- (FWC31) Flexible working conditions mean that I have no option other than to use ICT to work from home;
- (PA37) I feel that being constantly available to work demonstrates my devotion to my career and my employer;
- (ICT42) I prefer making and receiving a phone call than sending and receiving an email.

A pilot survey was conducted for two respondents off-line. After some minor adaptations, the questionnaire was then set as active online, and the link to the questionnaire was emailed to the target population as described earlier in this section. The questionnaire was offered as an online survey where the anonymity and ease of submission appeared to facilitate a good return rate given the time constraints. This method therefore did not require the respondent to send a completed questionnaire back to the researcher. The data was captured electronically by the survey tool into Microsoft Excel. This online survey tool further reduces the risk associated with capturing data, and therefore provided the highest possible accuracy level of the respondent’s actual responses without unintentional external influences or errors.

3.3.4 The sample size and response rate

The sample size for this study was 103 respondents from a population of 227 employees with employer provided ICT tools in middle management to senior executive management levels at the Target Company.

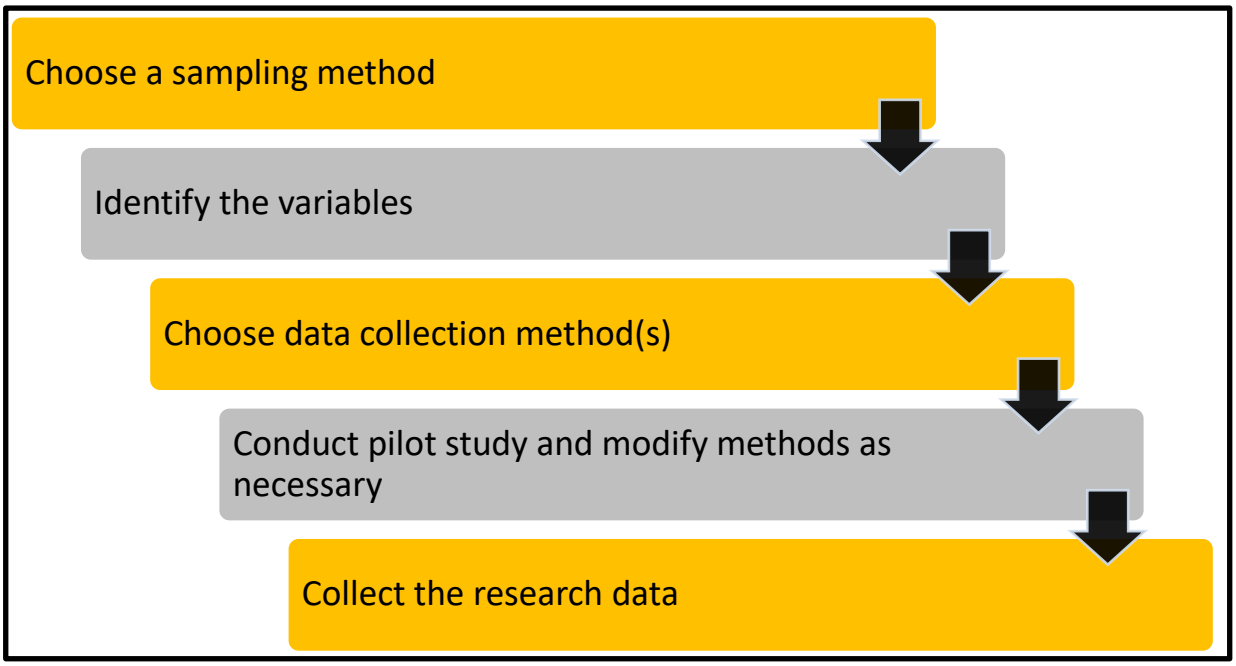
The response rate refers to the number of respondents who have completed the questionnaire. The response rate is important to the research study as it indicates whether the results are representative of a population (Leedy and Ormrod, 2005). The response rate was a reasonably acceptable 45% for the purposes of this research study. The following section provides an overview of the demographic and biographical data for the actual respondents of the sample.

3.4 DATA COLLECTION

The data collection process of this study took the form of a primary data collection method. Primary data is collected from an original source by way of surveys, interviews, mail surveys, web surveys and focus groups (Collis and Hussey, 2014). Primary data collected for research purposes in this form is known as the quantitative method. Secondary data according to Collis and Hussey (2014), refers to data collected from an existing source, which can include data sourced from publications, databases and internal records. Data collection under secondary approach was therefore not applied within this study.

For the purpose of this study, a properly structured and tested questionnaire was used. The data collection method for this study was in the form of an emailed questionnaire, for which a pilot study was conducted. A pilot study is essentially a trial run of a full study and is designed to test the research instrument for accuracy ease of use and desired statistical measurement outcomes.

Figure 3.1: Overview of data collection method for a positivist study



Source: Collis and Hussey (2014)

3.5 DATA ANALYSIS PROCEDURE

For the purposes of the statistical analysis, respondents who answered “No” to being recipients of employer provided ICT tools, were allocated the score of zero. Those respondents who failed to answer any question were also applied a score of zero.

The survey results were exported to Microsoft Excel 2010 from the online survey tool, and arranged in a suitable format for data analysis. The data was analysed by an expert using the STATISTICA 11 (StatSoft, 2011) computer software program, with the objective to determine if any relationships exist between the variables. According to Collis and Hussey (2014), correlation is an appropriate tool that can be used to measure relationships between variables. Collis and Hussey maintain correlation measures the extent of any linear relationship between variables. Regression analysis provides a suitable tool for analysing relationships of this type (Collis and Hussey, 2014). Descriptive statistics were used to analyse measures of central tendency, including means and medians. Ranges including standard deviation were also employed in the data analysis procedure. Descriptive statistics further summarise data in a more compact form and can be represented in charts, tables and graphs for easier assimilation and interpretative inference (Collis and Hussey, 2014).

3.6 PILOT STUDY

Prior to the measuring instrument being released to the population, a pilot study was undertaken. The purpose of the pilot study was to test the questionnaire for content validity and to assess the practical issues associated with completing the survey. The pilot study highlighted the need to adapt the questionnaire, by adapting some of the questions, and by making use of radio buttons for the questions, instead of using the check boxes. The logic behind these changes included the need to prevent respondents from being confused by the questions, and to ensure that selecting multiple answers for the same question was avoided, thereby invalidating the data results.

3.7 ETHICAL CONSIDERATIONS

Ethics refer to the moral principles that are acceptable to a wider group or community. To ensure ethical consideration was given to this study, the email sent to the population frame containing the link to the online survey. This was accompanied with a letter describing the nature of the study and contact details of the researcher and research supervisor. The respondents were also informed that their participation was purely voluntary, and they were able to verify the authenticity of the study by contacting the research supervisor. Refer in this regard to APPENDIX B.

Confidentiality and anonymity were also guaranteed to the respondents, with no requirement for respondent's names needing to be reflected within the questionnaire. Ethical standards were also assessed as being compliant in accordance with the Form-E ethics clearance process of the Nelson Mandela University. Refer in this regard to APPENDIX D.

3.8 PRESENTATION OF THE DEMOGRAPHIC AND BIOGRAPHICAL DATA

3.8.1 Gender

The first question on the research instrument was that of gender. Of the 103 respondents, 57% indicated being male and 43% indicated being female. This can be seen in Figure 3.2. The sample bias in favour of male respondents is not regarded

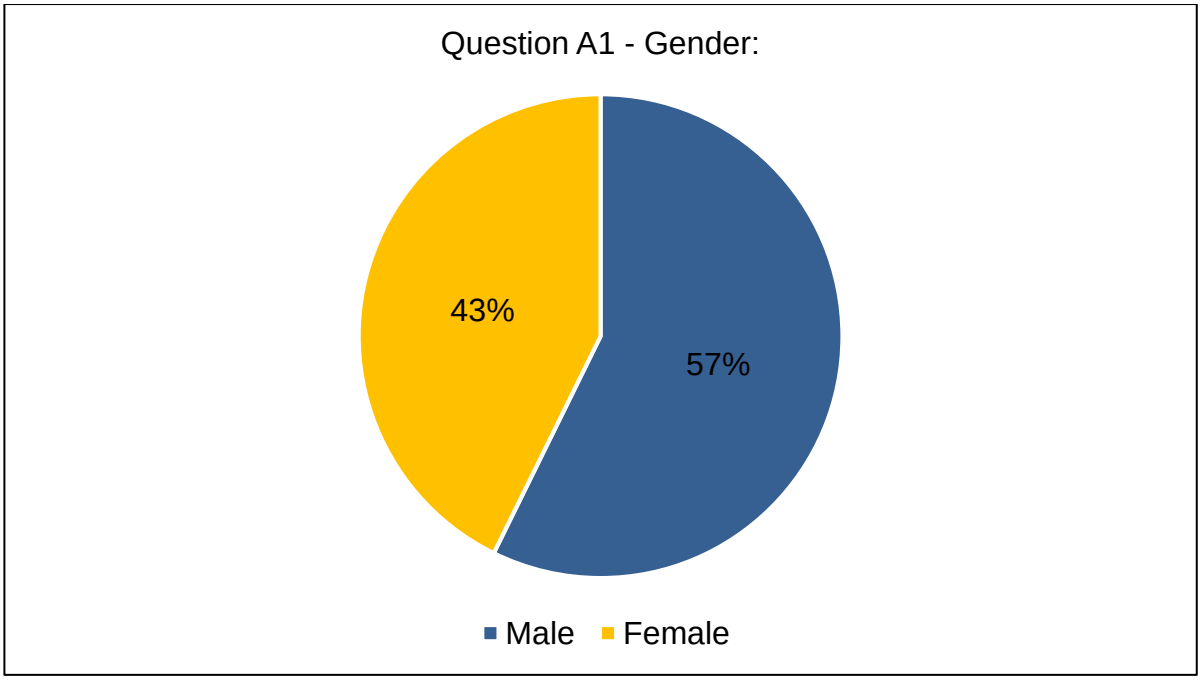
as significant, and the differences are not expected to result in outcomes skewed in any particular direction.

Table 3.3: Demographic composition of the sample: Gender

Gender	Number of responses	Percentage of responses
Male	59	57%
Female	44	43%
Total	**103**	**100%**

Source: Author's own construction from survey data

Figure 3.2: The sample's gender response rate



Source: Author's own construction from survey data

3.8.2 Generation Cohort

Respondents had the option of selecting being either a Baby Boomer (born 1945 – 1964), Generation X (born 1965 – 1979), Generation Y (born 1980 – 1995), and Generation Z (born 1996 – current). Of the 103 Respondents, 18% indicated being a Baby Boomer, 48% indicated being a Generation X, 32% indicated being Generation Y, and there were two non-responses representing 2% of the sample.

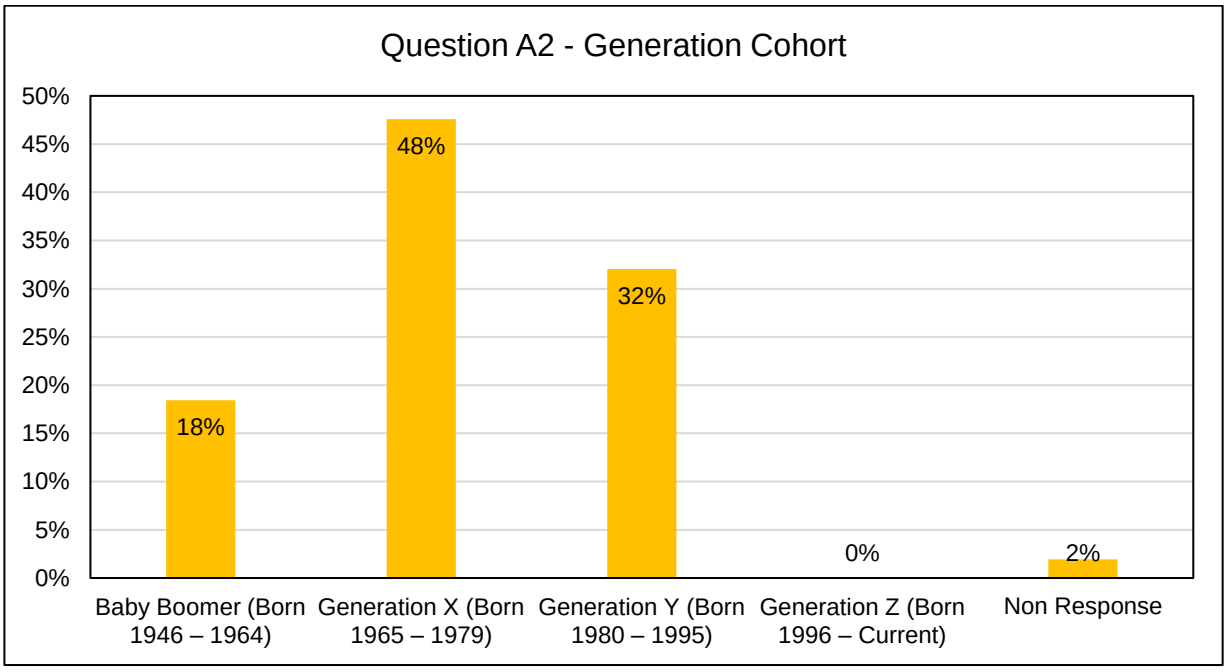
Table 3.4: Demographic composition of the sample: Generation cohort

Generation Cohort	Number of responses	Percentage of responses
Baby Boomer (Born 1946 – 1964)	19	18%
Generation X (Born 1965 – 1979)	49	48%
Generation Y (Born 1980 – 1995)	33	32%
Generation Z (Born 1996 – Current)	0	0%
Non Response	2	2%
Total	**103**	**100%**

Source: Author's own construction from survey data

From this it can be seen that the respondents born between 1965 and 1979 represented the largest group, followed by the respondents being born between 1980 and 1995. This can be seen in Figure 3.3.

Figure 3.3: The sample's generation cohort response rate



Source: Author's own construction from survey data

3.8.3 Home Language

Respondents had the option of selecting the Home Language of English, Afrikaans, German, Xhosa, Zulu, or Other. An overwhelming number of respondent's indicated being English speaking as their Home Language to the extent of 59%.

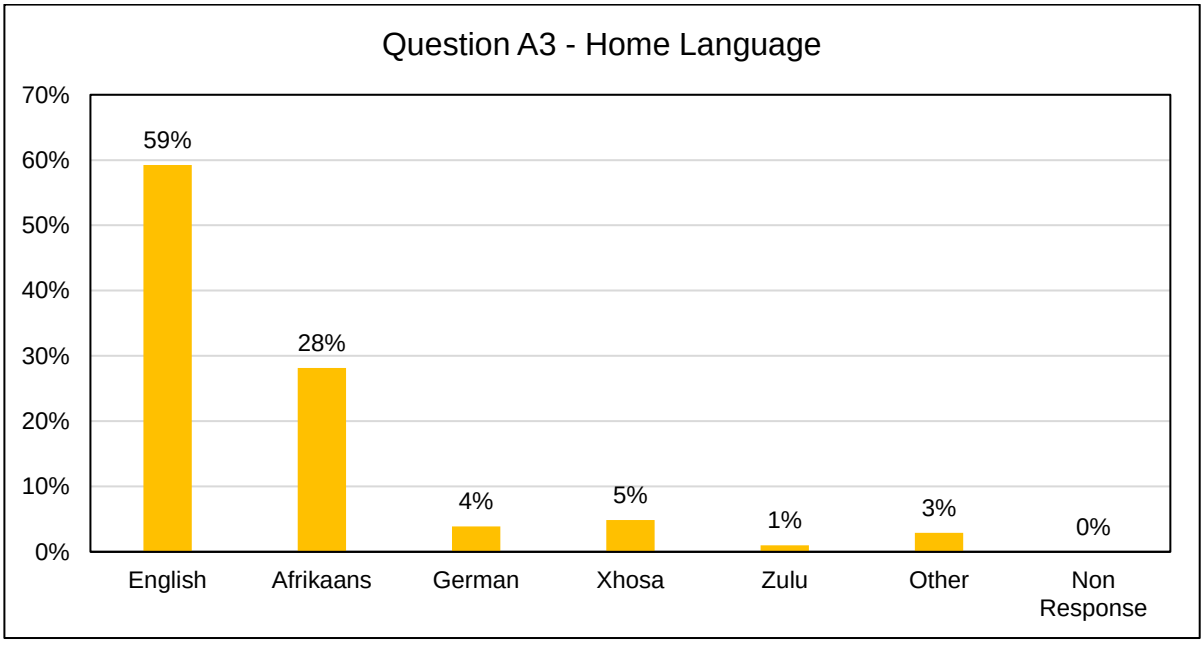
Table 3.5: Demographic composition of the sample: Home language

Home Language	Number of responses	Percentage of responses
English	61	59%
Afrikaans	29	28%
German	4	4%
Xhosa	5	5%
Zulu	1	1%
Other	3	3%
Non Response	0	0%
Total	**103**	**100%**

Source: Author's own construction from survey data

The second largest group was that of the Afrikaans speaking Home Language. The Home Language of respondents is not expected to yield any significant results.

Figure 3.4: The sample's home language response rate



Source: Author's own construction from survey data

3.8.4 Marital Status

Similar to the home language response rate, an overwhelming number of respondents indicated being married. This group represented 59% of the sample size, with the second largest grouping comprising singles to the extent of 18%.

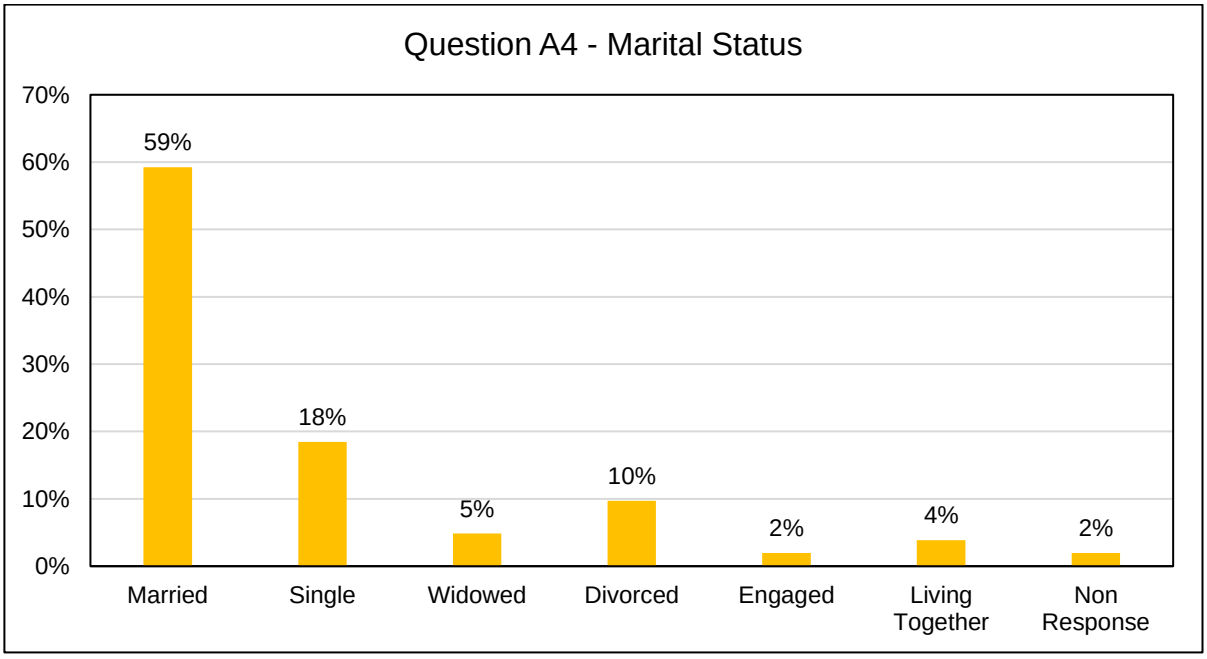
Table 3.6: Demographic composition of the sample: Marital status

Marital Status	Number of responses	Percentage of responses
Married	61	59%
Single	19	18%
Widowed	5	5%
Divorced	10	10%
Engaged	2	2%
Living Together	4	4%
Non Response	2	2%
Total	**103**	**100%**

Source: Author's own construction from survey data

The remaining categories comprised divorced status at 10%, widowed at 5%, living together at 4% and 2% failed to answer the question.

Figure 3.5: The sample's marital status response rate



Source: Author's own construction from survey data

3.8.5 Highest Qualification

The fifth question on the questionnaire related to the respondents highest qualification level. 13% of the sample size indicated having a qualification of master's degree, followed by 6% of the sample having an undergraduate degree.

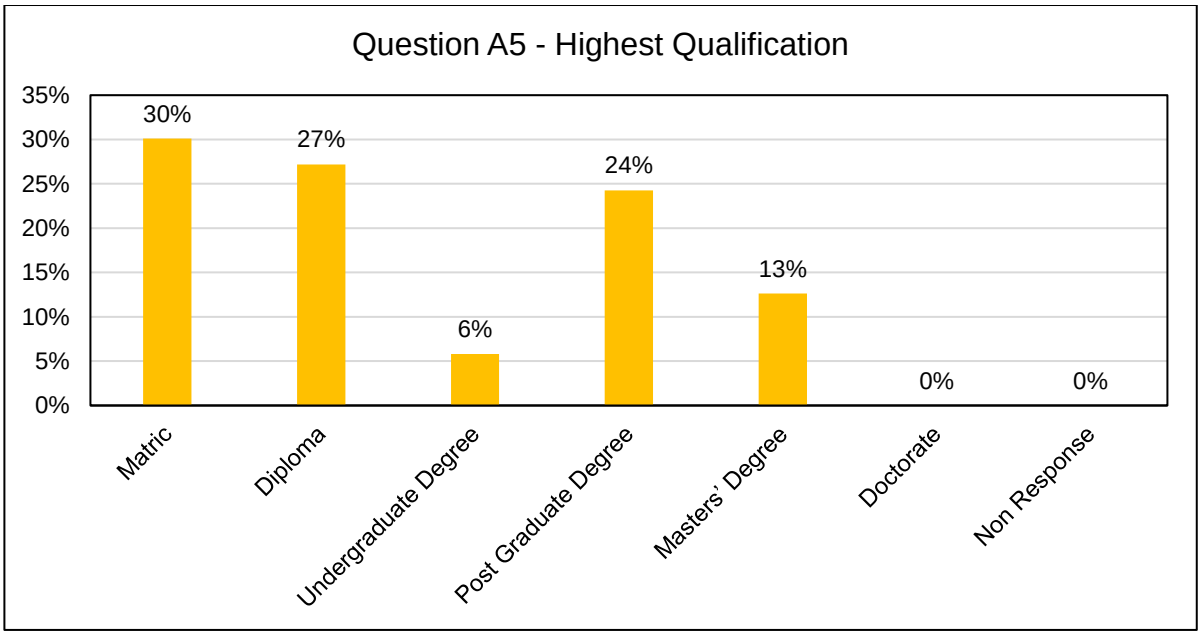
Table 3.7: Demographic composition of the sample: Highest qualification

Highest Qualification	Number of responses	Percentage of responses
Matric	31	30%
Diploma	28	27%
Undergraduate Degree	6	6%
Postgraduate Degree	25	24%
Masters' Degree	13	13%
Doctorate	0	0%
Non Response	0	0%
Total	**103**	**100%**

Source: Author's own construction from survey data

24% of the respondents in the sample indicated having a post graduate degree, followed by 27% with a diploma, and the largest group of 30% being respondent holders of a matric certificate. The sample did not have any respondents holding a doctorate qualification.

Figure 3.6: The sample's highest qualification response rate



Source: Author's own construction from survey data

3.8.6 Functional Unit

The functional units which respondents could choose from included a category for marketing and sales, which incidentally revealed the most number of respondents at

53% of the sample size. This is not surprising given the nature of their occupational requirements for mobile work, and the need to use mobile communication devices.

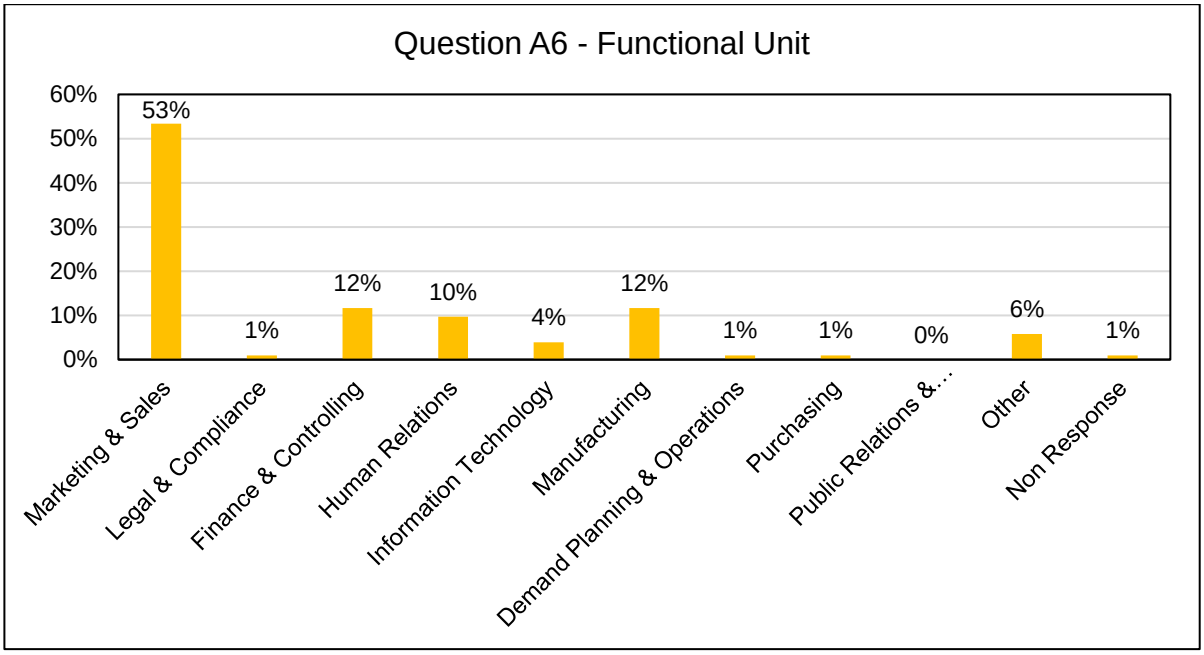
Table 3.8: Demographic composition of the sample: Functional unit

Functional Unit	Number of responses	Percentage of responses
Marketing & Sales	55	53%
Legal & Compliance	1	1%
Finance & Controlling	12	12%
Human Relations	10	10%
Information Technology	4	4%
Manufacturing	12	12%
Demand Planning & Operations	1	1%
Purchasing	1	1%
Public Relations	0	0%
Other	6	6%
Non Response	1	1%
Total	**103**	**100%**

Source: Author's own construction from survey data

The other functional unit categories included legal and compliance (1%), finance and controlling (12%), human relations (10%), information technology (4%), manufacturing (12%), demand planning (1%), purchasing (1%), public relations and communications (0%), other (6%) and non-responses of 1%.

Figure 3.7: The sample's functional units of respondents



Source: Author's own construction from survey data

3.8.7 Number of Dependents in Household

The sample revealed a group of respondents with the highest percentage of 51%, as being that of households comprising two to four dependents.

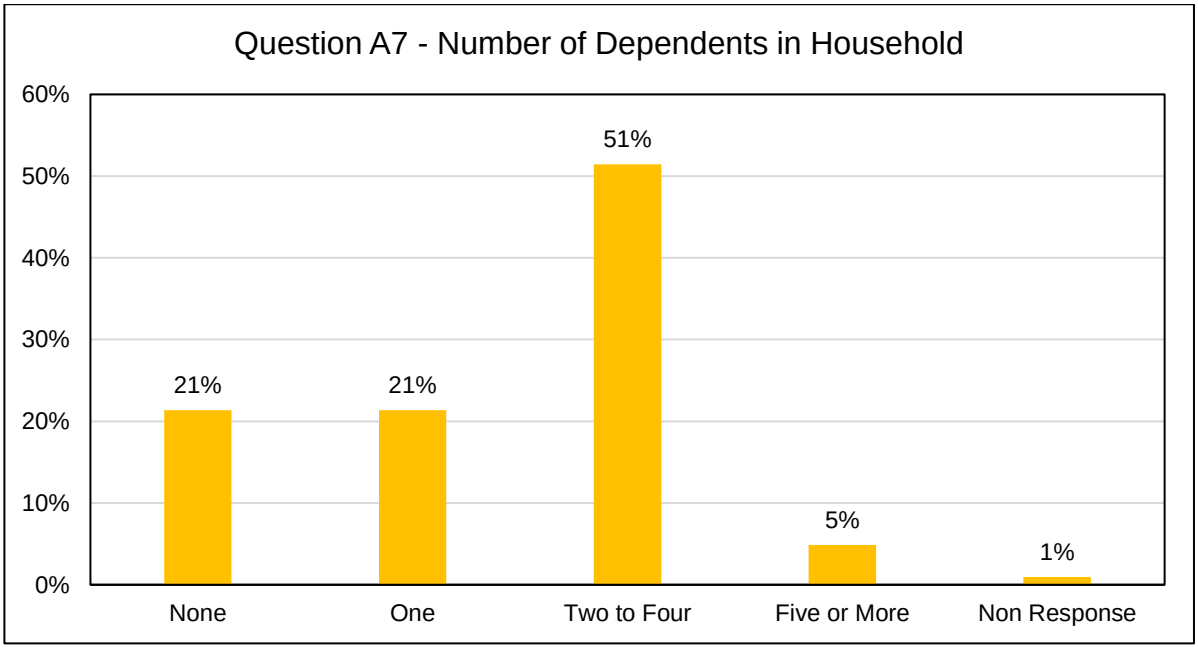
Table 3.9: Demographic composition of the sample: Number of dependents

Number of Dependents	Number of responses	Percentage of responses
None	22	21%
One	22	21%
Two to Four	53	51%
Five or More	5	5%
Non Response	1	1%
Total	**103**	**100%**

Source: Author's own construction from survey data

This was followed by 21% for both: none and one dependent per household. The category of: five or more represented 5%, and 1% were non responsive.

Figure 3.8: The sample's number of dependents in household of respondents



Source: Author's own construction from survey data

3.8.8 Management Level

Respondents had the option of selecting from the management levels of: middle management, senior management, senior executive management and other. The sample revealed a 3% non-response rate, with the largest group of respondents falling into the category of other at 38%.

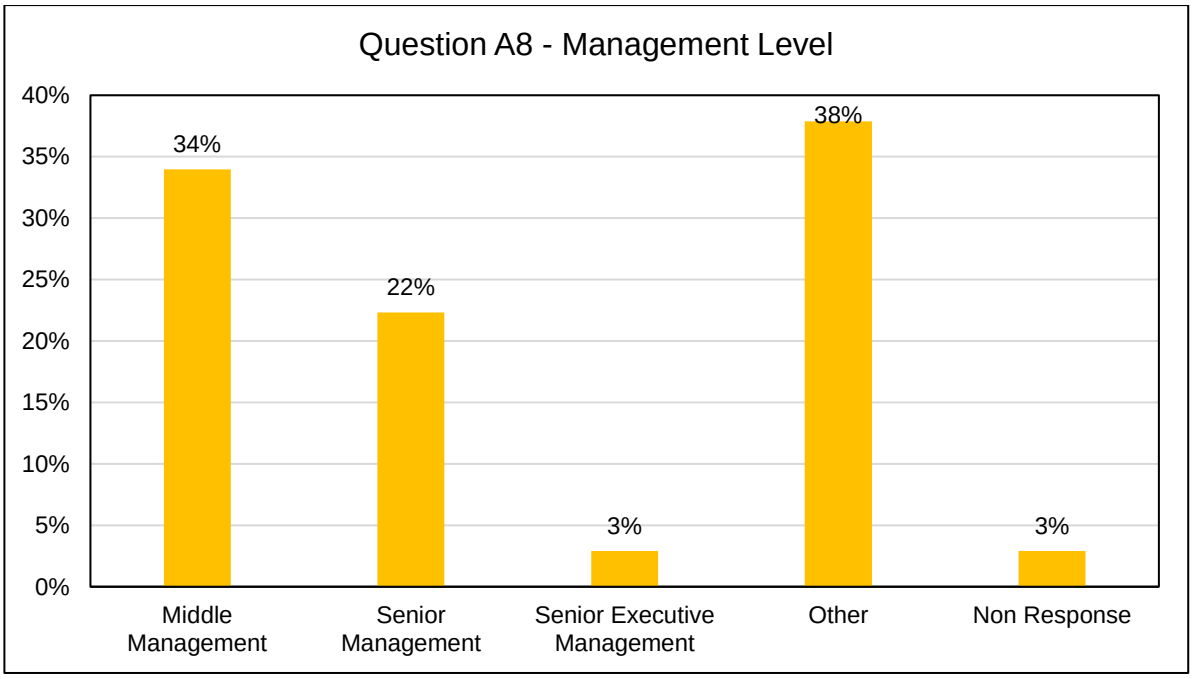
Table 3.10: Demographic composition of the sample: Management level

Management Level	Number of responses	Percentage of responses
Middle Management	35	34%
Senior Management	23	22%
Senior Executive Management	3	3%
Other	39	38%
Non Response	3	3%
Total	**103**	**100%**

Source: Author's own construction from survey data

This was followed closely by 34% of respondents being in the middle management category, 22% in the senior management category, and 3% in the senior executive management category.

Figure 3.9: The sample's management level of respondents



Source: Author's own construction from survey data

3.8.9 Length of Service

Three main categories were presented to respondents to select either having one to five years of service, six to ten years, or eleven years and greater. 1% of the respondents failed to select an indicator of length of service. The group with the highest number of responses within the sample represented the eleven years and greater, with 48%.

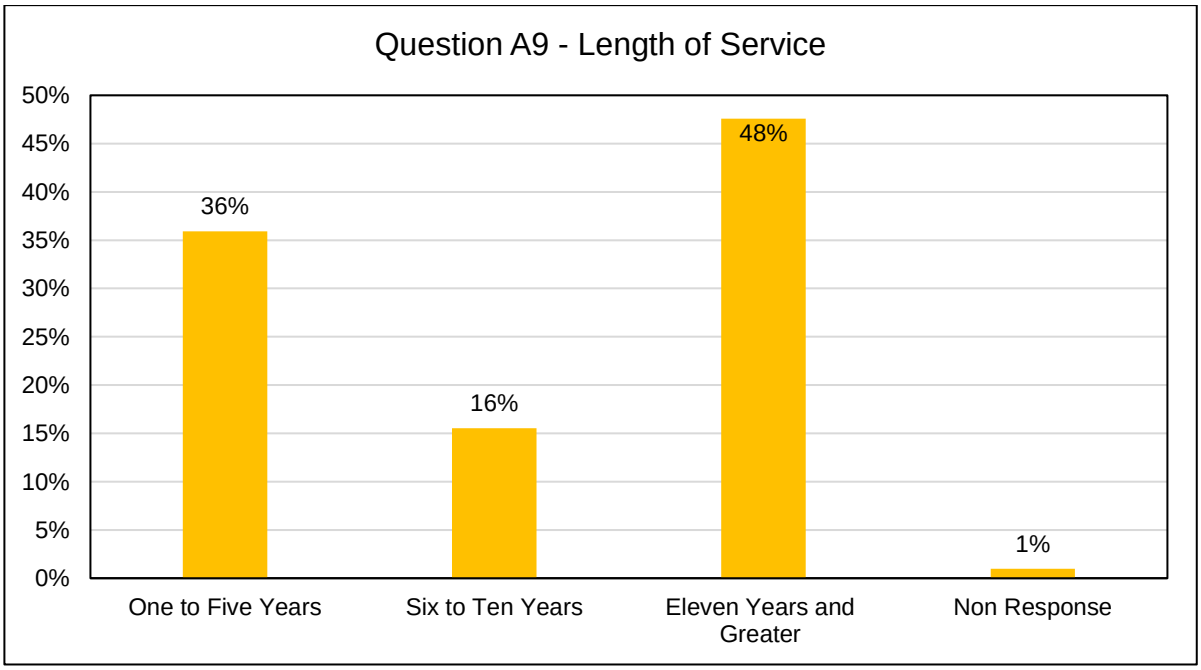
Table 3.11: Demographic composition of the sample: Length of service

Length of Service	Number of responses	Percentage of responses
One to Five Years	37	36%
Six to Ten Years	16	16%
Eleven Years and Greater	49	48%
Non Response	1	1%
Total	**103**	**100%**

Source: Author's own construction from survey data

The next largest group of Respondents was that of the one to five years category, with 36%, and the six to ten years group representing 16% of the sample size.

Figure 3.10: The sample's length of service of respondents



Source: Author's own construction from survey data

3.8.10 Recipient of ICT Tools

The final demographic factor in Section A covers whether respondents are recipients of employer provided ICT Tools or not. An overwhelming 93% of the sampled respondents indicated a yes confirmation to the question. This reaffirms the target population having been successfully selected for relevant responses, through a judgemental sampling approach. 5% of the respondents indicated no to being in receipt of employer provided ICT Tools to perform their functional work. 2% of

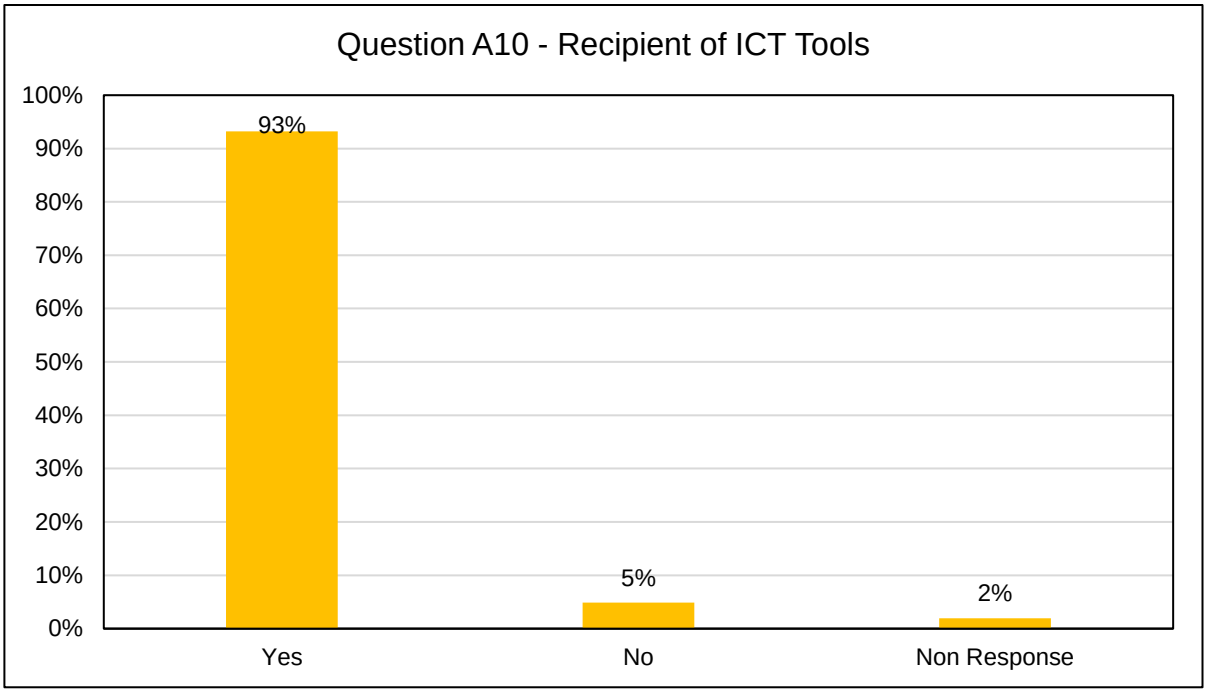
respondents failed to answer this question. Both of the categories for no and non-response, are not expected to skew any of the results materially.

Table 3.12: Demographic composition of the sample: Recipient of ICT tools

Recipient of ICT Tools	Number of responses	Percentage of responses
Yes	96	93%
No	5	5%
Non Response	2	2%
Total	**103**	**100%**

Source: Author's own construction from survey data

Figure 3.11: The sample's indication of being a recipient of ICT tools



Source: Author's own construction from survey data

3.8.11 Summary presentation of the demographic and biographical data

Based on the results of the demographic composition dealt with in sections 3.8.1 – 3.8.10, it is considered that the sample group is qualified to offer useful and informative data for analysis purposes. The analysis and discussion of the Descriptive Statistics is dealt with in more detail within Chapter Four.

3.9 RELIABILITY AND VALIDITY OF THE INSTRUMENT

Reliability and validity are important in research, due to the probability of obtaining meaningful results from the data. Reliability refers to the absence of differences in the results obtained if the research was to be repeated (Collis and Hussey, 2014). Put differently, Reliability indicates the consistency with which a measuring instrument yields a certain result, when the aspect being measured has not changed (Leedy and Ormrod, 2005). If the research had to be repeated through another sample and the results obtained were the same as the initial research, then the findings from the research are said to be Reliable (Collis and Hussey, 2014).

Validity on the other hand refers to a measuring instrument actually measuring what it is supposed to measure (Leedy and Ormrod, 2005). Validity therefore relates to the effectiveness of a measuring instrument. Collis and Hussey (2014) highlight Validity and Reliability tests being associated with quantitative research methodology.

A statistical verification of internal consistency which measures inter-correlations among test items can take the form of Cronbach's coefficient alpha (commonly referred to as the Cronbach Alpha). This is useful when the measuring instrument makes use of questions or survey items anchored on a five point Likert scale (Collis and Hussey, 2014). Where a Cronbach Alpha value is closer to 1.00, the higher will be the instrument's internal consistency, and therefore it's Reliability. A Cronbach Alpha value of 0.70 or greater is said to be a good measure of reliability (Collis and Hussey, 2014). Arnolds and Boshoff (2001: 40) state that a Cronbach Alpha of 0.50 may be regarded as a satisfactory measurement outcome in basic research, however a coefficient of 0.70 or more, is required for an academically recognised reliable measurement indicator. This view on basic and exploratory research Cronbach Alpha values is supported by Nunnally (1978). Nunnally further states a Cronbach Alpha value of less than 0.55 is considered acceptable for basic and exploratory research.

The computer software program STATISTICA, was used to correlate the test items of the questionnaire, which measures the Independent Variables and the Dependent Variables. The results of this research Cronbach Alpha values' are presented in Table

3.13. As can be seen from the table, there is a high degree of internal consistency (and therefore Reliability) within each of the variables indicated as exceeding the Cronbach Alpha value of 0.70. The actual Cronbach Alpha results for three of the variables of this study, exceeded the 0.7 benchmark. Coding used within the measuring instrument has been defined for the respective variables, according to the key presented in Table 3.13.

Table 3.13: Coding and Cronbach Alpha values used within the questionnaire

Coding	Description of variable	Cronbach Alpha
WLB	Employee well-being (work-life balance)	0.72
S	Employee well-being (stress)	0.72
ICT	Impact of ICT Use after hours	0.71
FWC	Flexible working conditions	0.45
PA	Physiological aspects	0.46
ICT	Which ICT tools have the biggest impact	0.38

Source: Authors' own construction

The Cronbach Alpha values are presented for the individual questions in APPENDIX A. Each of the questions in the measuring instrument has been allocated a unique numerical reference number. Only those questions which are statistically acceptable, with reliable consistency have been presented in APPENDIX A. The letter allocation as applied in the form of the suffix "R", denotes the results being reversed, in order to achieve a suitable and appropriate statistical outcome.

The Validity of data refers to how credible the findings are and indicates the effectiveness of the measuring instrument (Lancaster, 2005). This represents the extent to which the data portrays reality. Zikmund, Babin, Carr and Griffin (2014) describe external validity as the ability for data to be generalised across persons, settings as well as time. Internal validity refers to the ability of the instrument to measure what it is professed to measure. This can involve a process of triangulation through reviewing literature and confirming data findings from secondary data sources to those of the findings of the primary research study.

3.10 STATISTICAL RELATIONSHIPS AMONGST VARIABLES

Having defined the requirements for reliability and validity measures of the data, the use of inferential statistics adds credibility to the research findings. This is achieved by way of hypothesis formulation and testing. The Null Hypothesis always states that there is no difference between the two groups of variables. This is presented in terms of a stated relationship or difference of Nil (Wegner, 2010). The Alternative hypothesis therefore states that there is a difference or relationship between the groups. During hypothesis testing, reference will be made to the p-value. This statistical descriptor refers to the probability of obtaining a test statistic at least as extreme as the one that was actually observed, assuming that the Null hypothesis is true (Wegner, 2010). A researcher is required to reject the Null hypothesis and accept the Alternative hypothesis when the p-value is found to be less than a certain significant level (for the purpose of maintaining sound academic research a p-value of 0.05 has been used throughout this research study) (Wegner, 2010).

Correlation refers to the degree to which two or more quantities are associated (Lancaster, 2005). Correlation provides an indication to the degree of association between groups of variables, through the measurement of the direction and strength of a linear relationship between them (Collis and Hussey, 2014). The degree of correlation is given by the Pearson's product-moment correlation coefficient, commonly referred to as Pearson's coefficient or the correlation coefficient. This coefficient is measured within the range of -1 to 1 with a positive result indicating that the variables increase together and a negative result indicating that they decrease together. The strength of the correlation is measured as follows for positive and negative values and associated correlations (Collis and Hussey, 2014):

Range	Description:
• 0.90 to 0.99	Very high positive correlation
• 0.70 to 0.89	High positive correlation
• 0.40 to 0.69	Medium positive correlation
• 0 to 0.39	Low positive correlation
• 0	No linear association

Table 3.14: Correlations between the variables

Variable	Correlations (Data) Marked correlations are significant at p < ,05000 N=103 (Casewise deletion of missing data)				
	Employee Well-being	**Use of ICT**	**Flexible Working Conditions**	**Physiological Aspects**	**ICT Tools**
Employee Well-being (WLB)	1.000	0.588	-0.022	0.481	-0.012
Use of ICT (ICT)		1.000	0.033	0.354	-0.074
Flexible Working Conditions			1.000	0.036	-0.014
Physiological Aspects (PA)				1.000	-0.180
ICT Tools (ICT)					1.000

Source: Author's own construction based on statistical data

From Table 3.14 it can be seen that a degree of positive correlation exists between the variables, with the use of ICT after hours and employee well-being being most significant. There is also a significant positive correlation between physiological aspects and employee well-being.

3.10.1 Hypothesised model

The conceptual framework has been constructed from the variables which have been described in detail within section 2.9 of this research document. The hypothesised model comprises elements as described within 3.10.2 through 3.10.6, for which the correlations and inter-relationships between variables are presented in Table 3.14. The actual accept or reject decisions of the hypothesised model are dealt with and discussed in detail within Chapter Four.

3.10.2 Hypothesis: Employee well-being

Employee well-being is measured in terms of work-life balance. It is expected that the DV will either decrease with an increase in the IV, or alternatively the DV will increase with a reduction in the IV. This expectation therefore provides the basis for the following hypothesis:

H1: The use of ICT outside of normal working hours has a negative influence on employee well-being.

This leaves the alternative hypothesis as follows:

Ho1: The use of ICT outside of normal working hours does not have a negative influence on employee well-being.

3.10.3 Hypothesis: Use of ICT after hours

It is expected that as the use of ICT after hours (IV) increases, employee work-life balance (DV) decreases. The above therefore provides the basis for the following hypothesis:

H2: The use of ICT after hours has a negative influence on employee work-life balance.

This leaves the alternative hypothesis as follows:

Ho2: The use of ICT after hours does not have a negative influence on employee work-life balance.

3.10.4 Hypothesis: Flexible working conditions

It is expected that as flexible working conditions (IV) increases, employee work-life balance (DV) decreases. The above therefore provides the basis for the following hypothesis:

H3: Flexible working conditions linked to ICT use after hours has a negative influence on employee work-life balance.

This leaves the alternative hypothesis as follows:

Ho3: Flexible working conditions linked to ICT use after hours does not have a negative influence on employee work-life balance.

3.10.5 Hypothesis: Physiological aspects

It is expected that as physiological aspects influences an employee's ability to adapt to changing work conditions (IV) increases, employee work-life balance (DV) decreases. The above therefore provides the basis for the following hypothesis:

H4: Physiological aspects affecting an employees' ability to adapt to changing working conditions has a negative influence on employee work-life balance.

This leaves the alternative hypothesis as follows:

Ho4: Physiological aspects affecting an employees' ability to adapt to changing working conditions does not have a negative influence on employee work-life balance.

3.10.6 Hypothesis: ICT tool with biggest impact

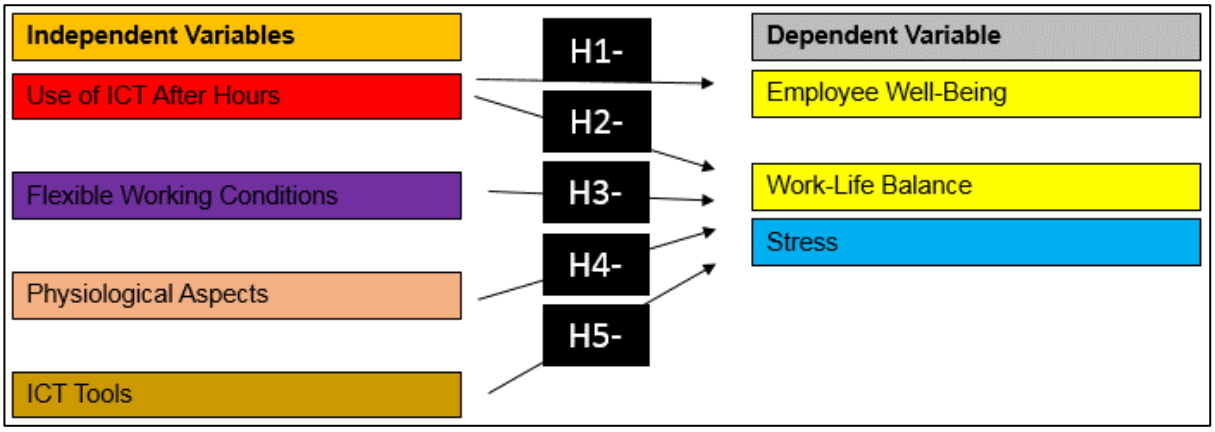
It is expected that differing ICT tools (email, cellular phone, smart phone etc.) do not impact (IV) on employee wellness (DV). The above therefore provides the basis for the following hypothesis:

H5: Differing ICT tools (email, cellular, smartphone, or other) has a negative influence on employee wellness.

This leaves the alternative hypothesis as follows:

Ho5: Differing ICT tools (email, cellular, smartphone, or other) does not have a negative influence on employee wellness.

Figure 3.12: Hypothesised relationships between variables



Source: Authors' own construction

3.11 CHAPTER SUMMARY

Using literature as a foundation, a measuring instrument in the form of a questionnaire was constructed to collect primary data in order to measure the dependent and independent variables included in the hypothesised relationships of the study (SO2). This process yielded survey data from 103 respondents being completed via a judgement sampling method. This has satisfied the requirements of SO3. Moreover, the data captured in Microsoft Excel has been analysed using descriptive statistics, and tested for validity and accuracy by using the STATISTICA computer software program. This satisfies the requirements of SO4. The data has been recorded in the form of the actual results, for which Part A demographic and biographical information has been presented in Chapter Three. This has satisfied the requirements of SO5. This leads to the presentation of the descriptive statistics, as contained within Chapter Four.

Chapter Three has provided insight into the types of research available to a researcher, as well as the main research paradigms. The approach chosen for the purposes of this study is that of a quantitative study, for which the research method has been described. This included a description of the sample, data collection process, and a description of the measuring instrument. Moreover, the results of the biographical and demographic aspects of the actual study have been presented and

discussed. A detailed analysis of the correlations of the variables has also been presented and discussed within this chapter.

A reliability test was carried out using the internal consistency method to determine the measuring instruments, in order to provide a reliable statistical study for each of the scales. The methods for collecting reliable and valid statistical data have been discussed, and have been found to be acceptable for basic exploratory research purposes. This study therefore satisfies the requirements of reliability and validity adequately.

Based on the responses to the questionnaire administered during June 2017, the results of the statistical analysis of the data which follows in Chapter Four will comprise an assessment in terms of the independent and dependent variables, namely:

- Employee well-being (work-life balance);
- Employee well-being (stress);
- Use of ICT after hours;
- Flexible working conditions;
- Physiological aspects; and
- Which ICT have the biggest impact.

The demographic composition of the sample revealed a slightly male dominant gender base (at 57% of respondents), with English speaking home language in the majority (59% of respondents). Furthermore, the age demographics indicated the largest group of respondents fall into the Generation Cohort of Generation X, implying being born between 1965 and 1979 (48% of respondents). The data analysis process revealed 59% of respondents are married, with a fairly even distribution of highest qualification level between matric (30%), diploma (27%) and post graduate degree (24%). The overwhelming number of respondents to this study fell into the category of Marketing and Sales functional unit (53% of respondents). The group with the highest response rate included those households with two to four dependents (51% of respondents) and a mix of management levels of middle management (34%), senior management (22%) and other (38%). Length of service of respondents was noted as

48% being those employees with eleven years and greater, followed by 36% of respondents with one to five years' service.

Table: 3.15: The research alignment grid

Primary and Secondary Research Objectives (PO's and SO's)	Primary and Secondary Research Questions (PRQ's and SRQ's)	Chapters	Deliverables
Using literature as a foundation, to construct a measuring instrument in the form of a questionnaire, which is used to collect primary data in order to measure the dependent and independent variables included in the hypothesised relationships of the study (SO2).		Chapter Three: Research Design.	
To collect data via a sample of at least 103 employees from the Target Company, who are most likely to be affected by the phenomena under investigation (SO3).		Chapter Three: Research Design.	

To capture the survey data on Microsoft Excel and analyse it using descriptive statistics. To test the data for validity and accuracy by using the STATISTICA computer software program (SO4).			
To record the results and interpret them based on the empirical data captured (SO5).		Chapter Three: Research Design.	

Source: Authors' own construction

CHAPTER FOUR: THE ANALYSIS AND INTERPRETATION OF THE EMPIRICAL STUDY

4.1 INTRODUCTION

Chapter Three served to introduce and describe the research design methodology undertaken in this study, which was founded on the literature review contained in Chapter Two. A measuring instrument was constructed and assists with satisfying the secondary research objectives, as identified in Section 1.3.2 including:

1. Collecting primary data in order to measure the Dependent and Independent Variables, according to the hypothesised relationships of the study (SO2);
2. Collecting primary data via a sample of 103 employees from the Target Company, who are affected by the phenomena under investigation (SO3);
3. Analysis of the primary data captured on Microsoft Excel using descriptive statistics. Test the data for validity and accuracy by using the STATISTICA computer software program (SO4);
4. Recording and interpreting the results based on the empirical data captured (SO5); and
5. Finally, providing conclusions which will provide the basis for managerial recommendations (SO6).

To recap briefly, the main research problem which this study aims to address is whether the use of ICT outside of normal working hours contributes negatively to employee well-being as measured in terms of work-life balance (Research Question 1) and more specifically, whether a framework can be developed to improve employee well-being associated with the use of ICT outside of normal working hours (Research Question 2). The questionnaire described in the introduction is based on the following research questions:

1. Does the use of ICT after hours negatively impact on employee work-life balance?
2. Does flexible working conditions linked to ICT use after hours negatively impact on employee work-life balance?

3. Does physiological aspects such as age, gender and ethnicity influence an employees' ability to adapt to changing work conditions, and therefore affect work-life balance?
4. Which ICT tool (email, cellular phone, smartphone or other) has the biggest impact on employee wellness?

Chapter Four serves to present an analysis of the descriptive statistics, with regard to the applicable research questions mentioned above, and discuss the results of the theorised and hypothesised model.

4.2 PRESENTATION AND ANALYSIS OF DESCRIPTIVE STATISTICS

The objective of this study is to develop a framework for managing the impact of ICT on employee well-being. To assist with the framework development, the intention of the survey was to capture the responses for a sample, which included employees of the Target Company with employer provided ICT tools. As highlighted in Chapter Three, 93% of the respondents are recipients of such employer provided ICT tools, thereby meeting the stated sample objective.

This section analyses and interprets the descriptive statistics with regard to the individual questions which were asked of the respondents as per Section B of the survey questionnaire. Section B comprises both the Independent Variable and Dependent Variables. Respondents' answers have been captured and illustrated in frequency tables and histogram charts. These responses specify the extent to which the respondents' well-being is affected in terms of work-life balance (WLB) and stress (S), in relation to the after hour use of ICT (ICT), flexible working conditions (FWC), physiological aspects (PA), and which ICT tool has the biggest impact (ICT) on employee well-being. The purpose of this exercise is to link the values which are most likely to result in negative effects in relation to employee well-being.

To facilitate the development of the framework, respondents were asked to register their level of agreement to multiple statements anchored on a five point Likert scale, ranging from strongly disagree to strongly agree. For the purpose of the

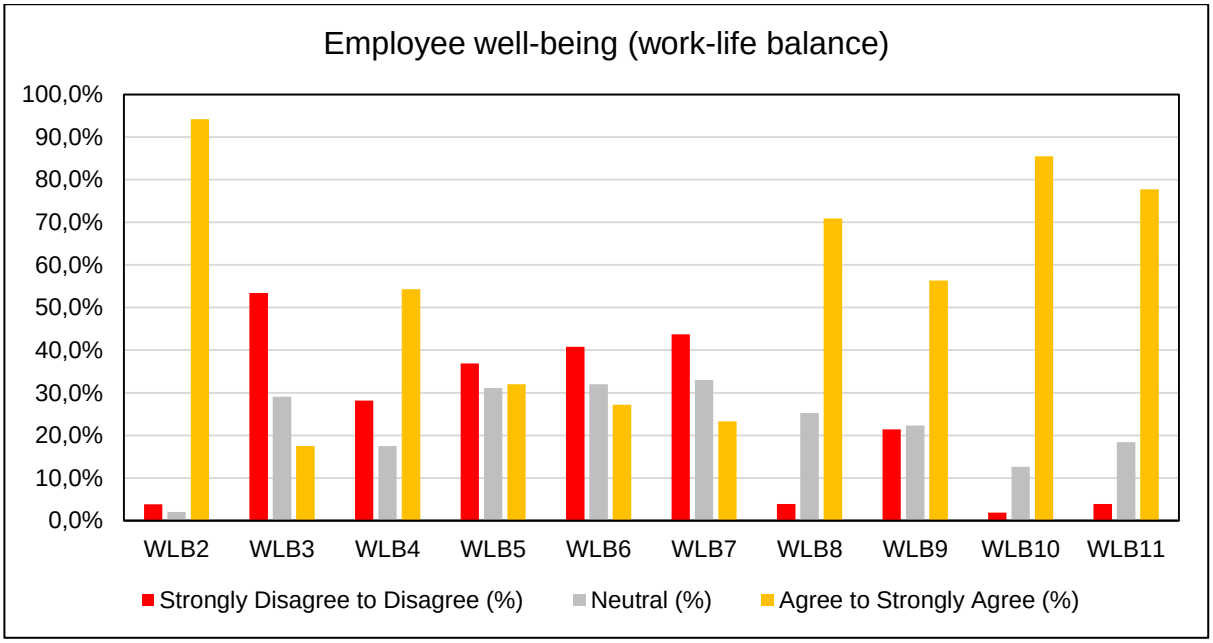
analysis, responses have been grouped into negative (disagree and strongly disagree), neutral and positive (agree to strongly agree) groups.

4.2.1 Employee well-being (Work-life balance)

Work-life balance (WLB), refers to the workplace environment and the interplay between work and personal life of an individual. Figure 4.1 and Table 4.1 reveal that work-life balance is important to the respondents (94.2% positive responses). Having sufficient downtime to unwind after work to gain perspective received the second highest response rate of 85.5% positive responses. This was followed closely by 77.7% positive responses indicating that respondents believed that their employer could do more to educate employees on the warning signs of negative work-life balance.

The Mean scores for WLB ranged from 2.56 to 4.38 with an Average Mean score of 3.34. This reflects responses by the respondents in the sample to the statements in this variable as being mostly positive. The Standard Deviations for work-life balance ranged from 0.64 to 1.02, which is an indication that the respondents were largely in agreement amongst themselves. The Standard Deviation is an indication of the spread of the responses around the mean score and therefore, the lower it is, the closer all the respondents are to the Mean score. Overall, the results of the Dependent Variable work-life balance show a tendency towards agreeing with the statements as reflected by the Average Mean score of 3.34.

Figure 4.1: Descriptive statistics on employee well-being (work-life balance)



Legend:

WLB2	Work-life balance is important to me
WLB3	I am unable to cope with the workload I face
WLB4	I still have energy for other activities at the end of the work day
WLB5	I feel that ICT causes interference with my work-life balance
WLB6	I believe that ICT provides a platform for placing unrealistic demands on me and my job
WLB7	Because ICT allows me to be contacted at home, this makes me irritable
WLB8	I believe that ICT makes my life easier
WLB9	I feel I am able to maintain a healthy work-life balance
WLB10	It is important for me to have sufficient downtime to unwind after work for me to gain perspective
WLB11	I believe my employer could do more to educate employees on the warning signs of negative work-life balance

Source: Author's own construction from survey data

Table 4.1: Descriptive statistics on employee well-being (work-life balance)

Code	Statement	Disagree	Neutral	Agree	Mean	Std. Dev.
		Percentages				
WLB2	Work-life balance is important to me	3.8%	2.0%	94.2%	4.38	0.96
WLB3	I am unable to cope with the workload I face	53.4%	29.1%	17.5%	2.56	0.97
*WLB4**	*I still have energy for other activities at the end of the work day*	*28.2%*	*17.5%*	*54.3%*	*3.20*	*0.98*
WLB5	I feel that ICT causes interference with my work-life balance	36.9%	31.1%	32.0%	2.93	1.02
WLB6	I believe that ICT provides a platform for placing unrealistic demands on me and my job	40.8%	32.0%	27.2%	2.84	0.92
WLB7	Because ICT allows me to be contacted at home, this makes me irritable	43.7%	33.0%	23.3%	2.79	0.88
*WLB8**	*I believe that ICT makes my life easier*	*3.9%*	*25.2%*	*70.9%*	*3.74*	*0.64*
*WLB9**	*I feel I am able to maintain a healthy work-life balance*	*21.4%*	*22.3%*	*56.3%*	*3.34*	*0.97*
WLB10	It is important for me to have sufficient downtime to unwind after work for me to gain perspective	1.9%	12.6%	85.5%	3.95	0.95
WLB11	I believe my employer could do more to educate employees on the warning signs of negative work-life balance	3.9%	18.4%	77.7%	3.89	0.95
AVERAGE MEAN SCORE					**3.34**	
***Statement in italics was deleted from Work-life Balance, as the alpha score did not provide sufficient reliability.**						

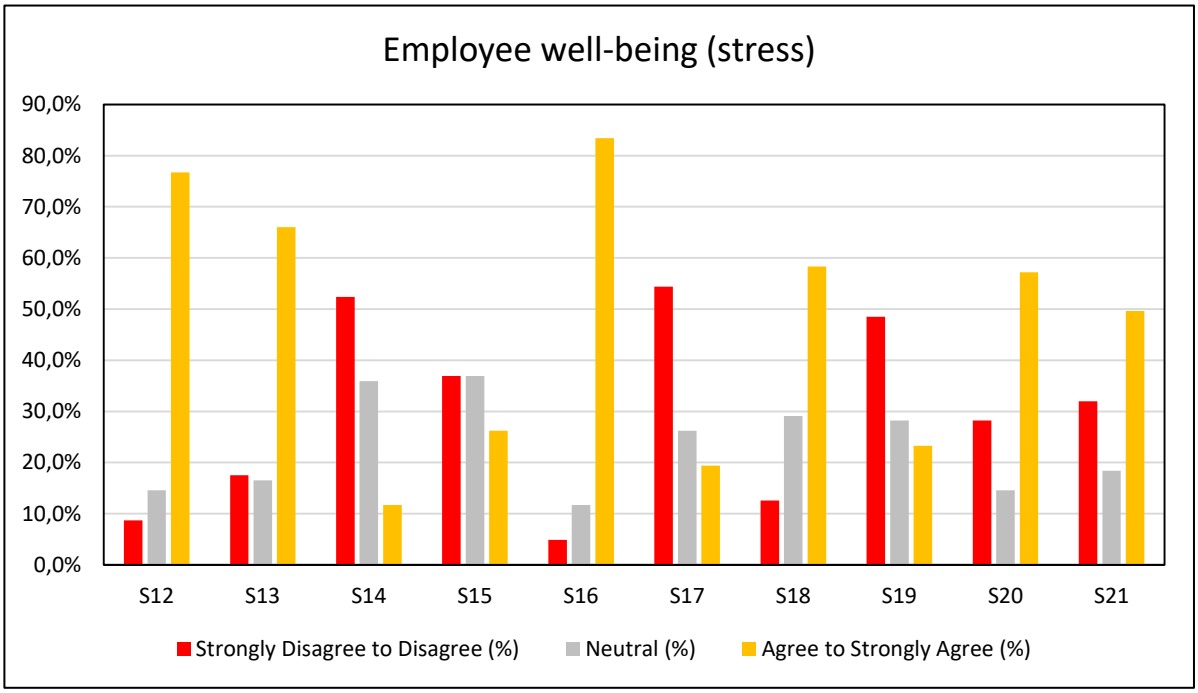
Source: Author's own construction from survey data

4.2.2 Employee well-being (Stress)

The Dependent Variable employee stress observations are depicted in Figure 4.2

and Table 4.2. The results reveal that Respondents believe that ICT is contributing to an ever increasing faster pace of work with 83.4% positive responses. Respondents reported checking emails regularly because of fearing missing an important message to the extent of 76.7% positive responses. This was followed closely by 66.0% positive responses indicating that respondents believed that their work responsibilities caused a reasonable amount of stress in their life.

Figure 4.2: Descriptive Statistics on employee well-being (stress)



Legend:

S12	I check my emails regularly because I fear missing an important message
S13	My work responsibilities cause a reasonable amount of stress in my life
S14	ICT is the primary contributor towards my feeling of stress
S15	I wish my employer would block emails on weekends & public holidays to give me a chance to switch off
S16	ICT is contributing to an ever increasing faster pace of work
S17	I am uncertain if my employer expects me to be available 24 / 7
S18	I do not like dealing with the uncertainty of not knowing
S19	My employer has taken the time to discuss expectations with respect to turnaround time on emails with me.
S20	Problems associated with my job have kept me awake at night
S21	I feel I have to take work home in the evenings to stay caught up

Source: Author's own construction from survey data

There were 58.3% positive responses to the question: I do not like dealing with the uncertainty of not knowing, which agrees to the literature findings contained in section 2.3.3. The results also revealed 36.9% neutral responses to the question: I wish my employer would block email service on weekends and public holidays to give me a chance to switch off. The findings seem to be at odds with the 57.2% who indicated that problems associated with their job have kept respondents awake at night, and the 49.6% of respondents which indicated that they feel they have to take work home in the evenings to stay caught up.

The Mean scores for stress ranged from 2.56 to 3.92 with an Average Mean score of 3.28. This reflects responses by the respondents in the sample to the statements in this variable as being mostly positive. The Standard Deviations for stress ranged from 0.81 to 1.14, which is an indication that the respondents were largely in agreement amongst themselves. Overall, the results of the Dependent Variable stress shows a tendency towards agreeing with the statements as reflected by the Average Mean score of 3.28.

Table 4.2: Descriptive statistics on employee well-being (stress)

Code	Statement	Percentages			Mean	Std. Dev.
		Disagree	Neutral	Agree		
S12	I check my emails regularly because I fear missing an important message	8.7%	14.6%	76.7%	3.89	0.87
S13	My work responsibilities cause a reasonable amount of stress in my life	17.5%	16.5%	66.0%	3.52	1.07
S14	ICT is the primary contributor towards my feeling of stress	52.4%	35.9%	11.7%	2.56	0.81
S15	I wish my employer would block email service on weekends and public holidays to give me a chance to switch off	36.9%	36.9%	26.2%	2.91	1.10
S16	ICT is contributing to an ever increasing faster pace of work	4.9%	11.7%	83.4%	3.92	0.89
S17	I am uncertain if my employer expects me to be available 24 / 7	54.4%	26.2%	19.4%	2.59	0.96

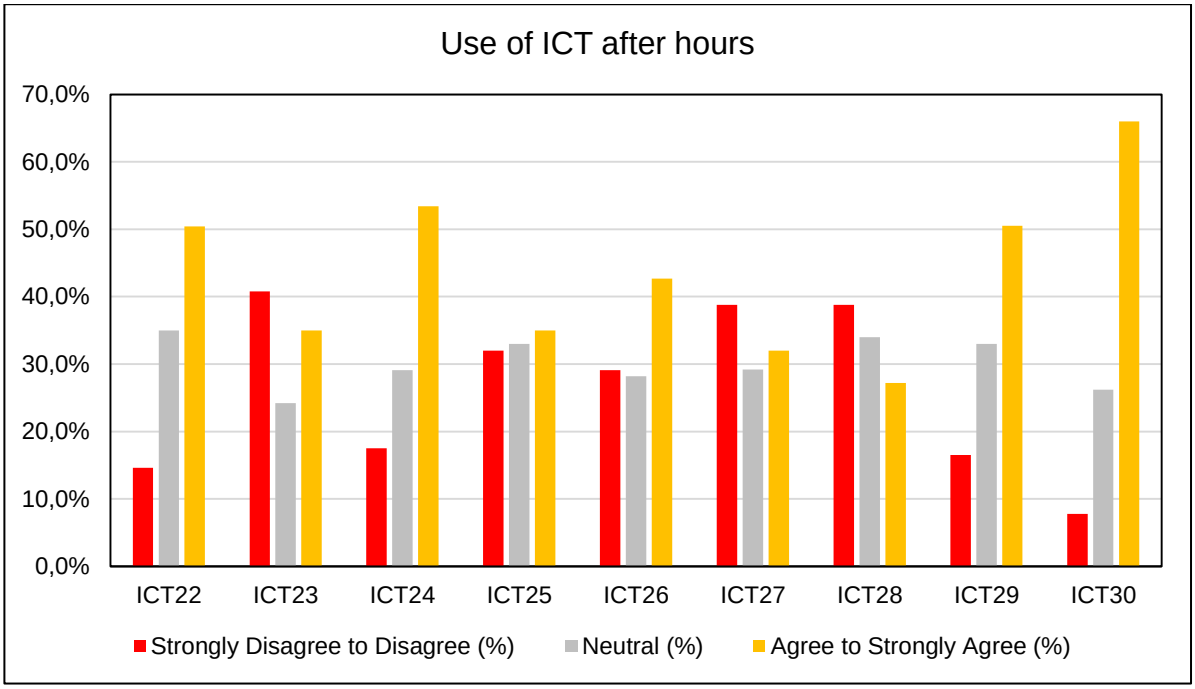
S18	I do not like dealing with the uncertainty of not knowing	12.6%	29.1%	58.3%	3.51	0.93
*S19**	*My employer has taken the time to discuss expectations with respect to turnaround response time on emails etc. with me*	*48.5%*	*28.2%*	*23.3%*	*2.70*	*0.92*
S20	Problems associated with my job have kept me awake at night	28.2%	14.6%	57.2%	3.36	1.14
S21	I feel I have to take work home in the evenings to stay caught up	32.0%	18.4%	49.6%	3.25	1.05
AVERAGE MEAN SCORE *****Statement in italics was deleted from Stress, as the alpha score did not provide sufficient reliability.					**3.28**	

Source: Author's own construction from survey data

4.2.3 Use of ICT after hours (ICT)

The Independent Variable use of ICT after hours as depicted in Figure 4.3 and Table 4.3 reveal that respondents believe their employer should clarify as to what it considers reasonable and appropriate practice for the use of ICT after hours (66.0% positive responses). Respondents indicated that more of their work colleagues were taking work home because of ICT platforms as the second highest response rate, with 53.4% positive responses. This was followed closely by 50.4% positive responses with respondents believing that their employer should not promote the use of ICT after normal working hours amongst employees. If the 50.4% is combined with the 35.0% neutral responses to the question ICT22, a combined 85.4% of the respondents believe their employer should not promote the use of ICT after normal working hours amongst employees. This statistic alone provides overwhelming evidence that the effects of ICT use after hours is negatively affecting the well-being of employee's.

Figure 4.3: Descriptive Statistics on use of ICT after hours



Legend:

ICT22	I do not think that my employer should promote the use of ICT after normal working hours amongst employees
ICT23	I do not allow use of ICT after normal working hours to impact my private and family life
ICT24	More of my work colleagues are taking work home because of ICT platforms
ICT25	I feel that after hours use of ICT adds to my work pressure
ICT26	I feel that after hours use of ICT adds to my work load because I can take work home with me
ICT27	Without using ICT after hours, we will not be able to maintain a competitive edge over the competition
ICT28	After hours use of ICT either directly or indirectly leads to a breakdown in my relationships with my family
ICT29	ICT use after hours creates an opportunity for me to contribute more in terms of productivity to my employer
ICT30	My employer should clarify as to what it considers reasonable & appropriate practice for the use of ICT after hours.

Source: Author's own construction from survey data

The Mean scores for use of ICT after hours ranged from 2.86 to 3.64 with an Average Mean score of 3.21. This reflects responses by the respondents in the sample to the statements in this variable as being mostly positive. The Standard Deviations for work-life balance ranged from 0.89 to 1.07, which is an indication that the respondents were largely in agreement amongst themselves. Overall, the results of

the Independent Variable use of ICT after hours show a tendency towards agreeing with the statements as reflected by the Average Mean score of 3.21.

Table 4.3: Descriptive statistics on use of ICT after hours (ICT)

Code	Statement	Disagree	Neutral	Agree	Mean	Std. Dev.
		Percentages				
ICT22	I do not think that my employer should promote the use of ICT after normal working hours amongst employees	14.6%	35.0%	50.4%	3.44	0.97
ICT23	I do not allow use of ICT after normal working hours to impact my private and family life	40.8%	24.2%	35.0%	2.91	1.01
ICT24	More of my work colleagues are taking work home because of ICT platforms	17.5%	29.1%	53.4%	3.37	1.07
ICT25	I feel that after hours use of ICT adds to my work pressure	32.0%	33.0%	35.0%	3.05	0.89
ICT26	I feel that after hours use of ICT adds to my work load because I can take work home with me	29.1%	28.2%	42.7%	3.17	0.92
*ICT27**	*Without using ICT after hours, we will not be able to maintain a competitive edge over the competition*	*38.8%*	*29.2%*	*32.0%*	*2.90*	*1.01*
ICT28	After hours use of ICT either directly or indirectly leads to a breakdown in my relationships with my family members	38.8%	34.0%	27.2%	2.86	0.97
*ICT29**	*ICT use after hours creates an opportunity for me to contribute more in terms of productivity to my employer*	*16.5%*	*33.0%*	*50.5%*	*3.37*	*0.96*
ICT30	My employer should clarify either verbally or in writing as to what it considers reasonable and appropriate practice for the use of ICT after hours	7.8%	26.2%	66.0%	3.64	0.96
AVERAGE MEAN SCORE					**3.21**	

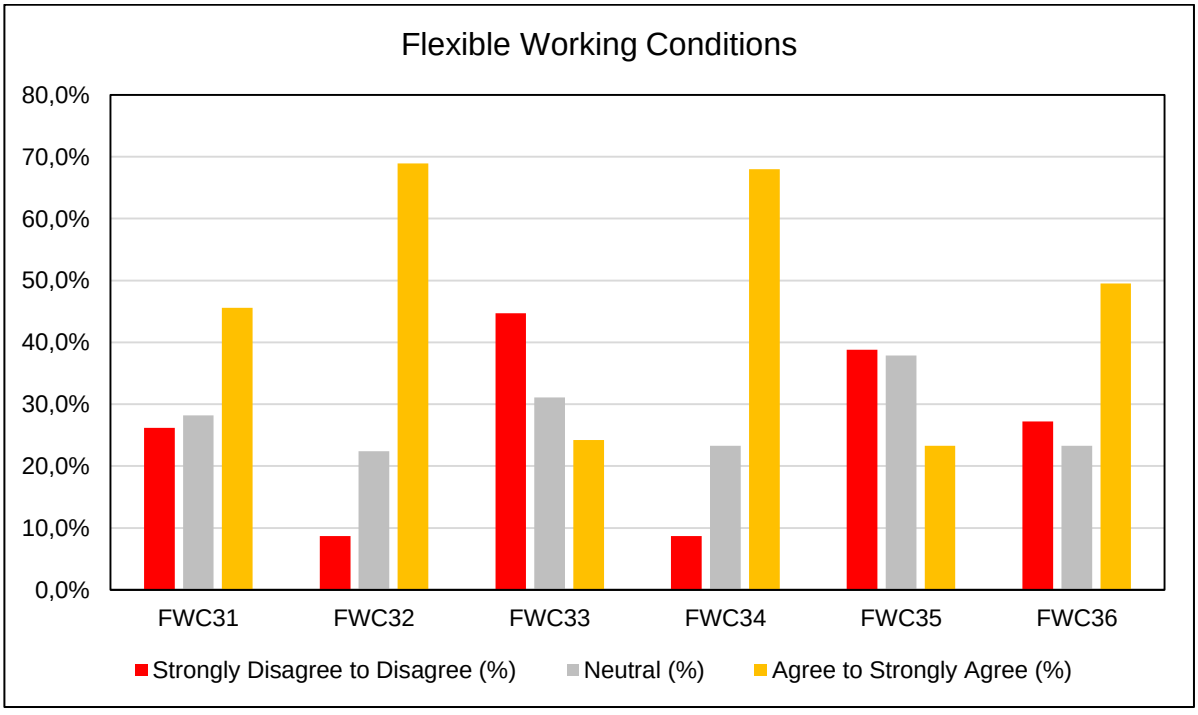
*Statement in italics was deleted from Use of ICT After Hours, as the alpha score did not provide sufficient reliability.	

Source: Author's own construction from survey data

4.2.4 Flexible working conditions (FWC)

The Independent Variable flexible working conditions as depicted in Figure 4.4 and Table 4.4 reveals that respondents believe flexible working conditions reduces the stresses of balancing work and family commitments (68.9% positive responses). This finding has been confirmed in the literature review Chapter Two, sections 2.5.3 and 2.5.4. Respondents indicated that flexible working conditions allows them to actively shape their working conditions as the second highest response rate, with 68.0% positive responses. This was followed by 45.6% positive responses with respondents believing flexible working conditions mean that they have no option other than to use ICT to work from home.

Figure 4.4: Descriptive Statistics on flexible working conditions



Legend:

FWC31	Flexible working conditions mean that I have no option other than to use ICT to work from home
FWC32	Flexible working conditions reduces the stresses of balancing work and family commitments

FWC33	Flexible working conditions gives my employer the opportunity to contact me at any hour of the day / night
FWC34	Flexible working conditions allows me to actively shape my working conditions
FWC35	I find that flexible working conditions indirectly impacts on family time by blurring of boundary lines
FWC36	My employer has clearly defined policies and guidelines communicated widely within the organisation as to what is acceptable or unacceptable behavior with respect to flexible working conditions

Source: Author's own construction from survey data

The Mean scores for flexible working conditions ranged from 2.70 to 3.77 with an Average Mean score of 3.34. This reflects responses by the respondents in the sample to the statements in this variable as being mostly positive. The Standard Deviations for flexible working conditions ranged from 0.81 to 1.05, which is an indication that the respondents were largely in agreement amongst themselves. Overall, the results of the Independent Variable flexible working conditions show a tendency towards agreeing with the statements as reflected by the Average Mean score of 3.34.

Table 4.4: Descriptive statistics on flexible working conditions (FWC)

Code	Statement	Percentages			Mean	Std. Dev.
		Disagree	Neutral	Agree		
FWC31	Flexible working conditions mean that I have no option other than to use ICT to work from home	26.2%	28.2%	45.6%	3.19	1.05
FWC32	Flexible working conditions reduces the stresses of balancing work and family commitments	8.7%	22.4%	68.9%	3.77	0.83
*FWC33**	*Flexible working conditions gives my employer the opportunity to contact me at any hour of the day / night which is leading to a degree of work-a-holism*	*44.7%*	*31.1%*	*24.2%*	*2.70*	*1.01*

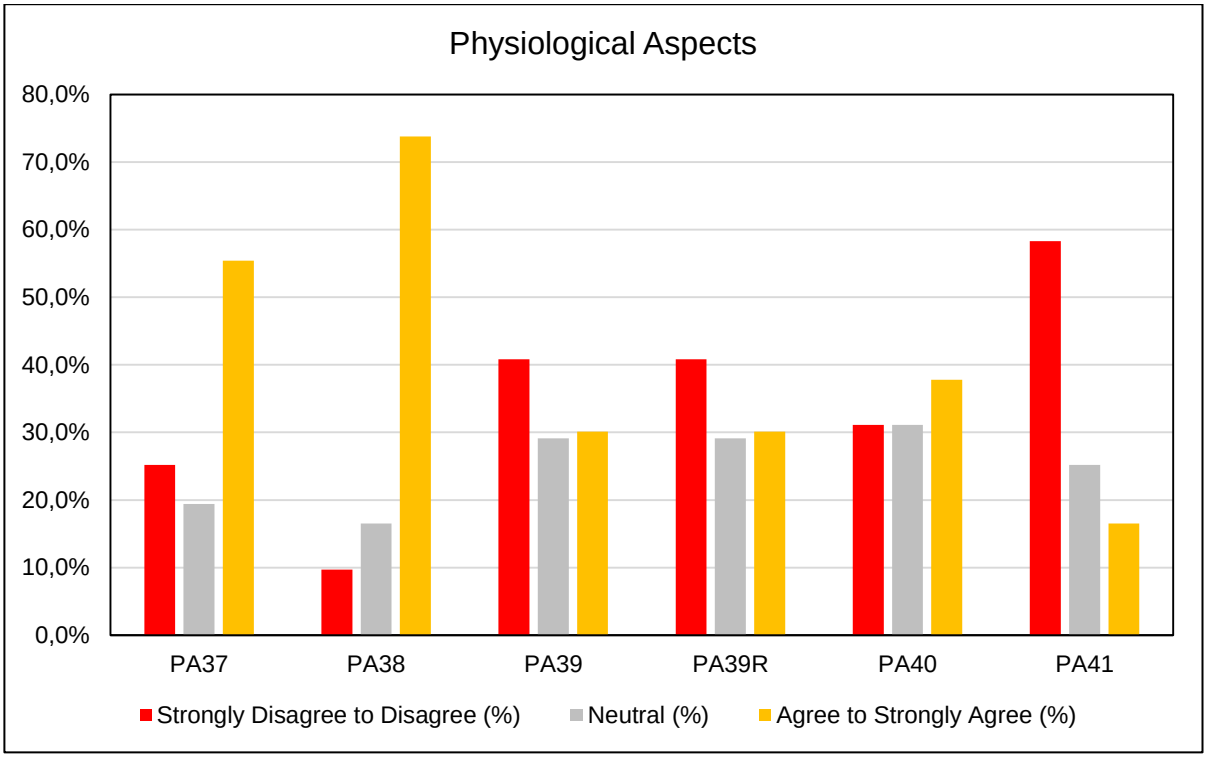
FWC34	Flexible working conditions allows me to actively shape my working conditions	8.7%	23.3%	68.0%	3.73	0.81
*FWC35**	*I find that flexible working conditions indirectly impacts on family time by blurring of boundary lines between work and private life*	*38.8%*	*37.9%*	*23.3%*	*2.79*	*0.87*
*FWC36**	*My employer has clearly defined policies and guidelines communicated widely within the organisation as to what is acceptable or unacceptable behavior with respect to flexible working conditions*	*27.2%*	*23.3%*	*49.5%*	*3.23*	*0.99*
AVERAGE MEAN SCORE *****Statement in italics was deleted from Flexible Working Conditions, as the alpha score did not provide sufficient reliability.					**3.34**	

Source: Author's own construction from survey data

4.2.5 Physiological aspects (PA)

The Independent Variable physiological aspects as depicted in Figure 4.5 and Table 4.5 reveal that respondents believe they are able to easily adapt to new ICT technologies (73.8% positive responses). Respondents indicated that they feel being constantly available to work demonstrates their devotion to their career and employer as the second highest response rate, with 55.4% positive responses. This was followed by 37.8% positive responses from respondents, believing that they spend too much time using their iPad / Laptop / Computer / Smartphone that they would like too. If PA40 positive responses of 37.8% are combined with the neutral responses of 31.1% for the same question, this gives a combined 68.9% result. This provides overwhelming support by respondents, that they would prefer doing activities other than using their ICT devices.

Figure 4.5: Descriptive Statistics on physiological aspects



Legend:

PA37	I feel that being constantly available to work demonstrates my devotion to my career and my employer
PA38	I feel that I am able to easily adapt to new ICT technologies
PA39	I have experienced frustrations with ICT tools in not knowing how to use them to their full potential
PA39R	I have experienced frustrations with ICT tools in not knowing how to use them to their full potential (Reversed)
PA40	I spend too much time using my laptop / computer / iPad / Smartphone than I would like too
PA41	I find it difficult to keep up with the pace of technological change

Source: Author's own construction from survey data

The Mean scores for physiological aspects ranged from 2.55 to 3.63 with an Average Mean score of 2.84. This reflects responses by the respondents in the sample to the statements in this variable as being slightly more positive than neutral. The Standard Deviations for physiological aspects ranged from 0.94 to 1.08, which is an indication that the respondents were largely in agreement amongst themselves. Overall, the results of the Independent Variable physiological aspects show a tendency towards agreeing with the statements as reflected by the Average Mean score of 3.34.

Table 4.5: Descriptive statistics on physiological aspects (PA)

Code	Statement	Disagree	Neutral	Agree	Mean	Std. Dev.
		Percentages				
*PA37**	*I feel that being constantly available to work demonstrates my devotion to my career and my employer*	*25.2%*	*19.4%*	*55.4%*	*3.36*	*1.02*
*PA38**	*I feel that I am able to easily adapt to new ICT technologies*	*9.7%*	*16.5%*	*73.8%*	*3.63*	*0.97*
PA39	I have experienced frustrations with ICT tools in not knowing how to use them to their full potential	40.8%	29.1%	30.1%	2.85	1.08
PA39 Reversed	I have experienced frustrations with ICT tools in not knowing how to use them to their full potential (Reversed)	40.8%	29.1%	30.1%	3.09	1.00
PA40	I spend too much time using my laptop / computer / iPad / Smartphone than I would like too	31.1%	31.1%	37.8%	3.13	0.99
PA41	I find it difficult to keep up with the pace of technological change	58.3%	25.2%	16.5%	2.55	0.94
AVERAGE MEAN SCORE ***Statement in italics was deleted from Physiological Aspects, as the alpha score did not provide sufficient reliability.					**2.84**	

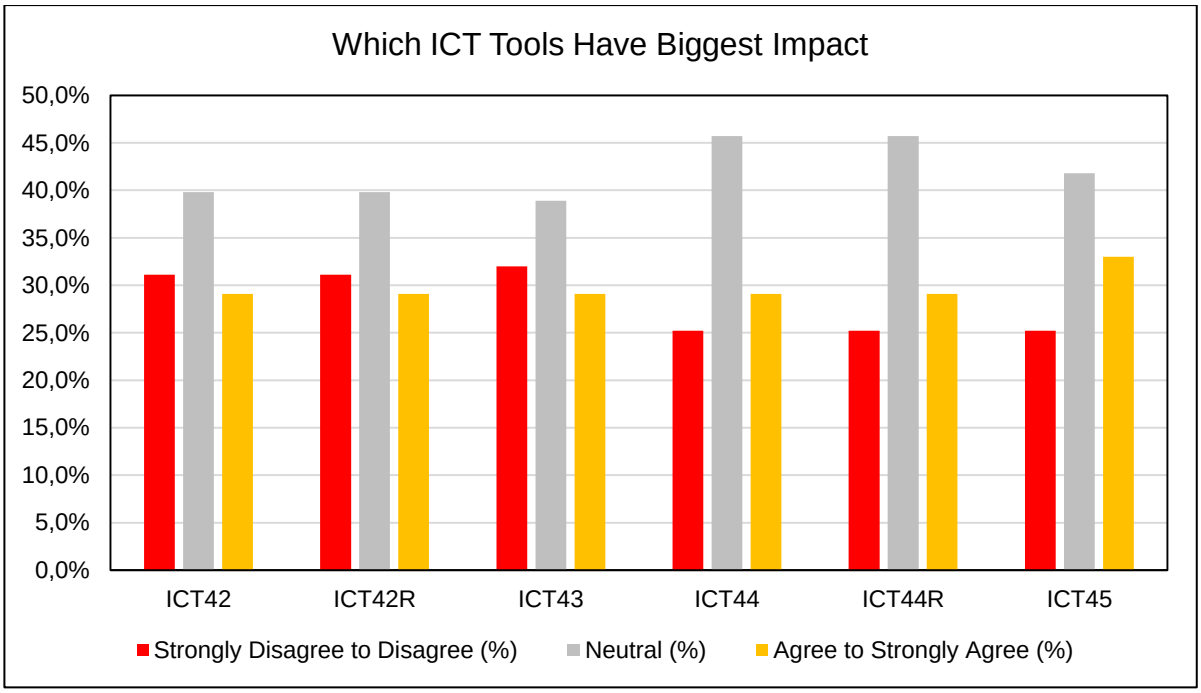
Source: Author's own construction from survey data

4.2.6 Which ICT tools have biggest impact (ICT)

The Independent Variable ICT tools having the biggest impact as depicted in Figure 4.6 and Table 4.6 reveal that respondents sampled are neutral when it comes to preference in sending and receiving emails, instead of Sametime or Whatsapp messages (45.7% neutral responses). Respondents also indicated that they are indifferent as to which ICT tools they prefer using, with a 41.8% neutral response rate. Similarly, ICT42R revealed a 39.8% neutral response rate, in connection with

preference to making and receiving a phone call, than sending and receiving and email. This result was closely followed by respondents indicating 38.9% neutral responses to preferring instant messaging than making or receiving a phone call.

Figure 4.6: Descriptive statistics on which ICT tools have the biggest impact



Legend:

ICT42	I prefer making and receiving a phone call than sending and receiving an email
ICT42R	I prefer making and receiving a phone call than sending and receiving an email (Reversed)
ICT43	I prefer using instant messaging tools such as Sametime, Whatsapp. than making and receiving a phone call
ICT44	I prefer sending and receiving an emails instead of Sametime, Whatsapp messages
ICT44R	I prefer sending and receiving an emails instead of Sametime, Whatsapp message (Reversed)
ICT45	I am indifferent as to which ICT tool I prefer using

Source: Author's own construction from survey data

The Mean scores for ICT tools having the biggest impact ranged from 2.94 to 3.05 with an Average Mean score of 2.97. This reflects responses by the respondents in the sample to the statements in this variable as being more positive than neutral. The Standard Deviations for ICT tools having the biggest impact ranged from 0.91 to 1.04,

which is an indication that the respondents were largely in agreement amongst themselves. Overall, the results of the Independent Variable ICT tools having the biggest impact show a tendency towards agreeing with the statements as reflected by the Average Mean score of 2.97.

Table 4.6: Descriptive statistics on ICT tools with biggest impact (ICT)

Code	Statement	Disagree	Neutral	Agree	Mean	Std. Dev.
		Percentages				
*ICT42**	*I prefer making and receiving a phone call than sending and receiving an email*	*31.1%*	*39.8%*	*29.1%*	*2.98*	*1.04*
ICT42R	I prefer making and receiving a phone call than sending and receiving an email (Reversed)	31.1%	39.8%	29.1%	2.99	1.00
ICT43	I prefer using instant messaging tools such as Sametime, Whatsapp etc. than making and receiving a phone call	32.0%	38.9%	29.1%	2.94	0.91
*ICT44**	*I prefer sending and receiving an emails instead of Sametime, Whatsapp messages*	*25.2%*	*45.7%*	*29.1%*	*3.01*	*0.97*
ICT44R	I prefer sending and receiving an emails instead of Sametime, Whatsapp message (Reversed)	25.2%	45.7%	29.1%	2.96	0.92
*ICT45**	*I am indifferent as to which ICT tool I prefer using*	*25.2%*	*41.8%*	*33.0%*	*3.05*	*0.89*
AVERAGE MEAN SCORE					**2.97**	

*****Statement in italics was deleted from ICT Tools Having The Biggest Impact, as the alpha score did not provide sufficient reliability.

Source: Author's own construction from survey data

4.3 THE RELATIONSHIP BETWEEN VARIABLES

The section which follows, serves to present the statistical relationships between the dependent and independent variables. This has been discussed in terms of the hypothesised model.

The empirical results of the survey data have been analysed using multiple regression analysis techniques. Regression analysis according to Wegner (2010) is a statistical method which seeks to quantify and predict the value of a Dependent Variable based on the value of two or more other variables. Multiple regression analysis is considered to be an extension of simple linear regression. The relationships between the Dependent and Independent Variables, in terms of the hypotheses that were formulated in this study, can be found in Table 4.7.

Table 4.7 shows that the most significant determinants of employee well-being in this sample are after hour use of ICT ($r = 0.48$, $p < 0.05$) and physiological aspects ($r = 0.33$, $p < 0.05$). The most significant is that of use of ICT after hours having the greatest positive impact. Employees are therefore likely to be more impacted by the use of ICT after hours than those variables that do not possess its statistical values. Flexible working conditions and ICT tools having the biggest impact are not significantly related to employee well-being. It should be note that flexible working conditions shows a negative impact on employee well-being. According to the R^2, all four Independent Variables explain 44% of the variance in employee well-being, which is an indication that the selected variables are important factors influencing employee well-being. The use of ICT and physiological aspects are more important in influencing employee well-being.

Table 4.7: The relationship between the variables

Regression Summary for Dependent Variable: EMPLOYEE WELL-BEING

N = 103

R^2 = 0,43911962

F(4,98) = 19,181; P<0,0000; *P<0,05

	Beta Coefficient	Std. Error	B Coefficient	Std. Error	t-value	p-value	
Intercept			1.0694	0.4641	2.3040	0.0233	
Use of ICT (ICT)	0.4794	0.0809	0.4739	0.0800	5.9249	0.0000	*
Flexible Working Conditions (FWC)	-0.0488	0.0757	-0.0637	0.0988	-0.6441	0.5210	
Physiological Aspects (PA)	0.3273	0.0820	0.2735	0.0686	3.9890	0.0001	*
ICT Tools (ICT)	0.0818	0.0769	0.0614	0.0577	1.0634	0.2902	

** Indicates significant relationship*

Source: STATISTICA output by Dr. Jan Du Plessis from survey data

4.3.1 The relationship between EWB and after hour use of ICT

For the purposes of this research study, employee well-being is measured in relation to after hour use of ICT. It is expected that the DV will either decrease with an increase in the IV, or alternatively the DV will increase with a reduction in the IV. The above relationships were investigated using the following hypothesis that was formulated:

H1: The use of ICT outside of normal working hours has a negative influence on employee well-being.

This leaves the alternative hypothesis as follows:

Ho1: The use of ICT outside of normal working hours does not have a negative influence on employee well-being.

The results of multiple regression analysis that depict the relationship between employee well-being and after hour use of ICT are illustrated in Table 4.7. According to the statistical analysis, after hour use of ICT has a p-value of 0.0000 ($p < 0.05$) which means that the Null Hypothesis is not supported and hypothesis H1 is accepted.

This means that the use of ICT outside of normal working hours has a negative influence on employee well-being.

4.3.2 The relationship between EWL and after hour use of ICT

For the purposes of this research study, employee work-life balance is measured in relation to after hour use of ICT. It is expected that as the use of ICT after hours (IV) increases, employee work-life balance (DV) decreases. The above relationships were investigated using the following hypothesis that was formulated:

H2: The use of ICT after hours has a negative influence on employee work-life balance.

This leaves the alternative hypothesis as follows:

Ho2: The use of ICT after hours does not have a negative influence on employee work-life balance.

The results of multiple regression analysis that depict the relationship between employee work-life balance and after hour use of ICT are illustrated in Table 4.7. According to the statistical analysis, after hour use of ICT has a p-value of 0.0000 ($p < 0.05$) which means that the Null Hypothesis is not supported and hypothesis H2 is accepted. **This means that the use of ICT outside of normal working hours has a negative influence on employee work-life balance.**

4.3.3 The relationship between EWL and flexible working conditions

For the purposes of this research study, employee work-life balance is measured in relation to flexible working conditions. It is expected that as flexible working conditions (IV) increases, employee work-life balance (DV) decreases. The above therefore provides the basis for the following hypothesis:

H3: Flexible working conditions linked to ICT use after hours has a negative influence on employee work-life balance.

This leaves the alternative hypothesis as follows:

Ho3: Flexible working conditions linked to ICT use after hours does not have a negative influence on employee work-life balance.

The results of multiple regression analysis that depict the relationship between employee work-life balance and flexible working conditions are illustrated in Table 4.7. According to the statistical analysis, flexible working conditions has a p-value of 0.5210 ($p > 0.05$) which means that the Null Hypothesis is supported and hypothesis H3 is rejected. **This means that flexible working conditions linked to ICT use after hours does not have a negative influence on employee work-life balance.**

4.3.4 The relationship between EWL and physiological aspects

For the purposes of this research study, employee work-life balance is measured in relation to physiological aspects. It is expected that as physiological aspects such as age, gender etc. influences an employee's ability to adapt to changing work conditions (IV) increases, employee work-life balance (DV) decreases. The above therefore provides the basis for the following hypothesis:

H4: Physiological aspects affecting an employees' ability to adapt to changing working conditions has a negative influence on employee work-life balance.

This leaves the alternative hypothesis as follows:

Ho4: Physiological aspects affecting an employees' ability to adapt to changing working conditions does not have a negative influence on employee work-life balance.

The results of multiple regression analysis that depict the relationship between employee work-life balance and physiological aspects are illustrated in Table 4.7. According to the statistical analysis, physiological aspects has a p-value of 0.0001 ($p < 0.05$) which means that the Null Hypothesis is not supported and hypothesis H4 is accepted. **This means that physiological aspects affecting an employees' ability**

to adapt to changing working conditions has a negative influence on employee work-life balance.

4.3.5 The relationship between EWL and ICT tools with the biggest impact

For the purposes of this research study, employee work-life balance is measured in relation to which ICT Tools have the biggest impact. It is expected that differing ICT tools (email, cellular phone, smart phone etc.) do not impact (IV) on employee wellness (DV). The above therefore provides the basis for the following hypothesis:

H5: Differing ICT tools (email, cellular, smartphone, or other) has a negative influence on employee wellness.

This leaves the alternative hypothesis as follows:

Ho5: Differing ICT tools (email, cellular, smartphone, or other) does not have a negative influence on employee wellness.

The results of multiple regression analysis that depict the relationship between employee work-life balance and ICT tools with the biggest Impact are illustrated in Table 4.7. According to the statistical analysis, ICT tools with the biggest impact has a p-value of 0.2909 ($p > 0.05$) which means that the Null Hypothesis is supported and hypothesis H5 is rejected. **This means that differing ICT tools (email, cellular, smartphone, or other) does not have a negative influence on employee wellness.**

4.3.6 Summary of the relationship between the chosen variables

A summary of the relationships between the chosen variables have been presented and discussed in sections 4.3 – 4.3.5. The results show that employee well-being and work-life balance is most likely to be affected by the use of ICT after hours and physiological aspects. Flexible working conditions and ICT tools having the biggest impact are however not related to employee well-being. These findings will be used to develop the framework to manage the impact of ICT on employee well-being, which discussed in Chapter Five which follows.

Table 4.8: The hypothesis accept or reject decision and p-values

Coding	Hypothesis	Accept or Reject	p-value
WLB	**H1:** The use of ICT outside of normal working hours has a negative influence on employee well-being.	Accept	0.0233
WLB	**Ho1:** The use of ICT outside of normal working hours does not have a negative influence on employee well-being.	Reject	0.0233
ICT	**H2:** The use of ICT after hours has a negative influence on employee work-life balance.	Accept	0.0000
ICT	**Ho2:** The use of ICT after hours does not have a negative influence on employee work-life balance.	Reject	0.0000
FWC	**H3:** Flexible working conditions linked to ICT use after hours has a negative influence on employee work-life balance.	Reject	0.5210
FWC	**Ho3:** Flexible working conditions linked to ICT use after hours does not have a negative influence on employee work-life balance.	Accept	0.5210
PA	**H4:** Physiological aspects affecting an employees' ability to adapt to changing working conditions has a negative influence on employee work-life balance.	Accept	0.0001
PA	**Ho4:** Physiological aspects affecting an employees' ability to adapt to changing working conditions does not have a negative influence on employee work-life balance.	Reject	0.0001

ICT	**H5:** Differing ICT tools (email, cellular, smartphone, or other) has a negative influence on employee wellness.	Reject	0.2902
ICT	**Ho5:** Differing ICT tools (email, cellular, smartphone, or other) does not have a negative influence on employee wellness.	Accept	0.2902

Source: Authors' own construction

4.4 CHAPTER SUMMARY

This chapter served to present the descriptive statistics in the form of a detailed analysis. Data was collected through the use of a quantitative analysis technique, whereby the results of 103 respondents surveyed were linked back to Chapter Two and Chapter Three of this research paper. Of these 103 respondents, 97% of the sample indicated being the recipients of employer provided ICT tools. A detailed analysis of the data was performed by grouping the questions answered by the respondents into scales that align with the factors that have been discussed in the literature review and research methodology sections.

The inferential statistical analysis revealed that employee well-being as measured by work-life balance as being important to the respondents (94.2% positive responses). Having sufficient downtime to unwind after work to gain perspective received the second highest response rate of 85.5% positive responses. Findings related to employee well-being as measured in terms of stress, revealed that respondents believe that ICT is contributing to an ever increasing faster pace of work with 83.4% positive responses. Respondents reported checking emails regularly because of fearing missing an important message to the extent of 76.7% positive responses. The links between both employee well-being as measured by work-life balance and stress have shown that the use of ICT outside of normal working hours has a negative influence on employee well-being, as measured in terms of employee work-life balance and stress. It is also important to note that respondents reported an

overwhelming 66% positive responses, in believing their employer should clarify as to what it considers reasonable and appropriate practice for the use of ICT after hours.

While the above direct associations were noted, flexible working conditions linked to ICT use after hours were found to have a positive influence on employee work-life balance. In fact respondents reported believing flexible working conditions reduces the stresses of balancing work and family commitments (68.9% positive responses), thereby positively impacting on employee wellness. Respondents indicated that flexible working conditions allows them to actively shape their working conditions as the second highest response rate (68.0%). Additionally, physiological aspects were found to affect an employees' ability to adapt to changing working conditions, by having a negative influence on employee work-life balance. A critical observation included respondents believing that they are able to easily adapt to new ICT technologies (73.8% positive responses). Lastly, based on the observed statistical data, differing ICT tools (email, cellular, smartphone, or other) do not have a negative influence on employee wellness.

Chapter Four has served to satisfy the following research objectives, including:

- Using literature as a foundation, to construct a measuring instrument in the form of a questionnaire, to collect primary data in order to measure the Dependent and Independent Variables, according to the hypothesised relationships of the study (SO2). In doing so, the secondary research question SRQ2 has been addressed, namely establishing whether flexible working conditions linked to ICT use after hours negatively impact on employee work-life balance (SRQ2);
- Collecting primary data via a sample of 103 employees from the Target Company, who are most likely to be affected by the phenomena under investigation (SO3). In doing so, it has been established that physiological aspects such as age, gender and ethnicity influence an employees' ability to adapt to changing work conditions, and therefore affect work-life balance (SRQ3);
- Analysing the primary data captured on Microsoft Excel using descriptive statistics, including testing the data for validity and accuracy by using the STATISTICA computer software program (SO4);

- Recording and interpreting the results based on the empirical data captured (SO5). In doing so, it has been established as to which ICT tool (email, cellular phone, smartphone or other) has the highest impact on employee wellness (SRQ4); and
- Finally, providing conclusions which will provide the basis for managerial recommendations (SO6), which are discussed in Chapter Five, together with an identification of information gaps for further research.

The fifth and final chapter will deliberate the conclusions and recommendations derived from the preceding analysis. It will contain the proposed basic framework required to effectively manage the impact of ICT on employee well-being. The final chapter will also discuss the limitations inherent in this study.

Table: 4.9: The research alignment grid

Primary and Secondary Research Objectives (PO's and SO's)	Primary and Secondary Research Questions (PRQ's and SRQ's)	Chapters	Deliverables
Using literature as a foundation, to construct a measuring instrument in the form of a questionnaire, which is used to collect primary data in order to measure the dependent and independent variables included in the hypothesised relationships of the study (SO2).	Does flexible working conditions linked to ICT use after hours negatively impact on employee work-life balance (SRQ2)?	Chapter Four: The analysis and interpretation of the empirical study.	Identify the impact of flexible working conditions linked to ICT use after hours on employee work-life balance.

To collect data via a sample of at least 103 employees from the Target Company, who are most likely to be affected by the phenomena under investigation (SO3). To capture the survey data on Microsoft Excel and analyse it using descriptive statistics. To test the data for validity and accuracy by using the STATISTICA computer software program (SO4).	Does physiological aspects such as age, gender and ethnicity influence an employees' ability to adapt to changing work conditions, and therefore affect work-life balance (SRQ3)?	Chapter Four: The analysis and interpretation of the empirical study.	Identify the impact of physiological aspects such as age, gender and ethnicity influence an employees' ability to adapt to changing work conditions.
To record the results and interpret them based on the empirical data captured (SO5). Finally, to draw conclusions which will provide the basis for managerial recommendations. During this stage, identification of information gaps for	Which ICT tool (email, cellular phone, smartphone or other) has the highest impact on employee wellness (SRQ4)?	Chapter Four: The analysis and interpretation of the empirical study. Chapter Five: Conclusions and Recommendations	Identify which ICT tool has the highest impact on employee wellness.

further research is documented and presented in the study (SO6).			

Source: Authors' own construction

CHAPTER FIVE: CONCLUSIONS AND RECOMMENDATIONS

5.1 INTRODUCTION

Chapter Four of this research document served to present the descriptive statistics and research findings. The literature review conducted and presented within Chapter Two was integrated with the findings of the data collection process as documented in Chapter Three. The purpose of this fifth and final chapter is therefore to present the recommended framework for the Target Company to utilise in effectively managing the impact of ICT on employee well-being. The chapter closes out with a discussion on limitations of the research study, suggested areas for further research and final concluding remarks.

The research conducted and documented within this document has highlighted flexibility as allowing one to shape tasks and manage work-life balance. Flexible working arrangements, mobile work, part time and flexi-time is offered within all levels of the Target Company hierarchy. Its corporate structures operate within different time zones across the globe. It is therefore important to be flexible, and at the same time allow employees to recharge their batteries in the form of appropriate downtime to regain perspective. Flexibility has become an increasingly important factor in terms of the attractiveness for employers to offer flexibility to its employees, not only for retention of its existing personnel, but also to be attractive to new recruits. Part time or flexible working hours needs to be considered within the regional and local requirements and applied in such a way as not to disrupt business operations. What is clear from the findings of this research paper is that one size definitely does not fit all situations.

5.2 RESEARCH STRUCTURE

Chapter One of this research document served to introduce the scope of the study. This included a discussion as to what triggered the research, a brief introduction into the problem statement and the intended contribution of this paper. The problem statement was used as a means to develop argumentation for the importance of addressing the problem. A scientific, academically acceptable approach was adopted

to investigate the extent and the impact of the problem, with a discussion as to the potential benefits which could be gained if the problem was addressed. A short review of gaps in previous research on the topic under investigation was conducted, which formed the basis for the development of a conceptual and hypothesised framework to solve the problem. In doing so the management question was established, and the primary objective (PO1) of this research study was set out so as to establish whether the use of ICT outside of normal working hours is affecting employee well-being as measured in terms of work-life balance.

This lead into Chapter Two, as being the first step to establish the effect of after hour use of ICT on employee well-being, by way of conducting a detailed literature review on the subject. A thorough literature review was completed to provide a foundation for the construction of a measuring instrument (as discussed within Chapter Three) used to collect usable primary data for the middle to senior management levels (in terms of the hypothesised model). The targeted employees for the purposes of the data collection process represent the personnel who are most likely impacted by the phenomena under investigation at the Target Company, being the recipients of employer provided ICT tools.

Chapter Three further bolstered the justification for the research paradigm and sampling design discussed within Chapter One. A detailed description of the research methodology, research paradigm and measuring instrument construction was contained within Chapter Three. Theoretical discussions followed within Chapter Three, pertaining to the Validity and Reliability measures from the data collection process, which yielded a sample size of 103 respondents. The findings were analysed and discussed in Chapter Three.

Chapter Four presented the descriptive statistics which included a narrative on the relationships amongst the variables and the outcome of the validation checks on the hypothesised model. The presentation of the framework structure which can be used to manage the effects of the phenomena under investigation follows in section 5.4, thereby satisfying the second primary objective of this study (PO2).

5.3 SUMMARY AND DISCUSSION OF KEY FINDINGS

A brief summary of the findings are listed under the main sub-headings below. The Target Companies' Executive Management team believes that employee performance is not measured in terms of physical presence, but rather in terms of individual output. This approach requires a trusting relationship, in that employees are actually working when undertaking flexible working arrangements. Issues such as overwork and the blurring of boundaries can be managed in terms of the recommended framework presented in section 5.4, where relaxation periods are essential for maintaining high levels of performance.

5.3.1 Research finding employee well-being (Work-life balance)

Does the use of ICT outside of normal working hours contribute to employee well-being as measured in terms of work-life balance (PRQ1)?

Work-life balance (WLB), refers to the workplace environment and the interplay between work and personal life of an individual. Recall from Figure 4.1 and Table 4.1 that work-life balance is important to the respondents with 94.2% positive responses. This was followed by having sufficient downtime to unwind after work to gain perspective with 85.5% positive responses. The third highest response rate was 77.7% of respondents believing that their employer could do more to educate employees on the warning signs of negative work-life balance.

These findings were supported by the literature review conducted within Chapter Two, where it was documented that employee well-being has been linked to the ability for an individual to have a balanced time allocation between work and other commitments (Susi and Jawaharrani, 2011). This stems from the satisfaction derived from a good functioning work and home environment with minimum role conflict between the two (Sturges and Guest, 2004). Permeability between the work and home roles has the potential to contribute either positively or negatively to employee well-being depending on the circumstances (Nippert-Eng 1996; Edwards and Rothbard 1999; Ashforth et al., 2000).

The results of multiple regression analysis from this study depicts the relationship between employee well-being and after hour use of ICT as illustrated in Table 4.7. Based on the findings it was found that **the use of ICT outside of normal working hours has a negative influence on employee well-being (Work-life balance).**

5.3.2 Research finding employee well-being (Stress)

The Dependent Variable employee stress observations are illustrated in Figure 4.2 and Table 4.2. This studies results revealed that respondents believe ICT is contributing to an ever increasing faster pace of work with 83.4% positive responses. Respondents reported checking emails regularly because of fearing missing an important message to the extent of 76.7% positive responses. There were 58.3% positive responses to the question: I do not like dealing with the uncertainty of not knowing, which agrees to the literature findings contained in section 2.3.3.

Moreover, these findings were supported by the literature review conducted within Chapter Two, whereby it was documented that spill over effects of work, can have a significant impact on employee stress levels, as well as on their physical and mental well-being (Grzywacz 2000; Grzywacz et al., 2002; Voydanoff 2005; Kossek et al., 2006; Amstad et al., 2011). The results of multiple regression analysis from this study for the relationship between employee well-being and after hour use of ICT as illustrated in Table 4.7. Based on the findings it was found that **the use of ICT outside of normal working hours has a negative influence on employee well-being (Stress).**

5.3.3 Research finding ICT use after hours (ICT)

Does the use of ICT after hours negatively impact on employee work-life balance (SRQ1)?

Recall from Chapter Four that the Independent Variable use of ICT after hours as depicted in Figure 4.3 and Table 4.3 reveal that respondents believe their employer should clarify as to what it considers reasonable and appropriate practice for the use of ICT after hours (66.0% positive responses). Respondents indicated that more of

their work colleagues were taking work home because of ICT platforms as the second highest response rate, with 53.4% positive responses. This was followed closely by 50.4% positive responses with respondents believing that their employer should not promote the use of ICT after normal working hours amongst employees. It was demonstrated that the 50.4% being combined with the 35.0% neutral responses to the question ICT22, would result in a combined 85.4% of the respondents believing their employer should not promote the use of ICT after normal working hours amongst employees. The statistic alone provides overwhelming evidence that the effects of ICT use after hours is negatively affecting the well-being of employee's.

These findings were supported by the literature review conducted within Chapter Two, where Sayah (2013) indicated that after hour use of ICT's allows work to intrude into non-work hours by enabling extra work to be done from home. Moreover, ICT's allow work to intrude into private life, which in turn leads to work–life conflict (Boswell and Olson-Buchanan, 2007; Fenner and Renn, 2010; Besseyre des Horts et al., 2011). Of the empirical studies conducted, ICT use after hours and the corresponding work and home interface show that ICTs play a significant role in work-life spill-over.

The results of multiple regression analysis depict the relationship between employee work-life balance and after hour use of ICT as illustrated in Table 4.7. According to the statistical analysis, **use of ICT outside of normal working hours has a negative influence on employee work-life balance.**

5.3.4 Research finding flexible working conditions (FWC)

Does flexible working conditions linked to ICT use after hours negatively impact on employee work-life balance (SRQ2)?

The Independent Variable flexible working conditions as depicted in Figure 4.4 and Table 4.4 reveal that respondents believe flexible working conditions reduces the stresses of balancing work and family commitments (68.9% positive responses). This finding has been confirmed in the literature review Chapter Two, sections 2.5.3 and 2.5.4. Respondents from the survey conducted indicated that flexible working

conditions allows them to actively shape their working conditions as the second highest response rate, with 68.0% positive responses.

This finding was supported by Mellner et al., (2014) where research into flexible working arrangements pointed to employees, not only having a greater span of autonomy, but also increased accountability and connectedness through the use of ICT's. The results of multiple regression analysis that depict the relationship between employee work-life balance and flexible working conditions as illustrated in Table 4.7. for this study, indicates **that flexible working conditions linked to ICT use after hours does not have a negative influence on employee work-life balance.**

5.3.5 Research finding physiological aspects (PA)

Does physiological aspects such as age, gender and ethnicity influence an employees' ability to adapt to changing work conditions, and therefore affect work-life balance (SRQ3)?

Recall the Independent Variable physiological aspects as depicted in Figure 4.5 and Table 4.5 reveals that respondents believe they are able to easily adapt to new ICT technologies (73.8% positive responses). Respondents indicated that they feel being constantly available to work demonstrates their devotion to their career and employer as the second highest response rate, with 55.4% positive responses.

These findings were supported by the literature review conducted within Chapter Two, where it was documented that the adoption of ICT technologies has not been uniformly accepted across age, gender and cultural divides. Korpinen and Paakonen (2010). The results of multiple regression analysis from this study depict the relationship between employee work-life balance and physiological aspects as illustrated in Table 4.7. It was found **that physiological aspects affecting an employees' ability to adapt to changing working conditions has a negative influence on employee work-life balance.**

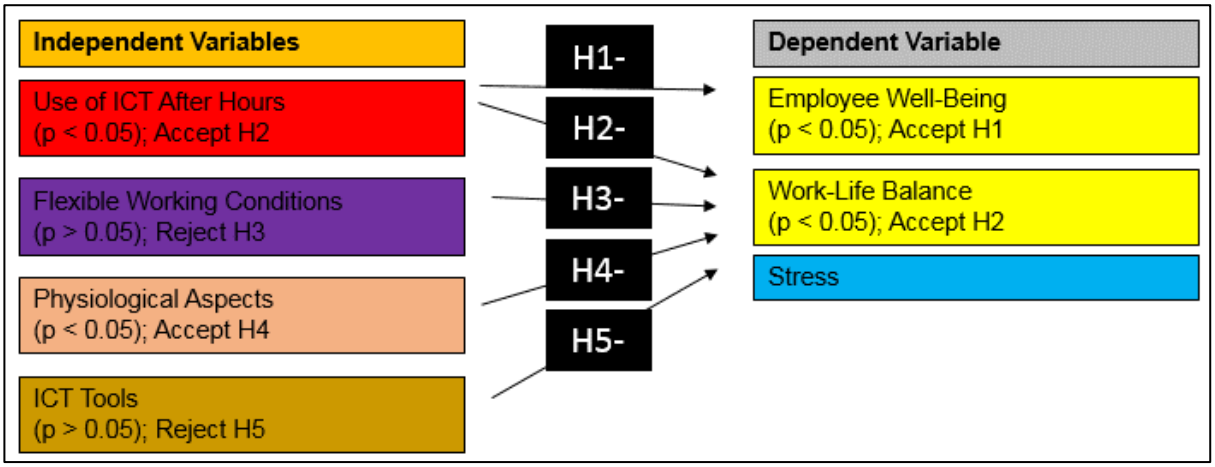
5.3.6 Research finding ICT tool with biggest impact (ICT)

Which ICT tool (email, cellular phone, smartphone or other) has the highest impact on employee wellness (SRQ4)?

The Independent Variable ICT tools having the biggest impact as depicted in Figure 4.6 and Table 4.6 reveal that respondents sampled are neutral when it comes to preference in sending and receiving emails, instead of Sametime or Whatsapp messages (45.7% neutral responses). Respondents also indicated that they were indifferent as to which ICT tools they prefer using, with a 41.8% neutral response rate. Similarly, ICT42R revealed a 39.8% neutral response rate, in connection with preference to making and receiving a phone call, than sending and receiving and email. This result was closely followed by respondents indicating 38.9% neutral responses to preferring instant messaging than making or receiving a phone call.

These findings were supported by the literature review conducted within Chapter Two where it was documented that there is some uncertainty as to which ICT device has the biggest impact on users. The results of multiple regression analysis depicting the relationship between employee work-life balance and ICT tools with the biggest Impact are illustrated in Table 4.7. According to the statistical analysis it was found **that differing ICT tools (email, cellular, smartphone, or other) do not have a negative influence on employee wellness.**

Figure 5.1: Hypothesised model incorporating the regression results



Source: Author's own construction

5.4 RECOMMENDATION: A FRAMEWORK FOR MANANGING ICT IMPACT

The intended contribution behind this paper is to develop a framework which can be used to improve employee well-being associated with the use of ICT outside of normal working hours (PO2). Herewith follows the proposed framework, based on the findings and recommendations of this research document:

Can a framework be developed to improve employee well-being associated with the use of ICT outside of normal working hours (PRQ2)?

5.4.1 General

- The employer should communicate a well-defined ICT usage policy, which clearly outlines a standard operating procedure in relation to ICT use to all its employees.
- The employer should take the time to explain and train its employees as to what is considered acceptable and non-acceptable use of ICT devices, especially in relation to after hour use and leave absences from work.
- This should be performed at the time of on-boarding process for a newly recruited employee. For existing personnel, this should be formalised and performed at least once a year to serve as a regular reminder to staff.
- The ICT usage policy should make reference to what the employer considers to be reasonable turn-around time in responding to emails, phone calls etc. during an

employee's leave absence and holidays. In this way, a standard will be established across the organisation which will create stability and remove any uncertainties for employer and employee expectations.

5.4.2 Employee well-being (Work-life balance)

- Employees should be regularly reminded that ICT plays an important part in being a primary contributor to lengthening the working day.
- Employers should provide annual training to its employees on how to identify the warning signs of work related spill over effects on private life, and how best to take corrective action.
- Employers should apply network monitoring systems on individual users, reviewing the number of hours users utilise ICT work related services such as email over holidays, weekends and after hours. This can be achieved by the Information Technology Department installing network monitoring software to act as a deterrent to employees in that they know their after hour activities are being monitored. This should be linked to the online leave authorisation and clock card system of the Target Company.
- Regular monthly usage / activity reports should be provided to employees, their relevant managers and Human Relations Department, thereby acting as a deterrent which is transparent to all. Excessive users should undergo a coaching process to take remedial and corrective action.
- During the annual training and communication sessions to staff, employers should implement education programs, in order to train their workforce on the warning signs and implications of poor work-life balance. This could include for example, aspects relating to effective time management, development of independent working skills, personal development, health, exercise and other wellness initiatives for employees.
- Employees should be encouraged to implement defined time blocks for when they are available for work and when they are not. This can be applied through the act of switching off their ICT devices, which constitutes a boundary work tactic as an action in order to prevent work-related interruptions in the private sphere. Such actions will allow the employee sufficient downtime to unwind after work to gain

perspective. Consciously switching off ICT devices has been proven to be a psychological boundary mechanism for individuals in managing work-life balance.

5.4.3 Employee well-being (Stress)

- A measure to avoid high levels of stress for the affected individuals, fatigue, burnout, and higher absenteeism, is to apply compulsory leave for employees, with the requirement to appropriately disengage by non-use of work email during this time. This can be included in the leave policy document, which is linked to the ICT usage policy for employees and cross checked to the usage reports mentioned above. This would therefore encourage employees to avoid checking emails while on leave.
- By implementing an organisational policy for appropriate leave away from work related to email and similar connectivity, this will allow employees to detach from the workplace long enough to regain their perspective and recharge their batteries. This has been proven to be an appropriate method to reduce stress amongst employees.
- Apply automatic forwarding of emails to appropriate personal or insist that managers contact employees only in the case of absolute emergencies. Emergencies should be defined and included within the ICT usage policy with examples.
- Employees should apply appropriate use of out of office notifications, directing queries to appropriate personnel to handle work related tasks during leave absences is another practical suggestion.
- Managers would therefore be required to think more carefully about whether or not they really need to contact someone who is on leave, rather than wait for them to return. Guidelines and control mechanisms should be provided in the policy document.

These suggestions would go a long way to alleviate the anxiety experienced by employees, who will feel far less compelled to check emails if they cannot access them, or if they have been officially banned from doing so. Employees can avoid stress triggers by applying the above recommendations thereby avoiding checking emails regularly because of fearing missing an important message.

5.4.4 Use of ICT tools after hours (ICT)

- Employees can avoid the rise in portable work by defining work hours versus home hours and sticking to them.
- This can be achieved by employees consciously leaving ICT devices at the office over weekends, during holidays and leave absences. This prevents the desire to check into what is happening while away from the office.
- Employers can apply tactics such as switching off email servers over weekends and public holidays, guided by the ICT usage policy, thereby limiting the use of smart phones, email service etc. after defined work hours. These techniques will prevent employees from checking emails either on their computers, smart phone's or other ICT devices to reconnect with work.
- Employers should provide training to employees, informing them that during leave absences from work, there is no longer the same responsibility to respond. This provides the employees with the opportunity to overcome the pre-programmed desire to reply (which is the case during normal office hours). The ICT usage policy and training should include practical examples for employees learning how to differentiate between when to be connected and when to disengage from work.
- Management should clarify in the ICT usage policy document that it is not expected that employees are available outside of defined working hours. This will then address the negative psychological impact on employees, who might be under the impression that their line managers expect them to be on call twenty four seven.
- Employees can help manage interaction between their work and family domains by applying alternative approaches including for example, applying limits to their use of ICT's after hours, and using ICT's to create flexibility in their working arrangements. Coping mechanisms should be employed for instance:
    - having separate e-mail accounts for work and personal use;
    - turning cell phones off after the work day;
    - taking care of personal matters only at breaks or during leisure time.

These are just some of the suggested measures which will assist employees in balancing taking work home because of ICT platforms, and understanding the expectations of their employer.

5.4.5 Flexible working conditions (FWC)

- This research document found through hypothesis testing conducted in Chapter Four, that flexible working conditions are contributors towards improving employee well-being. It should come as no surprise that the recommendation for employers to apply and permit flexible working solutions such as flexi-time, compressed work week etc. be encouraged and documented within appropriate policies.
- The flexible working arrangements mentioned earlier in this research document allows employees to actively shape their working conditions, which helps them solve the daily demands of integrating personal life and work commitments. Given this finding, employees should clearly define work and home life spheres as being separated. This will assist employees in managing possible workplace spill-over into the home environment. The employee needs to practice and fine tune this over time, either through physical, psychological, or behavioural means, despite the existence of role boundaries.
- Moreover, employees should limit the effects of permeability of boundaries between work and private life, by limiting the act of taking work related calls, or sending and receiving work related emails while at home and vice versa.
- Supervisors or managers at work should permit employees to be active agents, who are able to shape their work–life boundaries to a degree, within the company policies and standard operating procedures.

5.4.6 Physiological aspects (PA)

- There is responsibility on the part of the employee to ensure personal wellness, including regular exercise, relaxation, and taking appropriate breaks when necessary.
- Employers should provide basic and advanced training to older users of ICT. This could include measures such as pairing up older users in their job functions with younger users, so as the facilitate information and skills exchange between the two. This will go some way to reduce stressors which have been noted in older users of ICT tools, including their scepticism and distant attitude towards the use of ICT.

- An alternative training method could include for example one on one user training sessions, or group training sessions, run bi-annually by the Development and Training Office within the Target Company.

5.4.7 ICT tools with the biggest impact (ICT)

ICT if used correctly can be an enormously important tool, but it needs to be managed rather than allowing ICT to manage individuals. This has implications for both the employer and employee.

- Employees can apply work and life boundary management techniques through the selective use of devices.
- This is achieved by only using certain devices and clearly designating different functions to those devices. Some individuals have separate work or private devices, or do not possess devices at all, which minimises the impact on work-life boundaries.
- This implies a possible solution for managing and limiting the extent of company provided ICT tools being made available to its employees. While not the most practical suggestion given today's connected business environment, this in turn will limit the effects of portable work, further restricting the spill over effects of work impacting on employee family life.
- Further recommendations for employees involve selectively deciding which calls to answer by checking the display first, ignoring telephone calls by not answering them at all, or switching off their devices completely when operating out of normal working hours and during leave absences.
- Employee boundary management techniques can also take the form of having different email accounts, one being for personal use and the other being private use. Not applying automatic work email updates on ICT devices such as smart phones is yet another boundary management technique which can be utilised by employees.
- Employees should apply longer message-checking intervals, thereby enabling personnel to get on with their primary work, rather than constantly checking in.
- Employees should be discouraged from using the function "reply to all" and not copy in people who really have no "need to know" on email services.

There are a range of practical methods which can be used to minimize the risk of misunderstandings. The Target Company could even apply preventing e-mail communications within the same building to encourage colleagues to meet face to face, as this can minimise communication difficulties and promote team building. The ICT usage policy should also provide guidelines emphasizing difficult conversations (e.g. about job loss, promotions and performance management) should not be done by any form of ICT. The Target Company should also apply a dedicated hotline to report instances of cyber bullying affecting its employees for example.

5.5 LIMITATIONS OF THE RESEARCH

Despite there being no major challenges encountered during the documented research process, the following study limitations were noted. A study limitation describes a weakness or deficiency in research (Collis and Hussey, 2014). The primary limitation was the relatively small sample size of 103 respondents. While it would have been preferable to poll a larger sample, this was not possible with the resources available, and within the limited timing.

The second limitation of this study relates to the poor Cronbach Alpha results which were obtained for ICT tool has the biggest impact (ICT) (0.38), physiological aspects (PA) (0.46) and flexible working conditions (FWC) (0.45). Chapter Three discusses these resultant outcomes as being acceptable for basic exploratory research only. The design of the questions within each of these sub sections on the measuring instrument could perhaps have been the cause of the poor results. If questions were asked slightly differently, they could potentially return more desirable Cronbach Alpha results than those actually achieved. Lastly, the study was concentrated on the topic at the Target Company, which might not necessarily yield similar results for other organisations or different industries at the same management levels tested within this research paper.

5.6 AREAS FOR FURTHER RESEARCH

Given the afore-going section 5.5, the following suggestions are proposed for future research into the topic:

- Apply research over a larger sample size;
- Apply a different design to the questions contained in the sub groups: which ICT tool has the biggest impact (ICT), physiological aspects (PA) and flexible working conditions (FWC); and
- To test whether similar results would be yielded across different industries and organisations for the same or similar management levels.

5.7 CONCLUDING REMARKS

The purpose of this chapter was to conclude the study by summarising the process and extracting the main findings. Based on the findings, a set of managerial recommendations have been formulated and presented in the form of a Framework for Managing the Impact of ICT on Employee Well-being (SO2). In doing so, this served to satisfy the primary and secondary research objectives of this research study. Moreover, the presentation of the framework has met the objectives of answering PRQ2. An identification of information gaps for further research has been documented and presented in Chapter Five (SO6). Last, but not least, the limitations of the study were demarcated as well as recommendations for future research proposed.

The significance of this research is founded on the importance of employee well-being. The Target Company requires employees to adapt to the new technologies and the way they are used. In the past technology was more hardware focused, but more recently it has become more software orientated, which leads to increased levels of digitization. Accordingly, managers and employees must become change managers and adapt constantly. This is evidenced in a world where high paced technologies are changing the way communication and interaction is performed daily. The working environment and style of work is changing too in terms of becoming more flexible. This in turn is adding more complexity, with a requirement to keep pace with multi-dimensional changes. Organisations which manage this increasingly complex working environment best will no doubt thrive in the future, by gaining an advantage over their competitors.

Table: 5.1: The research alignment grid

Primary and Secondary Research Objectives (PO's and SO's)	Primary and Secondary Research Questions (PRQ's and SRQ's)	Chapters	Deliverables
The Primary Objective of this study is to establish whether the use of ICT outside of normal working hours affects employee well-being as measured in terms of work-life balance (PO1).	Does the use of ICT outside of normal working hours contribute to employee well-being as measured in terms of work-life balance (PRQ1)?	Chapter Two: Literature Review.	Identify whether use of ICT outside of normal working hours affects employee well-being.
The second Primary Objective of this study is to establish whether a framework can be developed to improve employee well-being associated with the use of ICT outside of normal working hours (PO2).	Can a framework can be developed to improve employee well-being associated with the use of ICT outside of normal working hours (PRQ2)?	Chapter Five: Conclusions and Recommendations	Framework to improve employee well-being associated with the use of ICT outside of normal working hours.
To conduct an extensive literature review on the effects of ICT use after hours on employee well-being, in order to establish what	Does the use of ICT after hours negatively impact on employee work-life balance (SRQ1)?	Chapter Two: Literature Review.	Identify the impact of ICT use after hours on employee work-life balance.

literature reveals on this subject matter (SO1).			
Using literature as a foundation, to construct a measuring instrument in the form of a questionnaire, which is used to collect primary data in order to measure the dependent and independent variables included in the hypothesised relationships of the study (SO2).	Does flexible working conditions linked to ICT use after hours negatively impact on employee work-life balance (SRQ2)?	Chapter Three: Research Design. Chapter Four: The analysis and interpretation of the empirical study.	Identify the impact of flexible working conditions linked to ICT use after hours on employee work-life balance.
To collect data via a sample of at least 103 employees from the Target Company, who are most likely to be affected by the phenomena under investigation (SO3). To capture the survey data on Microsoft Excel and analyse it using descriptive statistics. To test the data for validity and accuracy by using the	Does physiological aspects such as age, gender and ethnicity influence an employees' ability to adapt to changing work conditions, and therefore affect work-life balance (SRQ3)?	Chapter Three: Research Design. Chapter Four: The analysis and interpretation of the empirical study.	Identify the impact of physiological aspects such as age, gender and ethnicity influence an employees' ability to adapt to changing work conditions.

STATISTICA computer software program (SO4).			
To record the results and interpret them based on the empirical data captured (SO5). Finally, to draw conclusions which will provide the basis for managerial recommendations. During this stage, identification of information gaps for further research is documented and presented in the study (SO6)	Which ICT tool (email, cellular phone, smartphone or other) has the highest impact on employee wellness (SRQ4)?	Chapter Three: Research Design. Chapter Four: The analysis and interpretation of the empirical study. Chapter Five: Conclusions and Recommendations	Identify which ICT tool has the highest impact on employee wellness. Presentation of conclusions, identification of information gaps for further research and Framework is available.

Source: Authors' own construction

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APPENDIX A: Cronbach Alpha Internal Consistency Test

Average inter-item correlation: 0.28		
	Item-Total Correlation	Alpha if deleted
WLB2	0.12	0.76
WLB3	0.43	0.69
WLB5	0.54	0.66
WLB6	0.59	0.65
WLB7	0.60	0.65
WLB10	0.36	0.71
WLB11	0.43	0.69
Cronbach Alpha:		**0.72**

Average inter-item correlation: 0.23		
	Item-Total Correlation	Alpha if deleted
S12	0.48	0.68
S13	0.48	0.68
S14	0.58	0.67
S15	0.32	0.71
S16	0.12	0.74
S17	0.27	0.72
S18	0.27	0.72
S20	0.58	0.66
S21	0.48	0.68
Cronbach Alpha:		**0.72**

Average inter-item correlation: 0.29		
	Item-Total Correlation	Alpha if deleted
ICT22	0.49	0.66
ICT23	0.07	0.77
ICT24	0.36	0.70
ICT25	0.69	0.62
ICT26	0.56	0.65
ICT28	0.53	0.65
ICT30	0.36	0.70
Cronbach Alpha:		**0.71**

Average inter-item correlation: 0.31		
	Item-Total Correlation	Alpha if deleted
FWC31	0.02	0.84
FWC32	0.49	0.00
FWC34	0.43	0.10
Cronbach Alpha:		**0.45**

Average inter-item correlation: 0.23		
	Item-Total Correlation	Alpha if deleted
PA39R	0.32	0.29
PA40	0.18	0.54
PA41	0.37	0.23
Cronbach Alpha:		**0.46**

Average inter-item correlation: 0.17		
	Item-Total Correlation	Alpha if deleted
ICT42R	0.41	0.00
ICT43	0.18	0.38
ICT44R	0.12	0.49
Cronbach Alpha:		**0.38**

Source: Constructed from Dr Jan du Plessis' data analysis

APPENDIX B: Measuring Instrument Covering Letter

A FRAMEWORK FOR MANAGING THE IMPACT OF INFORMATION COMMUNICATION TECHNOLOGY ON EMPLOYEE WELLBEING

16 June 2017

Dear Colleague,

We are conducting research for the purpose of contributing to the pool of knowledge in the business fraternity. This study will make an important contribution to the understanding of the concepts, which will assist with the development of a framework to manage the effects of after hour use of Information Communication Technology (ICT) on Employee Well-being.

You are part of our selected sample of respondents whose views we seek on the subject matter. We would therefore appreciate it if you could answer a few questions, which should not take more than ten minutes of your time and we want to thank you in advance for your valuable insights.

The questionnaire has been designed to protect the anonymity of respondents. In addition, no information that could potentially bring about identification will be released. Individual responses will be kept strictly confidential. Your participation is purely voluntary and you are under no obligation whatsoever to complete the questionnaire. Please note that there are no correct or incorrect answers.
Should you need any further information or have any concerns with regards to the study please do not hesitate to contact us. You are also free to request the results of the study, should you wish to review them.

Yours sincerely,

Richard Ackerman CA (SA)
Manager Finance: CTSA
Cell: +27 83 656 9177
Email: richard.ackerman@conti.co.za

Yours sincerely,

Professor Paul Poisat
Research Supervisor
Tel: +27 41 504 3750
Email: paul.poisat@nmmu.ac.za

APPENDIX C: Research Questionnaire

NMMU Business School MBA Research Project Questionnaire
A Framework for Managing the Impact of Information Communication Technology on Employee Well-being

Dear SURVEY PARTICIPANT,

Please answer the following questions as carefully and completely as possible. There are no correct or incorrect answers. The survey comprises two sections, and only one answer is required per question. Please answer all questions. The exercise should only take roughly 10 minutes to complete. Anonymity is assured and responses will be treated with the strictest confidentiality, in accordance with the NMMU Business School's ethical requirements. Thank you for your contribution towards this project.

SECTION A: Demographic and Biographic Information

(A1) Gender (*please indicate with an "X"*)

Male	☐	Female	☐

(A2) Generation Cohort (*please indicate with an "X"*)

Baby Boomer (Born 1946 – 1964)	☐	Generation X (Born 1965 – 1979)	☐
Generation Y (Born 1980 – 1995)	☐	Generation Z (Born 1996 – Current)	☐

(A3) Home Language (*please indicate with an "X"*)

English	☐	Afrikaans	☐
German	☐	Xhosa	☐
Zulu	☐	Other	☐

(A4) Marital Status (*please indicate with an "X"*)

Married	☐	Single	☐
Widowed	☐	Divorced	☐
Engaged	☐	Living Together	☐

(A5) Highest Qualification (*please indicate with an "X"*)

Matric	☐	Diploma	☐
Undergraduate Degree	☐	Post Graduate Degree	☐

Masters' Degree ☐ Doctorate ☐

(A6) Functional Unit (*please indicate with an "X"*)

Marketing & Sales ☐ Legal & Compliance ☐
Finance & Controlling ☐ Human Relations ☐
Information Technology ☐ Manufacturing ☐
Demand Planning & Operations ☐ Purchasing ☐
Public Relations & Communications ☐ Other ☐

(A7) Number of Dependents in Household (*please indicate with an "X"*)

None ☐ One ☐
Two to Four ☐ Five or More ☐

(A8) Management Level (*please indicate with an "X"*)

Middle Management ☐ Senior Management ☐
Senior Executive Management ☐ Other ☐

(A9) Length of Service with Company (*please indicate with an "X"*)

One to Five Years ☐ Six to Ten Years ☐
Eleven Years and Greater ☐

(A10) I am the recipient of employer provided ICT tools (for example laptop computers) which are required for me to do my job (*please indicate with an "X"*)

Yes ☐ No ☐

SECTION B:

Please note that there are no correct or incorrect answers to this Section.

1 = Strongly Disagree;
2 = Disagree;
3 = neither Agree nor Disagree (Neutral);
4 = Agree;
5 = Strongly Agree

No.	**Statement**	**Strongly disagree**				**Strongly agree**
OVERALL EMPLOYEE WELL-BEING (WORK-LIFE BALANCE)						
WLB2	Work-life balance is important to me	1	2	3	4	5
WLB3	I am unable to cope with the workload I face	1	2	3	4	5
WLB4	I still have energy for other activities at the end of the work day	1	2	3	4	5
WLB5	I feel that ICT causes interference with my work-life balance	1	2	3	4	5

WLB6	I believe that ICT provides a platform for placing unrealistic demands on me and my job	1	2	3	4	5
WLB7	Because ICT allows me to be contacted at home, this makes me irritable	1	2	3	4	5
WLB8	I believe that ICT makes my life easier	1	2	3	4	5
WLB9	I feel I am able to maintain a healthy work-life balance	1	2	3	4	5
WLB10	It is important for me to have sufficient downtime to unwind after work for me to gain perspective	1	2	3	4	5
WLB11	I believe my employer could do more to educate employees on the warning signs of negative work-life balance	1	2	3	4	5
OVERALL EMPLOYEE WELL-BEING (STRESS)						
S12	I check my emails regularly because I fear missing an important message	1	2	3	4	5
S13	My work responsibilities cause a reasonable amount of stress in my life	1	2	3	4	5
S14	ICT is the primary contributor towards my feeling of stress	1	2	3	4	5
S15	I wish my employer would block email service on weekends and public holidays to give me a chance to switch off	1	2	3	4	5
S16	ICT is contributing to an ever increasing faster pace of work	1	2	3	4	5
S17	I am uncertain if my employer expects me to be available 24 / 7	1	2	3	4	5
S18	I do not like dealing with the uncertainty of not knowing	1	2	3	4	5
S19	My employer has taken the time to discuss expectations with respect to turnaround response time on emails etc. with me.	1	2	3	4	5
S20	Problems associated with my job have kept me awake at night	1	2	3	4	5
S21	I feel I have to take work home in the evenings to stay caught up	1	2	3	4	5
USE OF ICT AFTER HOURS						
ICT22	I do not think that my employer should promote the use of ICT after normal working hours amongst employees	1	2	3	4	5
ICT23	I do not allow use of ICT after normal working hours to impact my private and family life	1	2	3	4	5
ICT24	More of my work colleagues are taking work home because of ICT platforms	1	2	3	4	5
ICT25	I feel that after hours use of ICT adds to my work pressure	1	2	3	4	5
ICT26	I feel that after hours use of ICT adds to my work load because I can take work home with me	1	2	3	4	5
ICT27	Without using ICT after hours, we will not be able to maintain a competitive edge over the competition	1	2	3	4	5

ICT28	After hours use of ICT either directly or indirectly leads to a breakdown in my relationships with my family members	1	2	3	4	5
ICT29	ICT use after hours creates an opportunity for me to contribute more in terms of productivity to my employer	1	2	3	4	5
ICT30	My employer should clarify either verbally or in writing as to what it considers reasonable and appropriate practice for the use of ICT after hours.	1	2	3	4	5
FLEXIBLE WORKING CONDITIONS						
FWC31	Flexible working conditions mean that I have no option other than to use ICT to work from home	1	2	3	4	5
FWC32	Flexible working conditions reduces the stresses of balancing work and family commitments	1	2	3	4	5
FWC33	Flexible working conditions gives my employer the opportunity to contact me at any hour of the day / night which is leading to a degree of work-a-holism	1	2	3	4	5
FWC34	Flexible working conditions allows me to actively shape my working conditions	1	2	3	4	5
FWC35	I find that flexible working conditions indirectly impacts on family time by blurring of boundary lines between work and private life	1	2	3	4	5
FWC36	My employer has clearly defined policies and guidelines communicated widely within the organisation as to what is acceptable or unacceptable behavior with respect to flexible working conditions	1	2	3	4	5
PHYSIOLOGICAL ASPECTS						
PA37	I feel that being constantly available to work demonstrates my devotion to my career and my employer	1	2	3	4	5
PA38	I feel that I am able to easily adapt to new ICT technologies	1	2	3	4	5
PA39	I have experienced frustrations with ICT tools in not knowing how to use them to their full potential	1	2	3	4	5
PA40	I spend too much time using my laptop / computer / iPad / Smartphone than I would like too	1	2	3	4	5
PA41	I find it difficult to keep up with the pace of technological change	1	2	3	4	5
WHICH ICT TOOLS HAVE BIGGEST IMPACT						
ICT42	I prefer making and receiving a phone call than sending and receiving an email	1	2	3	4	5
ICT43	I prefer using instant messaging tools such as Sametime, Whatsapp etc. than making and receiving a phone call	1	2	3	4	5
ICT44	I prefer sending and receiving an emails instead of Sametime, Whatsapp messages	1	2	3	4	5
ICT45	I am indifferent as to which ICT tool I prefer using	1	2	3	4	5

Thank you for your time, participation and contribution to this research!!

APPENDIX D: Form E and Ethical Clearance

Nelson Mandela Metropolitan University
for tomorrow

FORM E

ETHICS CLEARANCE FOR TREATISES/DISSERTATIONS/THESES

Please type or complete in black ink

FACULTY: Faculty of Business and Economic Sciences at the Nelson Mandela Metropolitan University Business School

SCHOOL/DEPARTMENT: Nelson Mandela Metropolitan University Business School

I, (surname and initials of supervisor) **Professor Paul Poisat**, the supervisor for (surname and initials of candidate) **Mr. Richard Ackerman** (student number) **200302140** a candidate for the degree of **Masters' in Business Administration** with a treatise/dissertation/thesis entitled (full title of treatise/dissertation/thesis):

A Framework for Managing the Impact of Information Communication Technology on Employee Wellbeing

considered the following ethics criteria *(please tick the appropriate block)*:

	YES	NO
1. Is there any risk of harm, embarrassment of offence, however slight or temporary, to the participant, third parties or to the communities at large?		X
2. Is the study based on a research population defined as 'vulnerable' in terms of age, physical characteristics and/or disease status?		X
2.1 Are subjects/participants/respondents of your study:		
(a) Children under the age of 18?		X
(b) NMMU staff?		X
(c) NMMU students?		X
(d) The elderly/persons over the age of 60?		X
(e) A sample from an institution (e.g. hospital/school)?		X
(f) Handicapped (e.g. mentally or physically)?		X
3. Does the data that will be collected require consent of an institutional authority for this study? (An institutional authority refers to an organisation that is established by government to protect vulnerable people)		X
3.1 Are you intending to access participant data from an existing, stored repository (e.g. school, institutional or university records)?		X

4. Will the participant's privacy, anonymity or confidentiality be compromised?		X
4.1 Are you administering a questionnaire/survey that:		
(a) Collects sensitive/identifiable data from participants?		X
(b) Does not guarantee the anonymity of the participant?		X
(c) Does not guarantee the confidentiality of the participant and the data?		X
(d) Will offer an incentive to respondents to participate, i.e. a lucky draw or any other prize?		X
(e) Will create doubt whether sample control measures are in place?		X
(f) Will be distributed electronically via email (and requesting an email response)? Note: • If your questionnaire **DOES NOT** request respondents' identification, is distributed electronically and you request respondents to return it *manually* (print out and deliver/mail); **AND** respondent anonymity can be guaranteed, your answer will be NO. • If your questionnaire **DOES NOT** request respondents' identification, is *distributed via an email link and works through a web response system (e.g. the university survey system); **AND*** respondent anonymity can be guaranteed, your answer will be NO.		
*Please note that if **ANY** of the questions above have been answered in the affirmative **(YES)** the student will need to complete the full ethics clearance form (REC-H application) and submit it with the relevant documentation to the Faculty RECH (Ethics) representative.*		

and hereby certify that the student has given his/her research ethical consideration and full ethics approval is not required.

Barjat — 29-05-2017
SUPERVISOR(S) **DATE**

30-05-2017.
HEAD OF DEPARTMENT **DATE**

29/05/2017
STUDENT(S) **DATE**

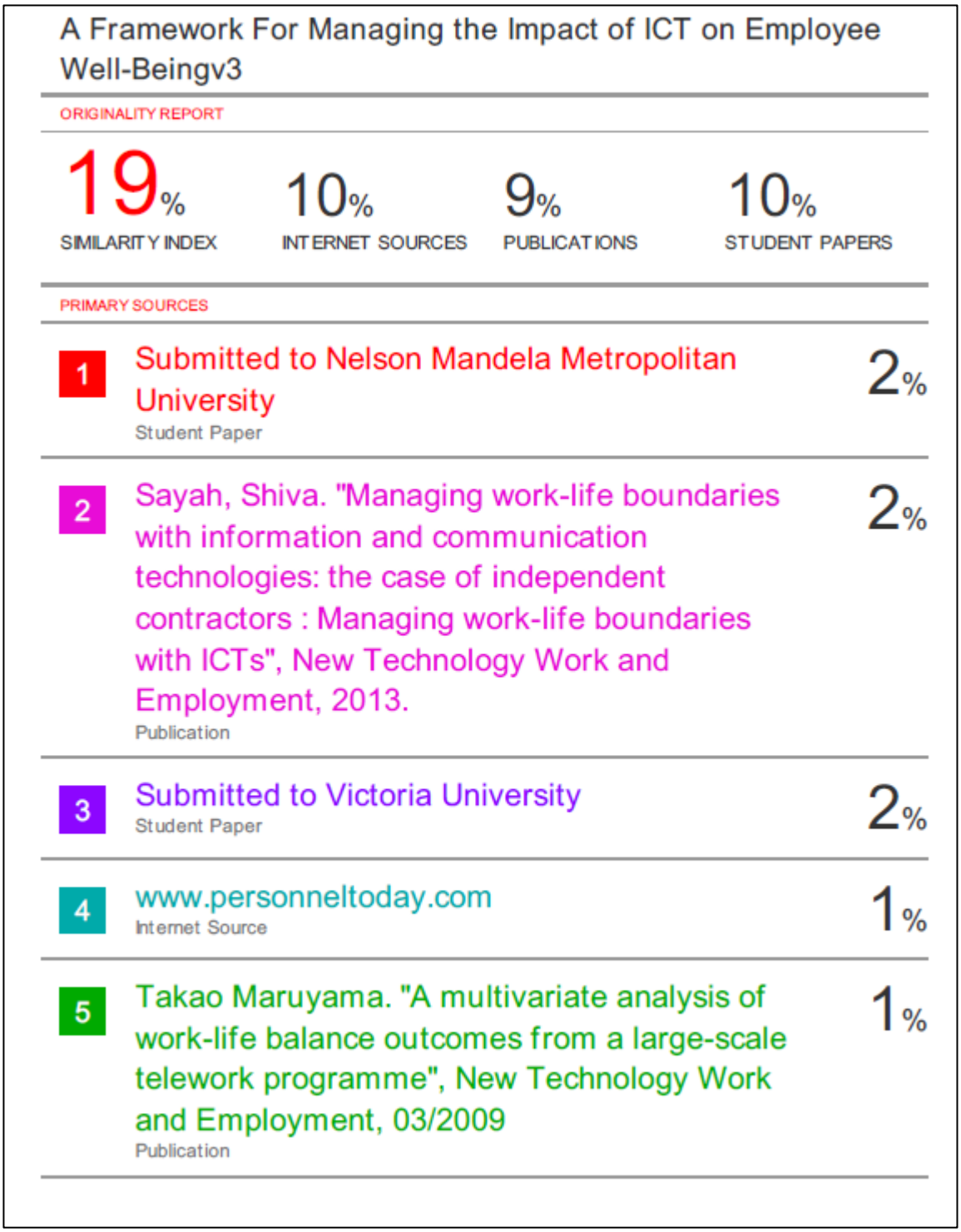
Student(s) contact details (e.g. telephone number and email address):

TEL: 0836569177 ; EMAIL: richard.ackerman@conti.co.za

Please ensure that the research methodology section from the proposal is attached to this form.

Source: NMU MBA Form E

APPENDIX E: Turnitin Similarity Report



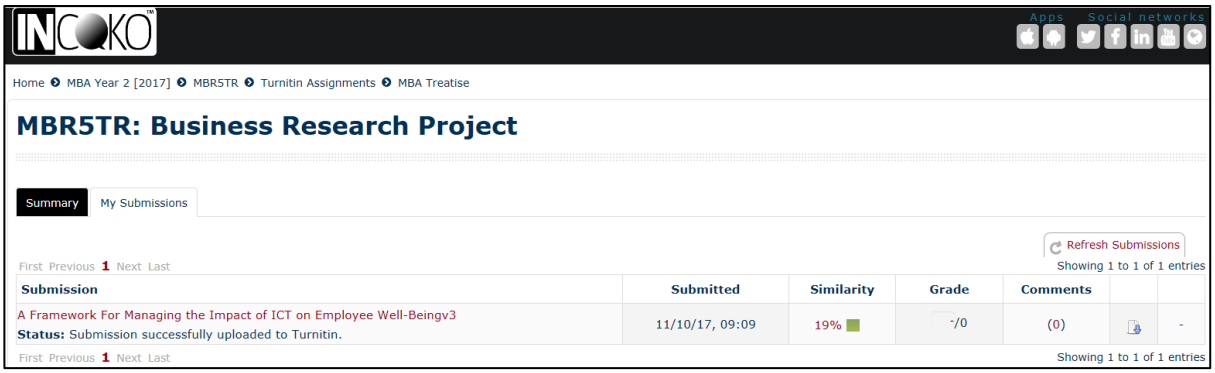
A Framework For Managing the Impact of ICT on Employee Well-Beingv3

ORIGINALITY REPORT

19%	10%	9%	10%
SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS

PRIMARY SOURCES

1	Submitted to Nelson Mandela Metropolitan University Student Paper	2%
2	Sayah, Shiva. "Managing work-life boundaries with information and communication technologies: the case of independent contractors : Managing work-life boundaries with ICTs", New Technology Work and Employment, 2013. Publication	2%
3	Submitted to Victoria University Student Paper	2%
4	www.personneltoday.com Internet Source	1%
5	Takao Maruyama. "A multivariate analysis of work-life balance outcomes from a large-scale telework programme", New Technology Work and Employment, 03/2009 Publication	1%



Source: Turnitin and NMU Incoko student portal