Who's in Control?
Mobile Technology, Work and Life in Australia

by Robert Carroll

Thesis submitted in fulfilment of the requirements for the degree of

Doctor of Philosophy

under the supervision of Professor David Bedford and Professor Emmanuel Josserand

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July 2025

Certificate of Original Authorship

I, Robert Carroll, declare that this thesis is submitted in fulfilment of the requirements for the award of Doctor of Philosophy, in the Business School at the University of Technology Sydney.

This thesis is wholly my own work unless otherwise referenced or acknowledged. In addition, I certify that all information sources and literature used are indicated in the thesis.

This document has not been submitted for qualifications at any other academic institution.

This research is supported by the Australian Government Research Training Program.

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Date: 10 July 2025

Acknowledgements

Undertaking a PhD has been one of the most rewarding experiences of my life. This challenging, stimulating and fun journey has been made possible by the support, guidance and encouragement of many people along the way, and I am deeply grateful to all of them.

A great place to start is to extend my heartfelt thanks to my wonderful principal supervisor, Professor David Bedford. David, I enjoyed our many lunches together and I am very grateful for your dedication, patience and wise counsel. Without your deep knowledge of quantitative research techniques, I could not have completed my thesis. I am also immensely grateful to my co-supervisor Professor Emmanuel Josserand for the intellectual rigour and wealth of research experience that he brought to my work. I'd also like to extend my thanks to my initial supervisors, Dr Sarah Kaine MLC and Dr Najmeh Hassanli for shaping my early thinking.

The UTS Business School is blessed with many talented academics, and I was very fortunate to benefit from their guidance and support. Special thanks to Professor Simon Darcy, Professor Stewart Clegg, Dr Moira Scerri, Associate Professor Sanjoy Paul, Associate Professor Kyoung-Hee Yu and Professor Peter Fleming, among others. My sincere thanks must also go to my PhD classmates at UTS for their intellectual exchange, support and, most importantly, their friendship. I also extend my thanks to Samantha Hinderling of ProfEdit for editing this manuscript.

Special thanks also to my friend and former colleague Dr Dominic McLoughlin for sharing his PhD experiences and insights with me. A shout out to Vaughan Paul and Nicholle Duce-O'Brien, my former managers, for their practical help during the early stages of my PhD.

Research is made possible by the willingness of people to become involved and share their ideas and experiences. I would like to thank the many people who generously and enthusiastically gave their time to participate in my pilot study, undertake interviews and complete surveys.

Thanks to my children, Conor and Ashling, who admittedly thought their Dad was much cooler when he ran marathons instead of turning his hand to this! I feel tremendous pride in your own academic and life journeys and the wonderful adults you have become. My Dad, Harry, instilled in me the importance of fairness and respect in the workplace, and these values have stayed with me throughout my own professional career and influenced my thinking as a researcher.

Finally, and most importantly, I owe everything to my wife, Ber. Little did I know when we met on a dancefloor more than thirty years ago, that we would have the most wonderful life together. Thanks for the editing, listening, sharing of ideas and encouragement. Whenever I start to feel overly proud for writing a PhD thesis, I remember the fact that you have published twelve novels!

To everyone who has supported me in this journey, thank you. I am forever grateful.

Dedication

For Ber, Conor, Ashling and Harry.

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Abstract

The widespread use of mobile technology, including smartphones, tablets and laptops, has had a profound impact on the way people work. Research suggests that mobile technology can be quite empowering, enabling people to work more flexibly, increasing their sense of job control, and enhancing their effectiveness. However, this technology also has a dark side, with some researchers highlighting that constant connectivity can lead to work intensification and work-life conflict. Several scholars have suggested a paradox of technology usage, on the one hand empowering and, on the other, controlling, with significant implications for employee wellbeing.

While the concept of paradox is a key theme in the literature, we lack conceptual models which explain how the paradox operates in practice, how it can influence employee wellbeing and how these relationships are moderated by social factors, including social exchange and technology norms. Therefore, the objective of this study is to develop and test a conceptual model which explores the autonomy-control paradox of work-related mobile technology usage and the implications for the wellbeing of workers. This study uses a mixed methods approach combining exploratory interviews and questionnaire responses from 233 participants.

The results support the central premise of this study, proposing that mobile technology engenders the paradoxical outcomes of increased autonomy and increased control, with positive and negative implications for users' job and life satisfaction. Additionally, having a paradox mindset does, in some circumstances, amplify the positive wellbeing outcomes. Moreover, the study shows that supervisor technology norms shape the paradox and these wellbeing outcomes.

This study contributes to the mobile technology literature in several ways. By taking a predominantly quantitative approach, I have measured the paradoxical relationships between mobile technology use and the experience of autonomy and control. Furthermore, I have illustrated how the constructs of autonomy and control are interdependent, revealing that locational and temporal flexibility coexist with work-life conflict, and performance and job control sit alongside work intensity. The findings presented here, which show that mobile technology use can strengthen job satisfaction through the autonomy dimension and reduce it through the control side, add to a limited pool of empirical findings. Moreover, this study extends this stream of research by being the first to demonstrate how the work-related use of mobile technology impacts life satisfaction. This is also the first study to examine the role of the paradox mindset in moderating the paradoxical outcomes of mobile technology usage. Finally, my results challenge the notion that leader technology norms, which promote responsiveness and availability, are a job demand for workers and can, in fact, shape the autonomy-control paradox in ways which have positive consequences for their wellbeing.

Set within a wider social context of workers' desire for more flexibility and work-life balance, concerns about longer working hours and intrusion into family life, and the ongoing tussle over

work-from-home practices, the study findings contribute important implications for managers, human resource practitioners and workers. Based on the findings of this study, managers and human resources practitioners are encouraged to have open discussions with workers about how they use mobile technology, the benefits they draw from it, as well as its potentially harmful effects. Involving workers in developing guidelines for the more effective and healthier use of these technologies should become an important element of engaging the workforce around appropriate work-from-home arrangements, which meet the performance goals of the organisation but respect the boundaries that workers and their families need to thrive.

1. Introduction

The explosion in mobile technology usage has ushered in an era of near constant connectivity in many workplaces (Wajcman & Rose, 2011). In the contemporary office environment, knowledge workers have access to a vast array of mobile technology, including smartphones, tablets and laptops, which allow rapid and continuous connection with their work and colleagues through email, texting, instant messaging, social media platforms, video conferencing and collaboration portals. The rise of mobile technology has profound implications for the nature and organisation of work (Boswell & Olson-Buchanan, 2007; Wajcman, 2014) and consequently for workers' 'digital wellbeing' (Vanden Abeele & Nguyen, 2022). These devices allow workers to move beyond the once fixed spatial and temporal limits of the office to work from home, catch up on emails in the evening, take a call while commuting, or even monitor work while watching their kids play weekend sports. During the recent COVID-19 pandemic lockdowns, this technology was relied upon as critical infrastructure connecting workers to their organisations while working from home.

Several studies have highlighted the 'liberating' benefits of mobile technology for knowledge workers by improving time and location flexibility, increasing job control and enhancing efficiency (Leung, 2011; Mazmanian, Orlikowski and Yates, 2013; Brown & Palvia, 2015). However, mobile technology also has a dark side which paradoxically results in some outcomes which are disempowering for workers. Researchers have linked high levels of mobile technology usage with work-life conflict and work intensification (Fenner & Renn, 2010; Chesley, 2010; Ayyagari et al., 2011). Both these empowering and disempowering outcomes have implications for the wellbeing of workers, particularly in terms of job satisfaction and life satisfaction. Scholars in this emerging field of study point to a paradox of mobile technology usage, on the one hand empowering and on the other, controlling (Jarvenpaa & Lang, 2005; Mazmanian et al., 2013). Whether, and under what circumstances, this technology provides workers with a greater level of autonomy or simply disempowers them is a key question which remains to be answered.

Paradox is a central feature of organisations (Lewis, 2000). Organisations encounter paradoxes of learning, organising, belonging and performing (Smith & Lewis, 2011). Workers' experiences with mobile technology can be framed in terms of the autonomy-control paradox, a phenomenon which Smith and Lewis (2011) categorised as a paradox of organising. Exploring technology usage through a paradox lens allows us to understand how mobile device users can simultaneously experience flexibility and work-life conflict, and job control and performance yet work overload. These technologies thus appear to enable freedom while actively restricting it. These contradictions are at the heart of the autonomy-control paradox.

1.1. Research Objective and Questions

Despite growing interest from scholars, research exploring mobile technology in organisational life is still underdeveloped (Villadsen, 2017; Waizenegger, 2015). While the concept of paradox is a key theme in the literature, and elements of this paradox have been examined individually, attempts to bring together these elements into an overarching conceptual model explaining how the paradox operates in practice are scarce. When we consider that mobile technology usage is such a prominent feature of contemporary workplaces, there is a clear need to gain a deeper understanding of the ways in which this technology results in empowering or disempowering outcomes for workers. Therefore, the objective of this research is to develop and test a conceptual model which explores the autonomy-control paradox of work-related mobile technology usage and the implications for the wellbeing of workers.

The extant research relies heavily on qualitative methods, providing us with important insights on the empowering and disempowering outcomes of mobile technology, which warrant further exploration. However, in developing and testing a conceptual model, the research can also benefit from additional quantitative research, which has been more limited thus far. This is particularly evident when we turn our attention to the possible links between device usage and perceptions of autonomy, performance and work intensification.

Technology usage and outcomes are shaped by a range of contextual factors, including individual characteristics, the social environment and the culture of organisations. However, these contextual factors have received limited attention (Barley, 2011). Theories of sociomateriality highlight the importance of the social context in which technology is used (Orlikowski & Scott, 2008). Therefore, the outcomes flowing from technology are not simply shaped by its material features but also by interactions with coworkers. While there has been some limited focus on how technology behaviours in teams can shape the paradoxical outcomes of mobile technology, scholars are yet to address whether, and how, the quality of the supervisor–coworker relationship (often referred to as Leader–Member Exchange and Team–Member Exchange in the literature) influences these associations.

A final gap in the available body of knowledge concerns the impact of mobile technology usage on employee wellbeing. Mobile technology usage is associated with outcomes such as autonomy or work-life conflict, which are known to enhance or weaken job satisfaction (Adams et al., 1996; Brown & Peterson, 1993; Jones et al., 2007) and life satisfaction (Erdogan et al., 2012; Fein & Skinner, 2017; Haar et al., 2014; Kossek & Ozeki, 1998; Valcour & Hunter, 2005). Yet, just four studies have considered the impact of mobile technology usage on job satisfaction as an important indicator of employee wellbeing, and these studies present opposing positive and negative results and therefore warrant further investigation (Diaz et al., 2012; Jeong et al., 2016; Román et al., 2018; Wright et al., 2014). Furthermore, no studies have examined the impact of work-related mobile technology usage on life satisfaction, another key indicator of wellbeing. This is important

as the negative consequences of mobile technology usage, particularly in terms of work-life conflict, can be felt well beyond the confines of the office, with implications for workers' families and lives more generally. Moreover, paradox theory (Lewis, 2000) suggests that the tensions inherent in a paradox such as autonomy-control can lead to uncertainty and anxiety, which diminishes wellbeing (Lewis, 2000; Miron-Spektor et al., 2018; Schad et al., 2016). However, having a "paradox mindset" (Miron-Spektor et al., 2018) can be a more positive way for workers to manage these tensions and moderate the negative wellbeing impacts. Yet, using a positive cognitive frame to manage the tensions created by mobile technology has not been investigated by researchers. The conceptual model proposed and tested in this study will attempt to address many of the research gaps in the existing literature and contribute to the growing literature in several ways.

As I outlined earlier, my research objective is to develop and test a conceptual model which explores the autonomy-control paradox of work-related mobile technology usage and the implications for the wellbeing of workers. The conceptual model outlined later in this thesis is designed to answer the following research questions:

RQ1: How is mobile technology usage associated with the paradoxical outcomes of autonomy and control?

RQ2: How does the autonomy-control paradox impact employee wellbeing?

RQ3: How do social factors shape the impact of the autonomy-control paradox on employee wellbeing?

The first research question explores how mobile technology usage at work is related to the simultaneous and contradictory experiences of employee autonomy and control. In particular, this research examines how device usage contributes to heightened job control, flexibility and performance (the autonomy side) while also being related to increased work-life conflict and work intensification (the control side). This is explored in the context of device usage during normal working hours and outside of normal working hours. I hypothesise that using mobile technology enhances users' perception of their autonomy, measured as a higher-order construct including the dimensions of job control, flexibility and performance. Furthermore, I test the hypothesis that, paradoxically, mobile technology also enhances users' perception of being controlled, measured as a higher-order construct comprised of work-life conflict and work intensification.

The second research question explores how the autonomy-control paradox can have positive and negative implications for employee wellbeing. Here, I draw on the Job Demands and Resources (JD-R) theory developed by Demerouti et al. (2001). In the conceptual model outlined in Chapter 5, the autonomy benefits of using mobile technology will be positioned as a job resource which enhances job and life satisfaction. However, I hypothesise that the control side of mobile technology is a job demand, which reduces these same forms of employee wellbeing. Recent

research (Ingram et al., 2016; Miron-Spektor et al., 2011; Miron-Spektor et al., 2018; Zhang & Han, 2019; Zhang et al., 2015) has proposed that cognitive frames may be a useful way of relieving the tensions associated with organisational paradoxes. Therefore, I also consider whether having a paradox mindset (Miron-Spektor et al., 2018) provides mobile device users with an effective way of moderating the impact of the autonomy-control paradox on their wellbeing

Finally, building on the sociomateriality perspectives of Orlikowski and Scott (2008) and others, I explore how the relationship between the mobile technology paradox and employee wellbeing is socially shaped. First, I examine how close and positive working relationships with supervisors and coworkers can interact with both sides of the paradox and ultimately influence job and life satisfaction. I then focus on how the technology behaviours and norms modelled by leaders and colleagues can structure both autonomy and control with implications for worker's wellbeing. In investigating the impact of technology norms on work-life conflict in particular, I am responding to the call from Derks et al. (2015) for more research in this area.

1.2. Research Methods

This research uses a mixed methods approach combining both qualitative and quantitative methods to answer my three research questions. As I have outlined earlier, my primary objective in undertaking this research is to develop and test a conceptual model which explores the autonomy-control paradox of mobile technology and its relationship with employee wellbeing. The extant literature lacks conceptual models which explain how this paradox operates in practice. By developing and empirically testing a conceptual model, this study makes an important contribution to the available body of knowledge by illustrating the relationship between mobile technology usage and the simultaneous experiences of both autonomy and being controlled.

Recognising the value of capturing first-hand accounts of how the technology is used in organisational contexts, this research begins with an exploratory qualitative study. This phase involved 22 interviews with 16 participants in Technology and Financial Services organisations. During the interviews, a semi-structured approach was used to explore participants' experiences with mobile technology, the benefits and downsides of using this technology for work, and whether device usage influenced their level of job autonomy, performance, work-life conflict or work intensity. A significant theme began to emerge from these initial interviews, namely how social interactions with supervisors and coworkers shaped technology usage. Therefore, following a further review of the literature on sociomateriality (Orlikowski & Scott, 2008), shorter follow-up interviews were conducted to further explore the interplay with supervisors and colleagues and how these relationships interacted with mobile technology usage. A thematic analysis of the interviews using NVivo highlighted four major categories with multiple codes. These interviews informed the further development and refinement of the conceptual model, in particular by emphasising the social context of mobile technology usage. Insights drawn from these interviews were incorporated into the conceptual model and tested in the quantitative stage of my research.

For the quantitative stage of this study, an online questionnaire was developed which measured the extent of mobile technology usage among research participants both during and outside of normal working hours. Using existing scales, the questionnaire also measured participants' perceptions of various job characteristics, such as autonomy and work intensity, as well as supervisory and team factors, such as Leader-Member Exchange (LMX) and Team-Member Exchange (TMX), which are relevant to my conceptual model. The questionnaire was created in Qualtrics, a leading online survey platform. Following an initial pilot, 515 people from two organisations were invited to complete the questionnaire. Data analysis was undertaken in IBM SPSS to build a profile of mobile technology usage. PLS-SEM analysis was then conducted to assess the measurement and structural models, test the hypotheses and ultimately answer the research questions.

Using Greene and colleagues' (1989) typology of mixed methods, my approach can be best described as development, in which one phase of research informs the other. Therefore, my mixed methods approach has three key features: (1) a development rationale; (2) sequential phases of qualitative research followed by quantitative research; (3) weighting given to the quantitative stage. Using Morse's (2003) notation system, this can be expressed as qual → QUAN.

By combining these methods my aim is to integrate the depth and richness of qualitative research with the breadth of a quantitative approach to enhance our understanding of the mobile technology paradox (Venkatesh & Brown, 2013).

1.3. Research Findings

The findings from the qualitative phase of this study provide strong support for the preliminary conceptual model outlined in Chapter 2. Participants described an intense engagement with mobile devices, which they used extensively to perform their jobs during work hours, commutes, evenings, weekends, and even on vacations. Their reliance on mobile technology was further intensified during the COVID-19 lockdowns when applications such as Microsoft (MS) Teams became a critical lifeline to connect remotely from home.

There is strong evidence to support the central hypothesis of my research that, paradoxically, mobile technology enhances employee autonomy, while enabling their control. Mobile technology increased job performance by allowing participants to connect at speed with colleagues and customers, and to enable more collaboration and information sharing. Job autonomy was boosted by allowing participants to monitor work, "get on top of things", intervene quickly and enjoy the flexibility to work from home and other places. However, mobile technology also facilitated a heightened level of control over these professionals. Constant engagement with technology, and multitasking across several electronic platforms, contributed to a more intense working environment characterised by large volumes of work and long hours. Furthermore, continuous connectivity outside of normal working hours blurred the boundaries between work and personal

life, leading to significant disruption at home. Therefore, the paradox of simultaneous autonomy and control was a central feature of how these workers experienced mobile technology

The influence of the social environment on the mobile technology paradox emerged as a key theme in my interviews. Positive relationships with supervisors and coworkers seemed to enhance the degree of autonomy and control participants felt when using these devices. Conversely, technology norms of digital responsiveness and availability, cultivated by supervisors and coworkers, appeared to reduce the level of autonomy derived from these devices, while strengthening feelings of control. The qualitative phase of my research also highlighted the dual impact of mobile technology on employee wellbeing. While some participants valued the flexibility and performance benefits it provided, others found the constant communications disruptive and exhausting, depleting their enjoyment of work and life more generally. In summary, the qualitative findings provide support and refinement of the preliminary conceptual model by revealing the critical influence of the social environment.

Findings from the qualitative phase were used to further develop the conceptual model, which is outlined in Chapter 5. The conceptual model proposes that mobile technology usage is positively related to autonomy and control, has indirect positive and negative implications for job and life satisfaction, and that these effects are influenced by Leader-Member Exchange (LMX), Team-Member Exchange (TMX) and technology norms. Therefore, the conceptual model introduces hypotheses addressing direct effects, mediating effects and moderated mediating effects associated with mobile technology usage.

Questionnaire data collected from 233 participants across two organisations was analysed using structural equation modelling. Analysis of the measurement model undertaken in SmartPLS revealed that the constructs demonstrated satisfactory levels of quality. The results of the structural analysis substantiate the core argument of this study, which suggests that mobile technology paradoxically fosters both greater autonomy and heightened control. Furthermore, both sides of this paradox were shown to have positive and negative implications for users' wellbeing, as hypothesised. In line with my predictions, the findings show that mobile technology use is positively related to job and life satisfaction when mediated by the experience of autonomy. However, mobile technology usage was negatively related to job and life satisfaction when mediated by the experience of control. Additionally, having a paradox mindset did, in some circumstances, amplify the positive wellbeing outcomes.

Contrary to my predictions, the quality of workplace relationships did not moderate the mobile technology paradox and the wellbeing outcomes. However, supervisor technology norms (but not coworker norms) did shape the paradox and wellbeing outcomes, but surprisingly, not in the way I had predicted. The unexpected finding that supervisor norms seem to increase the autonomy side and reduce the control side of the paradox, with positive consequences for both job and life

satisfaction, was a fascinating one, with significant implications for our understanding of mobile technology in the workplace.

1.4. Research Contributions

This research study contributes to theory in several ways. My first contribution is the development and testing of a conceptual model which examines how the autonomy-control paradox works in practice. While some scholars (Jarvenpaa & Lang, 2005; Mazmanian et al., 2013; Ter Hoeven et al., 2016) have explored this type of paradox, we are still lacking conceptual models which integrate all elements of the paradox into an overarching model. Drawing on paradox theory (Lewis, 2000), I investigate exactly how workers can simultaneously experience feelings of freedom and feelings of being controlled when using mobile technology.

This research also builds on the limited studies exploring how mobile technology impacts on job satisfaction, an important indicator of employee wellbeing. Mobile technology has consequences for wellbeing, both at work and life more generally. Therefore, my second contribution to theory is to extend the available body of knowledge by also investigating how work-related mobile technology usage impacts on life satisfaction, something which has not been previously explored by scholars. Understanding the extent to which users of mobile technology can manage these wellbeing outcomes by adopting a positive cognitive frame is also of interest in this study. Therefore, this research project contributes to the literature by being the first study to explore whether a paradox mindset can be a useful cognitive tool which moderates the positive and negative impacts of mobile technology usage on employee wellbeing.

A central theme in this study is how the social environment shapes both the usage and outcomes of mobile technology. Using a sociomaterial approach (Orlikowski & Scott, 2008), my final contribution to theory is to demonstrate how the technology norms demonstrated by leaders play a surprising role in shaping the autonomy and control sides of the mobile technology paradox with consequences for employee wellbeing. This is a new avenue of research which has not previously been explored in the literature.

This study also aims to contribute to practice. The study of work-related technology is important for several reasons. This research contributes to the ongoing discourse regarding the working hours and practices of Australians and the impact on employee wellbeing and family life. The explosive growth in the use of mobile technology has occurred during a period of significant workplace change. Total Quality Management, high-involvement work practices, self-managing teams and other workforce flexibility measures have been implemented to improve productivity but have often come at a cost to employee wellbeing (Bunting, 2005; Legge, 1995). Scholars have increasingly raised concerns about growing work intensification and the long-hours culture in Australia, which is damaging for workers and their families (Brown, 2012; Fein et al., 2017; Zheng et al., 2016). Furthermore, COVID-19 gave rise to unprecedented levels of working from home,

which has proven extremely popular with workers despite some negative consequences, including longer hours and the erosion of boundaries between the workplace and the home. The recent implementation of new Australian legislation which seeks to protect workers' "right to disconnect" is in many ways a response to growing concerns regarding work-life balance.

In pursuing this research, I hope to contribute a fresh perspective on the ways in which technology can contribute to, but also potentially alleviate, these harmful consequences for workers' wellbeing. Further research in this field will assist management and practitioners in understanding the potentially harmful effects of constant connectivity and so inform strategies to position mobile technology within more productive and supportive contexts for workers. In the aftermath of the COVID-19 pandemic, organisational leaders are currently grappling with how best to navigate the digitalisation of the workplace and facilitate more sustainable ways for employees to work from home while meeting the needs of the organisation. Therefore, with this research I also aim to contribute to the available knowledge base for managers and human resources practitioners, particularly by highlighting how the technology behaviours and expectations of supervisors and coworkers can shape both the empowering and restrictive outcomes of using these technologies.

1.5. Thesis Outline

This thesis will proceed in the following format. In Chapter 2, I explore the central presence of paradoxes within organisations and theories seeking to explain it and discuss the paradox of autonomy and control. In particular, I review the literature on the paradoxical outcomes of mobile technology usage and provide the basis for a preliminary conceptual model for this research. Chapter 3 offers an exploratory qualitative study of mobile technology and its impact on workers. This research is used to provide a description of the autonomy-control paradox of mobile technology and further develop the conceptual model. Building on the extant literature and the findings from the qualitative phase, my proposed conceptual model is presented in Chapter 4. The model contains several hypotheses outlining the relationship between mobile technology usage and the higher-order constructs of autonomy and control. The positive and negative impacts of mobile technology usage on employee wellbeing and the role of the paradox mindset as a moderator are also outlined in this conceptual model. Finally, the model also suggests that the social environment, including the technology behaviours and norms exhibited by coworkers and supervisors and their quality of relationships, shapes the impact of this paradox on employee wellbeing. In Chapter 5, I describe the methodology chosen for the quantitative phase of this research. This includes a description of the survey instrument, the measures used, methods to recruit participants and details of a pilot study testing the questionnaire. The quantitative results are presented in two chapters. Chapter 6 demonstrates how the participants used their mobile devices, including frequency and duration of activity across several time periods, and it presents the results of the PLS-SEM analysis testing the measurement model, including the reliability and validity of constructs. In Chapter 7, my focus shifts to assess the structural model and examine

specifically the direct, mediating and moderated mediating relationships between the key constructs of interest to test the hypotheses. Finally, in Chapter 8, I discuss the key results, contributions to theory and practice, opportunities for future research and the limitations of this study.

2. Paradox, Technology and the Organisation: A Literature Review

The explosive growth in the use of mobile technology over the past decade has prompted researchers to examine the ways in which it disrupts the nature and patterns of work as well as the positive and negative consequences it holds for workers. The more optimistic accounts of this technology present it as an empowering force for workers, enabling higher levels of job control, flexibility and performance. However, others see the technology as having a “dark side” which, far from empowering workers, leads to longer working hours, higher levels of work intensification and greater work-life conflict.

This chapter is divided into four sections. Paradox is a recurring theme in the literature on mobile technology. Therefore, an understanding of the concept paradox and its central presence in organisational life is important when examining workers’ experiences with technology. This chapter begins with an overview of the concept of paradox, the many forms it takes, and the theories which seek to explain it. In the second section I explore how the concept of paradox, and specifically the autonomy-control paradox, has been applied to the study of technology within organisations by discussing the works of several leading theorists. The third section then outlines a detailed review of the literature on mobile technology in the workplace. Finally, drawing on the available literature, I provide an initial conceptual model of the autonomy-control paradox of mobile technology.

2.1. Paradox and the Organisation

We commonly experience paradoxes in everyday life. Paradoxes can be found in nature, philosophy, religion, psychology, the arts, science and, of course, organisations (Ingram et al., 2016; Poole & Van De Ven, 1989; Smith & Lewis, 2011). Interest in understanding the concept of paradox originated in Eastern and Western philosophy (Schad et al., 2016; Zhang & Han, 2019). In classic Eastern philosophy, it is represented by the Taoist symbol of yin-yang, which portrays light-dark, masculine-feminine and life-death (Zhang et al., 2015). A focus on paradox can be found in the works of modern philosophers, such as Kierkegaard or Hegel, or psychologists, such as Jung and Freud (Schad et al., 2016).

Paradox is a common feature of organisations (Lewis, 2000; Lewis & Smith, 2014; Miron-Spektor et al., 2018; Putnam et al., 2016). Organisations encounter scenarios of exploration versus exploitation, profits and purpose, stability and change (Schad et al., 2016), while leaders are often required to manage the tension between agency and communion (Zheng et al., 2018). Factors such as technological change, global competition and organisational flexibility have contributed to the salience of paradox within organisations (Lewis, 2000; Putnam et al., 2016). Not surprisingly, the number of paradox studies has grown substantially (Cunha & Putnam, 2019; Smith & Lewis, 2011).

2.1.1. Defining Paradox

While many definitions of paradox exist, Smith and Lewis (2011) have provided one of the more commonly used explanations. They define paradox as “contradictory yet interrelated elements that exist simultaneously and persist over time” (Smith & Lewis, 2011, p. 382). Putnam et al. (2016) stressed that paradox is related to (and often confused with) several other constructs, such as tension, dualism, duality, contradictions and dialectics, yet are distinct from them. Tensions imply stress or discomfort in making decisions. An often-researched example is the tension between the work and family domains of life. Dualism, like paradox, has two poles which are in tension. However, these can be separated. An example here is the short-term versus long-term needs of an organisation. Duality refers to the “interdependence of opposites in a both/and relationship that is not mutually exclusive or antagonistic” (Putnam et al., 2016, p. 5). Contradictions, or the existence of interdependent opposites which define one another, form the core element of a paradox. Putnam et al. (2016) also discussed dialectics, referring to interdependent opposites which exist in an ongoing dynamic interplay and push and pull on one another.

Importantly then, some defining attributes of paradox distinguish it from other related concepts. First, a paradox must include two elements or poles which stand in contradiction with one another. These must be interdependent, that is, one can simply not exist without the other. One pole supports the other and the other way round. For example, exploitation enables exploration and vice versa (Clegg et al., 2002). Second, interdependence means that both elements must exist simultaneously, not in different temporal realms. Third, paradox is enduring in that its presence is something which continues over time.

2.1.2. A Typology of Paradox

Smith and Lewis (2011) have provided a useful typology of paradox, including four categories: (1) learning; (2) organizing; (3) belonging; and (4) performing. A learning paradox can arise in the tension created between innovating and experimenting and the desire to maintain the status quo. Indeed, the paradox of exploration/exploitation has received considerable attention from scholars. Organizing paradoxes can be seen in the tensions between collaboration and competition, empowerment and direction or flexibility and control. A belonging paradox arises in the tensions between the competing identities of individualism and collectivism. Smith and Lewis’s final type of paradox is that of performing, which arises from competing stakeholder goals, such as the desire for profit versus social goals. These four categories are, of course, ideal or pure types. Smith and Lewis noted that these categories can intersect with one another, which adds to the complexity and richness of paradoxes in organisations. For example, the desire to learn and build capability for the future can be in conflict with the need to perform in the present.

While several other paradox typologies have been published (Lushner & Lewis, 2008; Poole & Van De Ven, 1989; Quinn, 1988), I have leveraged the work of Smith and Lewis (2011) in this thesis for several reasons. First, it provides a strong synthesis of previous works drawing on

paradox exemplars across multiple categories. Second, this typology encapsulates the central paradox studied in my work, that of autonomy-control, which Smith and Lewis categorise as an 'organising' paradox. Third, this typology is embodied in Smith and Lewis's *Dynamic Equilibrium Model of Organizing* (2011), which is mobilised in this thesis to explain the positive role of Paradox Mindset in moderating the impact of mobile technology usage. Finally, Lewis is regarded as a leading paradox theorist, and her typology is widely used in organisational research (Schad & Miron-Spektor, 2020). Indeed, the impact of this typology has been highlighted by Schad et al. (2016) in their comprehensive review of paradox studies from the preceding 26 years, finding that 76% of these could be mapped to Smith and Lewis's framework.

The concept of paradox has been researched across multiple fields, including change, innovation, strategy, governance, social responsibility, culture and leadership practices (Schad et al., 2016). However, it has been primarily researched at a macro/organisational level, with far fewer studies exploring the micro/individual experience of paradox (Waldman et al., 2019; Zhang et al., 2015).

2.1.3. Paradox Theory

Smith and Lewis (2011) see paradox as both inherent in organisations and socially constructed. Organisations, by defining what they are going to do, immediately create a tension with what they are not going to do. For example, by deciding that it will have a local focus, an organisation decides that it will not be global. Alternatively, by using a control style of management, leaders make the decision to not favour flexibility. As Smith and Lewis noted, "by defining A we create a broad category of not A" (p. 389).

Smith and Lewis (2011) have provided one of the most widely acknowledged theories of paradox. Their Dynamic Equilibrium Model of Organizing has three key features. First, they argue that many of the tensions within organisations, for example, control versus empowerment, are latent. However, the emergence of certain environmental conditions, such as plurality, change and scarcity, can shift a paradox from latent to salient. An example here is how an increase in competitive pressure can heighten the tension between exploiting current products and exploring new ones, which previously only existed "below the surface". How organisations and individuals respond to or manage paradox is the second feature of Smith and Lewis' paradox model. They suggest that responses to paradox can be defensive or positive. Negative or defensive responses occur when individuals experience emotional anxiety as a result of the tension, and they react with denial, repression or humour, choosing one agenda or "mindless commitment". This can result in a "vicious" circle where alternatives are not considered and short-term responses may further strengthen the tension (Lewis & Smith, 2011). However, "virtuous circles" are possible when individuals and organisations react positively to tensions, and with acceptance. When actors are accepting of paradox, they reduce the anxiety associated with it. In turn, this can give rise to more creative resolutions. Virtuous circles are possible when individuals possess cognitive complexity and organisations have dynamic capabilities. According to Smith and Lewis, accepting

paradox allows a more dynamic resolution of tensions, which is achieved through splitting, that is, alternating between two poles, or finding synergies between them. This results in sustainable outcomes, the final feature of Smith and Lewis' model. Smith and Lewis (2011) assert that managing paradox through acceptance and resolution allows organisations to continuously improve through problem solving and builds flexibility and resilience in individuals:

> At its core a paradox theory presumes that tensions are integral to complex systems and that sustainability depends on attending to contradictory yet interwoven demands simultaneously. (Smith & Lewis, 2011, p. 397)

The growing popularity of paradox theory with scholars over the past few decades has encouraged some to suggest that it may be a useful meta-theory. Therefore, paradox theory could become an alternative to contingency theory as the dominant meta-theory in management science (Smith & Lewis, 2011; Lewis & Smith, 2014; Schad et al., 2016). Contingency theory encourages us to choose A or B. As such, it promotes an "if-then mindset". By contrast, paradox theorists suggest that we choose A *and* B or a "both-and mindset" (Lewis & Smith, 2014). Lewis and Smith (2014) contrast how contingency and paradox theories can be applied to the exploration/exploitation tension within organisations. Contingency theory approaches this tension by exploring the conditions under which each strategy can be pursued separately. For example, exploration and exploitation can be pursued at different times or in different locations. However, paradox theory takes a different approach by suggesting that both strategies can be pursued simultaneously. This could take the form of establishing separate business units or brands to focus exclusively on the strategies of exploration or exploitation. Rather than replacing contingency theory, Smith and Lewis (2011, p. 396) suggest that it should be positioned as a "complementary alternative" which can help to address many organisational challenges.

2.2. The Autonomy-Control Paradox

In the previous section, I discussed the concept of paradox in general terms. The purpose of this section is to take a deeper look into one type of paradox, that of autonomy-control, which is at the heart of this study. This discussion will be situated within the context of works on technology by leading theorists who emphasise the interconnectedness of autonomy and control. I will also discuss how the autonomy-control paradox has been applied to the study of Enterprise Resource Planning (ERP) systems as a precursor to the emerging interest in mobile technology.

2.2.1. Autonomy and Control in the Literature

Clegg et al. (2002) stated that the control paradox is a key feature of organisations. Organisations are comprised of free agents who naturally desire autonomy. However, the desire of the organisation is typically for order and control (Clegg et al., 2002). There is, of course, a natural relationship between autonomy and control. As Feldman (1989) highlighted, autonomy implies the very existence of control, that is, "independence from something" (p. 86).

Power and agency are dependent on one another (Giddens, 1984). Anthony Giddens, one of the most prominent social theorists of the 20th century outlined his structuration theory in *The Constitution of Society* (1984). He argued that social structure, including its rules and resources, shapes human agency in a continuous and dynamic way. However, actors are not simply passive consumers of social rules. Instead, they play an important role in producing and reproducing social structure. A duality exists whereby agency is both enabled and constrained by structure. This link between power and agency is also found in the work of Michel Foucault. Foucault (1982), a leading social philosopher, informs us that power is always accompanied by resistance. The presence of power does not deny the existence of freedom, a point Foucault emphasised when he stated that "power is only exercised over free subjects" (p. 221, as cited in Taylor, 2014). Both theorists argued that power and freedom are, quite paradoxically, inseparable from one another.

Smith and Lewis (2011) categorised the autonomy-control paradox as an "organizing paradox" in their typology. This paradox has been explored in different contexts in management research, including innovation, governance, leadership and flexible work practices. Feldman (1989) argued that autonomy and control are inseparable as management activities. He applied this paradox to the development of innovation in organisations. Using two case studies, he described how innovation is possible when autonomy and control are kept in balance. Autonomy is critical in the ideation stage, while control is essential during the implementation stage.

The autonomy-control paradox can also be applied to corporate governance. Sundaramurthy and Lewis (2003) contrasted the control purpose of the company board with its opposing role as a collaborator with management. One approach concerns monitoring and discipline, the other, stewardship and empowerment. An over-reliance on either approach can be harmful to organisations. Too much control breeds mistrust with management while too much empowerment leads to "groupthink". Sundaramurthy and Lewis (2003) assert that organisations must embrace the control and collaboration tensions within board governance to produce stronger outcomes.

Zhang et al. (2015) underline the centrality of paradox in the role of leaders in organisations. Leaders are shaped, both by the hierarchical and authoritarian structure of the organisation, but also by the needs of their followers who they develop close relationships with. They are confronted by the tensions of: self-centredness and other-centredness; managing distance and closeness; and treating others uniformly while allowing individualisation. Zhang et al. (2015) also highlight how leaders are required to manage the paradox of control and autonomy. This takes two forms. First, leaders are expected to enforce work requirements while also allowing some flexibility. Second, leaders must maintain decision control but accommodate autonomy. Zhang et al. (2015) developed and tested a new construct of Paradoxical Leadership Behaviour (PLB) and found evidence which pointed to a link with follower proficiency, adaptivity and proactivity.

The autonomy-control paradox has also been highlighted in studies of telecommuting and flexible work. In a review of 400 articles on flexible work practices, Putnam, Myers and Gailliard (2014)

found that the tension between autonomy and control was a recurring theme. Gajendran and Harrison (2007) proposed the idea of the 'Telecommuting Paradox' in which workers using this practice simultaneously gained higher autonomy but suffered from reduced social relationships at work. They highlighted how telecommuters enhance their personal autonomy and work-life balance, which in turn improves job performance and satisfaction and lowers stress. However, quite paradoxically, telecommuting can also damage work relationships and inhibit career prospects, which erodes performance and work attitudes.

Workplace flexibility, which is designed to benefit the employee, can paradoxically benefit the employer (Cañibano, 2019). Employees who have the ability to schedule their working hours and location often work more intensively for longer periods. This can result from the inflexibility of deadlines, unsupportive managers or peers and for reasons of reciprocity (Putnam et al., 2016). For example, Kelliher and Anderson, (2010) found that flexible work practices go hand-in-hand with increased effort and work intensification. Their case study identified three forms of work intensification which workers were required to accept in exchange for the ability to work flexibly. Imposed intensification occurs when a worker opts to work part-time but their workload is not reduced. Flexible work practices can also enable work intensification. Kelliher and Anderson (2010) offered the example of how working from home, away from the distractions of the office, can result in longer hours. The third form is reciprocal intensification where workers consciously trade higher effort in return for flexibility. Putnam et al. (2014) suggested that the autonomy-control paradox, which is central to flexibility practices, is made possible by norms of work effort and images of the ideal worker, which encourages overwork in autonomous settings.

2.2.2. Technology and the Autonomy-Control Paradox

The rapid development of technology and information systems has had a profound impact on organisational life over many decades (Castells, 2011; Wajcman, 2014; Zammuto et al., 2007). Information systems which facilitate enterprise resource planning, customer relationship management, online customer transactions, process automation, logistics and tracking, and continuous communications are a common feature of large corporate organisations. Business managers have at their disposal a vast array of information technologies to assist in achieving their goals, including growing market share and profitability, developing new products or increasing labour productivity. Not surprisingly, then, both technology and control have been strong areas of interest for organisational scholars (Eriksson-Zetterquist et al., 2009; Zammuto et al., 2007).

Paradox is a key theme in the literature on information technology in organisations (Bader & Kaiser, 2017; Robey & Boudreau, 1999). Technology provides simultaneous and contradictory opportunities for both the empowerment and control of workers (Elmes et al., 2005; Zuboff, 1988). Many of the leading scholars of the last century have either theorised about the intersection of technology and control or their ideas have been applied to this research. Henry Braverman (1974)

led a neo-Marxist critique of the role of technology in enhancing capitalists' control over the workforce. Braverman's (1974) *Labor and Monopoly Capital* is often credited with sparking what became known as the labour process theory debate (Sewell, 1998; Spencer, 2000). Braverman's rejection of the new capitalist methods of production was centred on the notion of control. He argued that the success of capitalism relied on its ability to wrestle control of the labour process away from workers, putting it firmly in the hands of management (Spencer, 2000). Under capitalist production, management was now responsible for determining work methods and workers were left to blindly execute orders (Sewell, 1998). As a result, the workforce was not only subordinated to management but also lost its skills in the process (Mackensie & Wajcman, 1999). This "deskilling thesis" is a central element in Braverman's work. He argued that management had taken control of the labour process by appropriating the knowledge and skills of workers leading to an unskilled working class (Attewell, 1987).

Braverman's (1974) deskilling thesis has been the subject of significant criticism on two grounds. First, Braverman presents a highly deterministic account of technology in which the machine delivers negative outcomes for workers (notably exploitation, control and deskilling) without provoking their resistance (Attewell, 1987; Spencer, 2000). Workers are portrayed as taking a passive stance in relation to technology (Doolin, 2016). Second, scholars have questioned the accuracy of the deskilling thesis. Attewell (1984; 1987) suggests that evidence in support of the deskilling thesis is quite patchy. The automation of work processes can lead to higher skilled jobs, for instance. A useful case study illustrating this point is provided by Zuboff (1988), who described how the introduction of new technology fundamentally altered the nature of work in the pulp mill plants of Piney Wood and Tiger Creek. New technology both automated and "informated" work processes for the plant operators. As a result, work was restructured from being a purely physical activity to an "intellective" one, providing significant opportunities for learning and empowerment.

The perceived weaknesses in Braverman's deterministic approach have led some scholars to leverage the work of Michel Foucault as an alternative way of understanding technology and organisational control (Spencer, 2000). Foucault, a leading social theorist of the 20th century, is perhaps best known for his work on disciplinary power (Dianna Taylor, 2014), which he outlined in *Discipline and Punish* (Foucault, 1975). Panopticism was a central feature of Foucault's theory of disciplinary power and has had a strong influence on surveillance studies (Vuokko, 2008). The panopticon was an eighteenth-century architectural design for a prison system which included circular floors of cells organised around a central watchtower. The design ensured that prisoners could not see their fellow inmates or the supervisor but were aware of their presence. Foucault (1975) described the panopticon as follows:

> Each individual, in his place, is securely confined to a cell from which he is seen from the front by the supervisor; but the side walls prevent him from coming into contact with his

> companions. He is seen, but he does not see; he is the object of information, never a subject in communication. (p. 200).

In the panopticon design, the prisoner is constantly reminded of his full visibility to the supervisor. In fact, the actual presence of the supervisor becomes redundant. The prisoner assumes that he is under the constant gaze of the supervisor and moderates his behaviour accordingly, resulting in the prisoner essentially becoming his own warden: “He who is subjected to a field of visibility, and who knows it, assumes responsibility for the constraints of power” (Foucault, 1975, p. 202).

The idea that surveillance would lead to self-control was at the heart of Foucault’s theory of disciplinary power (Doolin, 2016; Vuokko, 2008). Surveillance has been a significant theme in critical accounts of information systems, and several scholars have applied Foucault’s concept of the panopticon to empirical studies. While the central watch tower of the panopticon renders the prisoner visible to the warden, information systems similarly bring transparency to work. In both cases, this visibility results in a form of public accountability for performance and behaviour, which encourages a level of individual self-discipline. Drawing on her case studies of pulp mills in the US, Zuboff (1988) was one of the first researchers to see the potential of information systems to operate as an “information panopticon”:

> Information systems that translate, record, and display human behaviour can provide the computer age version of universal transparency with a degree of illumination that would have exceeded even Bentham’s most outlandish fantasies. (p. 322)

In ‘Postscript on the Societies of Control’, Gilles Deleuze (1990), a French philosopher, celebrates Foucault’s analysis of the disciplinary society. Yet he argues that the disciplinary society has ‘ceased to be’ (p.3). Just as the sovereign society was replaced by the disciplinary one, it too is being superseded by what he calls the ‘societies of control’ (p.3). Deleuze argues that the institutions at the core of the disciplinary society – that is, the prison, school and factory – are now in a state of crisis. The school and factory, for example, have been replaced by the corporation and its ‘perpetual training’ (p.4).

In this new society of control, Deleuze contends that the physical enclosure of the prison or school, which were the hallmarks of disciplinary power and domination, has now given way to a more fluid or dispersed form of control. He uses a scene from Franz Kafka’s *The Trial* (2009) to contrast the judicial systems in both societies. The central protagonist in Kafka’s novel is left to ponder the relative merits of two disciplinary outcomes he faces: the apparent acquittal, which for Deleuze symbolises the sovereign society, and the continuous postponement, which he associates with its successor, the control society.

For Deleuze, control is now something which operates in the open air rather than being confined to the fixed space of old institutions. The walls of these physical spaces are dissolving and giving way to a new form of control, which is more distributed in nature. In this new society, control

operates at a distance and is no longer focused on individuals, but rather their representations as consumers.

Foucault's notions of power and panopticism and Deleuze's theory of control societies have resonated with critical theorists who examine the emergence of new ways of working, the proliferation of mobile technology and newer 'platform' technologies which fuel the 'gig' economy. However, these ways of working and organising may provide an even more intensive and subtle form of surveillance than Foucault could have imagined. Echoing the work of Deleuze (1990), De Vaujany et al. (2021) highlight that these developments have allowed surveillance and control to become 'free floating' (p.9) instead of fixed, which panopticism envisaged. Framed in the language of flexibility and empowerment, these new technologies and work practices have become distributed and assimilated into our daily experience but paradoxically provide opportunities for surveillance to become 'increasingly mobile, flexible, pervasive and unbounded' (p.18). Consequently, De Vaujany et al. see these new developments as creating new tensions between autonomy and control at work.

Leclercq-Vandelannoitte et al. (2014) also consider the adequacy of Foucault's theory of panopticism in explaining the power dynamics of mobile devices. They assert that mobile information systems provide opportunities for 'more freedom and increased servitude' (p.547). In their study of banking professionals, norms relating to constant connectivity and availability emerged when their research participants were provided with mobile devices. Notably, participants reacted quite positively to the long hours enabled by connectivity and reported feeling more liberated than controlled. Drawing on the work of Deleuze (1990), Leclercq-Vandelannoitte et al. contend that mobile technology facilitates a form of 'loose control', which reinforces a very high level of engagement in work. They conclude that this 'free' or 'loose' control is ultimately more potent than panoptic control because it embodies characteristics of distributed control, voluntary participation, mobility and trust.

Leclercq-Vandelannoitte (2020) also extends the concept of the panopticon in the context of new ways of working. Her research examines how managers react to the introduction of co-working spaces, rendering them less visible to employees and thereby threatening a key element of traditional managerial authority. In a case study of Belgian workers, a manager responded to the new working arrangements by initiating ways to increase his visibility to subordinates by framing his advocacy for the new arrangements, and in the process restoring his control at a distance. While the power dynamics of the panopticon rest on the invisibility of the guard in the tower, this research suggests that it is the visibility of the manager which underpins their control. In effect, this involves a shift from the invisible surveillance of the watched to the virtual or symbolic visibility of the watcher.

While the surveillance power of Foucault's panopticon may be considered absolute, there are, of course, limits on the panoptic gaze of the mobile phone. In reality, users are never complete slaves

to their devices, and they can, and do, resist – simply by disconnecting. Russo, Ollier-Malaterre and Morandin's (2019) analysis of disconnection decisions emphasises the role of human agency in mobile technology use. Drawing on an analysis of social media responses to an article on mobile phone habits, they outline several motivations users have for disconnecting from their devices, including to improve role performance, cultivate a digital philosophy, reduce socially undesirable behaviours and minimise the impact on others.

2.2.3. The Social Structuring of Technology

While Braverman (1974) provided a pessimistic account of technology's impact, highlighting deskilling and exploitation, others take a more optimistic stance. Kling (1991) notes that many of the early studies of computers displayed a "technology utopianism". Technology was presented as a progressive force transforming the nature of work and society. Rather than centralising power in the hands of the few, some accounts suggest that technology can be a democratising presence providing personal freedom and efficiency (Bloomfield & Coombs, 1992; Mick & Fournier, 1998). There can be little doubt that information systems have resulted in significant benefits for organisations. Dewett and Jones' (2001) comprehensive literature review highlights positive influences on efficiency, innovation, knowledge sharing and communications. Both these positive and negative perspectives share a common view of technology as directly shaping outcomes for society, organisations and workers (Doolin, 2016). However, the converse is also true. Mackensie and Wajcman (1999) highlight the important role of society in shaping technology. For example, the Second World War was a time of enormous military innovation, while the counter-culture movements of the 1960s played a role in developing personal computers.

In a series of publications, Wanda Orlikowski mapped the prevailing conceptualisations of technology and its relationship with society and actors into two streams (Orlikowski & Baroudi, 1991; Orlikowski, 1992; Orlikowski, 2007; Orlikowski & Scott, 2008; Orlikowski, 2010). In the first stream, technology is viewed as an independent variable which exerts "unidirectional, causal influences over humans and organizations" (Orlikowski, 1992, p. 400). The work of Braverman, who considered technology as a means of enhancing management control, can be situated within this approach, which Orlikowski labels as "technological determinism". However, studies which have sought to explain the positive outcomes of technology for organisations and workers, such as productivity and job satisfaction, can also be considered as examples of technological determinism (Orlikowski & Scott, 2008). The second stream of research focuses on the idea that technology is socially constructed (Orlikowski & Scott, 2008). Here the social setting of technology is paramount, as the way in which technology is used is ultimately shaped by social factors (Eriksson-Zetterquist et al., 2009). In this approach, technology is viewed as something which emerges from interactions between agents. The material properties of technology are understood to be socially produced (Orlikowski & Scott, 2008). This is a "human-centred" approach in which agents understand technology in different ways depending on how they engage with it. This

approach can be found in the sociotechnical system school and the social shaping of technology literature (Orlikowski, 2010).

Orlikowski highlights the shortcomings of both streams. The technology-centric approach has been criticised for its tendency to reify technology as a discrete and autonomous force (Orlikowski, 2010). The limitation of the human-centric approach is its tendency to downplay the material properties of technology. Orlikowski (1992) encourages us to move beyond both technologically deterministic and socially deterministic perspectives by advancing the structuration theory of technology. She draws on the work of Giddens (1984), who outlined his structuration theory in *The Constitution of Society*. As I highlighted earlier, Giddens suggested that social structure shapes human agency. However, actors also play an important role in producing and reproducing social structure. A duality exists whereby agency is both enabled and constrained by structure. Orlikowski (1992) believes that technology operates in a similar fashion. Technology is physically produced by actors who themselves are influenced by the wider social structure. It is, therefore, a product of human action. However, technology is also a medium of human action which can either enable or constrain performance. Furthermore, Orlikowski states that the institutional properties of organisations influence agents' interaction with technology. Finally, this interaction with technology reinforces or transforms organisational structure (Orlikowski, 1992, p. 410). Orlikowski (1992) highlights a duality of technology "which allows us to see technology as enacted by human agency and as institutionalized in structure" (p. 421). This theory can be situated in a broader research stream known as "sociomateriality" in which "the social and the material are considered to be inextricably related—there is no social that is not also material, and no material that is not also social" (Orlikowski, 2007, p. 1437).

According to Orlikowski (1992), both the material properties of technology and the institutional context of use allow it to act as an enabler and constraint on human action. Technology, of course, allows people to perform with a certain degree of flexibility conditioned by their own interpretations and reflexivity. Yet, this flexibility is ultimately limited by the functionality of technology and the structure of the organisation which, in turn, act as a constraint on human agency. Paradoxically, then, technology provides opportunities for both freedom and control.

2.2.4. The Autonomy-Control Paradox and Enterprise Resource Planning Systems

As I highlighted earlier, several organisational theorists have outlined how technology goes hand-in-hand with autonomy and control. This paradox has been explored by studying Enterprise Resource Planning (ERP) systems, which are now a common feature of the information technology infrastructure of many large organisations (Elmes et al., 2005). These software platforms are used to support commercial functions, such as accounting, human resources, production and supply chain (Rouhani & Mehri, 2018). A useful case study illustrating this empowerment-control tension of ERP systems is provided by Zuboff (1988) in her much-celebrated work *In the Age of the Smart Machine*. Zuboff draws on Foucault's notion of the

panopticon to describe how complex information systems enhance management control by bringing transparency to work activity. In her study of pulp mills in the US, new technology automated what was once predominantly manual work. In doing so, the technology also generated tremendous amounts of data and, therefore, "informated" the work. This allowed physical work to become "intellectualised", providing opportunities for job enrichment and employee enablement. However, the tremendous volume of data facilitated a new means of surveillance-based management control. Zuboff likens these information systems to Foucault's panopticon:

> Information systems can automatically and continuously record almost anything their designers want to capture, regardless of the specific intentions brought to the design process or the motives that guide data interpretation and utilization. The counterpart of the central tower is a video screen. (p. 322).

Zuboff (1988) described how computerisation allocated work to technicians, calculated completion rates of tasks and enabled real-time monitoring of work activities. In this environment of heightened surveillance, workers experienced "anticipatory conformity" and took responsibility for their own discipline: "The pressure of visibility begins to reorganise behavior at its source, shaping it in conformity with the normative standards of the observer" (Zuboff, 1988, p. 345). This continuous observation of work, which enhanced management control, was "doubled edged" (p. 337). The technology used by plant managers to observe workers was also used by head office to monitor the performance of each individual plant. In this way, the "observer" also became the "observed".

Sia et al. (2002) follow Zuboff's lead in exploring the potential of ERP systems to operate as an "information panopticon". ERP systems can empower employees by providing greater access to information and allowing greater flexibility in how tasks are performed. Sia et al. (2002) reinforced the theme of "duality" and paradox in technology by noting that: "ERP thus has the ambivalent potential of imposing panoptic control and empowering users simultaneously" (p. 26). In their case study of a Singaporean hospital, they found evidence ERP implementation leading to greater employee discretion and flexibility. However, the bias of the ERP system was towards panoptic control by enabling greater management reporting and surveillance of work (Sia et al., 2002). This bias was attributed not so much to the technology but to the reticence of employees to radically change work practices.

The question of whether ERP systems can empower employees by providing improved access to information is also taken up by Elmes et al. (2005). They studied a three-year ERP implementation in a large multi-national organisation in the late 1990s. Their findings reveal how users of the ERP system experienced greater empowerment. For example, customer service representatives were given improved access to information without the need to request this simply to perform their role. However, workers also fell under the constant gaze of the information system which served to

tighten the grip of management. The ERP system meant that every process step was now controlled, and weekly and monthly reports were replaced by real-time monitoring of activity.

Teoh and Teo (2010) also explore the underlying paradox of ERP systems. Their case study was based on a Malaysian housing developer who undertook a multi-year ERP implementation commencing in the mid-1990s. Research participants described the empowering effects of the ERP system, which improved capability and decision making and reduced workload. However, consistent with other studies, the ERP system also facilitated panoptic control by increasing the transparency of work, providing regular reporting and more intensive performance assessment. Teoh and Teo (2010) concluded that the benefits of ERP systems flow disproportionately to senior management.

2.3. Mobile Technology and Paradoxical Outcomes

So far in this chapter I have provided a summary of theoretical perspectives on paradox and examined how one particular paradox, that of autonomy and control, has featured in research on technology and organisations. This central theme of autonomy and control in organisations has been outlined by drawing on the theories of several leading scholars. In this section, I turn my attention more specifically to mobile technology, beginning with an overview of the growth in popularity of these devices and how they have shaped the very nature of work, something which has been further accelerated during the recent COVID-19 pandemic lockdowns. From there, I will explore the research on the “bright side” and “dark side” of mobile devices in the workplace, before examining a few works which highlight paradox as a central feature of device usage. Finally, I will examine the more limited literature on how mobile technology influences employee wellbeing.

2.3.1. The Rise of Mobile Technology

Mobile technology has become an essential feature of the office environment for knowledge workers (Orlikowski et al., 2005). The first generation of devices provided simple voice services and communication through texting. However, the launch of the Blackberry, and later the iPhone and iPad, has ushered in a new era of “smart” technology. A wide variety of applications now accompany mobile hardware, including email, texting, instant messaging, internet access, social media, productivity tools, calendars, access to ERP systems and so forth. Everyday tasks, such as creating or reviewing documents, preparing presentations, creating spreadsheets and approving workflows, can now be performed on a smartphone, tablet or lightweight notebook while the worker is on the move. These devices also give workers instant access to information, allowing them to collaborate with colleagues at the touch of a button. Where email was initially the primary means of communicating in a work context, instant messaging using applications such as WhatsApp, Viber, Messenger and MS Teams has become extremely popular. These applications allow workers to communicate ‘one to one’ or ‘one to many’ (Gupta et al., 2013; Ou & Davison,

2011). The functionality of mobile devices now provides workers with unprecedented connectivity to colleagues and customers regardless of location and time (Fenner & Renn, 2010).

The popularity of mobile technology has grown exponentially over the past decade. In the US, the number of adults with a smartphone grew from 35% in 2011 to 81% in 2019 while tablet ownership increased from a mere 2% in 2009 to 52% in 2019 (Pew Research Centre, 2019). Research conducted by the Australian Communications and Media Authority in 2018 showed that 79% of Australians connected to the internet using a mobile phone while 61% owned a tablet. Penetration of mobile devices has reached saturation levels in Australia, a country with a population of 25 million but with 27 million mobile handset subscribers. Furthermore, 99% of Australians accessed the internet in 2020, which increased from 90% in 2019.

2.3.2. Mobile Technology Is Reshaping Work

The unique features of smartphones and tablets, including their small size, long-life battery, "always on, instant on" and considerable computing power, make them very attractive to business users (Pitt et al., 2011). Perhaps the defining feature of these devices is their portability, a unique business tool which is always with the user (Jarvenpaa & Lang, 2005). Chatterjee et al. (2017) argued that these features allow new ways of organising work which contribute to organisational fluidity. They outlined five affordances of these devices, including mobility, which can be locational, temporal or contextual; connectedness, allowing users to communicate "anywhere, anytime"; interoperability, which enables sharing of information and data; identifiability of workers; and, finally, personalisation to suit user needs.

Desanctis and Scott (1994) noted that it is not simply the features of new technology but also its "spirit" which gives it "legitimation". The "spirit" of mobile technology can be readily seen in the way it is advertised. In a comprehensive study of wireless technology advertising, Gregg (2007) pointed to the "freedom" which is promised by these devices. Users are depicted as being released from the "banal" office environment, now free to work from a bus stop, local park, the hairdresser or even a cliff face. Such advertising encourages workers to be always contactable. Yet, the liberation promised by these devices is not so much "freedom from work but freedom to work" (Gregg, 2007, p. 62).

Devices such as the Blackberry, and more recently the iPhone, have become an important part of work culture. The popularity of the Blackberry at the start of the new millennium, and the addictive-like qualities it held for many users, led to the device being dubbed the "Crackberry" (Middleton, 2007). Middleton's (2007) review of the Blackberry in news articles includes stories of people using the device in the shower, at funerals, whilst driving, and even on the toilet. Similarly, Harmon and Mazmanian's (2013) analysis of "smartphone stories" showed how news articles and advertisements portrayed the devices as providing autonomy and control, productivity and effectiveness, and togetherness and community.

The presentation of mobile technology in advertising and popular culture aligns, in many ways, with the lived experiences of workers. The rapid growth in usage of these devices has fundamentally altered ways of working, particularly for knowledge workers (Wajcman, 2014). Matusik and Mickel (2011) suggest that mobile technology is “revolutionizing when, where, how, and how long employees work” (p. 1002). Towers et al., (2005) noted that the office technologies of the past, including typewriters, desktop computers and landlines, meant that work was fixed to a particular time and location. With these new technologies, work became mobile and could be conducted anytime or anywhere.

Mobile technology allows work to be conducted in non-traditional places for many professionals. The rapid development of telecommunications has facilitated a significant increase in the number of workers participating in telecommuting, for example. Narayanan et al., (2017) define telecommuting as “opportunities given to employees to work from home or a satellite office, a hotel, or any other place besides the traditional office setting” (p. 48). In 2015, Gallup reported that 37% of US workers participated in telecommuting compared to just 9% in 1995 (Jones, 2015). This growing trend towards “working from home” escalated dramatically during the COVID-19 pandemic, of course. Developments in technology have also supported new forms of mobile working from locations such as cafés, airport lounges, parks and other public places (Forlano, 2008).

Mobile technology is also changing the timing of work. Evidence is mounting that these devices extend work beyond traditional nine-to-five hours. For example, Josh Fear (2011) found that 53% of research participants with an employer-supplied device performed work outside of normal hours, compared to just 8% of those without a device. In 2014, Ofcom reported that 60% of research participants engaged in work-related communications outside of work. In a study of Australian teachers and support staff, Williams et al. (2014) highlight that 90% of participants checked their email when not at work. Much of this out-of-hours work connectivity is conducted in the evenings. Findings from a study undertaken by Pocock and Skinner (2013) show that 34% of participants checked their email at night. Connecting with work is also popular at other times when employees are meant to be at leisure. Towers et al. (2005) reveal that 72% of research participants used work devices on weekends and 44% while on vacation. However, Williams et al. (2014) suggest that mobile usage on vacation is lower at 31%, while Pocock and Skinner (2013) measure it at 22%.

This intense use of mobile technology may also be creating longer hours for professionals. Fenner and Renn (2010) labels the practice of using devices out of hours as “Technology Assisted Supplemental Work (TASW)”, while Towers et al. (2005) refer to the devices as “Work Extending Technologies (WET)”. A UK study conducted by Waller and Ragsdell (2012) found that participants spent an additional four hours per week on email outside of normal working hours.

Fear (2011) argues that these additional hours constitute "polluted time", which negatively impacts 6.8 million Australian workers and their families.

2.3.3. The Changing Workplace

The rise of mobile connectivity has occurred at a time of significant change in the workplace, and these wider developments provide an important context for the study of technology. Influenced by the economic success of Japan, the quality movement – including quality circles, TQM and JIT production – grew in popularity in the 1980s and 1990s (Legge, 1995). Karen Legge argues that the "rhetoric" of the quality movement, characterised by employee empowerment and flexibility, gave way to a harder-nosed reality of task standardisation, worker surveillance and enhanced management control. The focus on eliminating any form of waste in the manufacturing sector, and the mantra of "customer first" in the service sector, contributed to labour intensification for production operatives, teachers and doctors (Legge, 1995). Green (1999, 2004) outlines that rising work intensification was a key trend in the European workforce in the 1990s. Work intensification, often associated with the computerisation of jobs, resulted in higher productivity levels but lower job satisfaction and employee wellbeing (Green 1999, 2004). A related trend during this period was the implementation of "High Involvement Work Practices" or "High Commitment Employment Practices". These practices are characterised by attempts to put decision making, autonomy and flexibility in the hands of employees, resulting in higher levels of discretionary effort (Boxall & Macky, 2009; Macky & Boxall, 2008). Empirical studies of these new work practices indicate positive outcomes for workers in terms of job satisfaction but negative consequences as regards work intensification (Boxall & Macky, 2009; Macky & Boxall, 2008; Kashefi, 2009; Wood & de Menezes, 2011).

In *Willing slaves: How the overwork culture is ruling our lives*, Madeleine Bunting (2005) paints a particularly grim picture of modern work practices in the UK. According to Bunting, management promises of "flexibility" and "autonomy" are simply rhetoric. Instead, the new flexible workforce is characterised by the "timelessness" of working patterns, 24/7 availability and the breakdown of boundaries between work and home, enabled, in part, by pervasive communications technology. Overwork, she suggests, is rationalised through "missionary management" practices and organisational cultures which encourage employees to put in longer hours in pursuit of the organisation's higher purpose. Bunting makes a strong argument that longer hours and rampant overwork has led to a dramatic decline in job satisfaction, the burnout of the middle classes and a "care deficit" for British families. Women, finally free to have a career yet still expected to manage the home, are bearing the brunt of these changes.

The rise of the digital workplace has exacerbated many of these concerns. The additional burden placed on the working lives of parents in the digital era is considerable. Beckman and Mazmanian (2021) describe how technology intensifies the pressure of combining caregiving with career

advancement. Their research illustrates how pursuing the ideal of 'having it all' often leads to overwork and emotional exhaustion.

Closer to home, Australian scholars have also raised concerns about some of the adverse consequences of new work practices. Pocock (2003) points to a "Work/Life collision" in Australia, fuelled by greater female workforce participation, the emergence of a "long hours culture" and rising work intensity, which compete with traditional notions of work, gender and parenthood. The combined impact of these changes is damaging, both to community cohesion and personal relationships.

The 2012 AWALI Report (Skinner et al., 2012) highlights the "Big Squeeze" that Australian women were experiencing due to substantial changes in the work environment. The authors report that "chronic time pressure" and dissatisfaction with work-life balance are rapidly increasing for females. More broadly, they suggest that 30–40% of Australian workers are negatively impacted by work intensification, while work-life interference is a problem for 25% of Australians. Not surprisingly, Skinner and Chapman (2013) reported that 70% of Australians wanted more family and leisure time. More recently, the 2019 HILDA report (Wilkins, 2019) highlighted that rising work-life conflict continues to be a significant concern for many Australian workers, in particular working mothers. After controlling for working hours, work-life conflict is now higher for working mothers than fathers.

Against this backdrop of adverse consequences of new work practices, scholars have emphasised the role of 'boundary work' in navigating the tensions between work and home (Allen et al., 2014). Kreiner et al. (2009) leverage a Grounded Theory approach to examine how individuals understand, and respond to, the conflicts between these two domains. They suggest that an incongruence between work and home can lead to negative outcomes. However, individuals employ 'boundary work tactics' (p.704) to manage the competing demands. Boundary work tactics can be 'behavioural', such as using technology, 'temporal', including looking for respite, 'physical', for example, creating a space between work and home, or 'communicative', including setting expectations (p.715).

Kossek and Lautsch (2012) further develop this discussion by proposing a typology of work-family boundary management styles. They highlight that these styles are influenced by individual factors, including boundary-crossing preferences and work and family identities. Organisational factors, such as the work-family climate, are also important. Kossek and Lautsch outline that boundary management styles can include a preference for integration, separation or alternating. Furthermore, they suggest that perceived control over boundary management style can reduce work-family conflict. Reissner et al. (2021) add to the work-life boundary management literature by identifying the different configurations of boundary management practices, including varying degrees of consistency. Some knowledge workers adopt a congruent approach (p.303), with a consistent preference for integrating or segmenting the two worlds. Others employ a variability

configuration (p.305), which sits between these preferences. Finally, some professionals adopt a fluidity configuration (p.306), which combines both practices.

Boundary management has become increasingly difficult in a digital world. Based on an examination of social media networks, Ollier-Malaterre, Rothbard and Berg (2013) propose a conceptual model of digital boundary management. They stress that social media can both enable and hamper the development of professional relationships. Online platforms can build communication and connectivity between colleagues. However, this can result in the blurring of lines between personal and professional worlds, with the potential to dilute family and private time. More recently, Ollier-Malaterre, Jacobs and Rothbard (2019) introduce the concept of 'digital cultural capital' (p.425), which they frame as the skills and motivation required to navigate digital boundaries. They contend that these skills are crucial for maintaining work-life balance, as the temporal, spatial and relational boundaries between work and home are becoming increasingly permeable in a digital world.

Of course, effective boundary management strategies are simply one part of the work-life balance puzzle. In *Making Work and Family Work*, Greenhaus and Powell (2016) argue that societies and organisations need to do more to reduce the constraints placed on families. Societies can assist through a greater focus on affordable childcare or by introducing tax regimes which reduce the financial burden on families. Organisations need to introduce formal and informal strategies to give workers more control over where and when they work.

2.3.4. The Impact of COVID-19

The World Health Organisation declared COVID-19 a global pandemic in March 2020. While the long-term impacts of the pandemic on work practices are yet to be fully known, in the short term, at least, COVID-19 has clearly had a dramatic effect on the working lives of many people across the globe (Galanti et al., 2021; Hodder, 2020; Kniffin et al., 2021). Millions of workers were impacted by unemployment, being furloughed, or the requirement to work from home during the pandemic lockdowns (Hodder, 2020; Kniffin et al., 2021). The International Labour Organization estimates that the reduction in hours worked in the second quarter of 2020 equalled 305 million jobs (Fouad, 2020). In Australia, unemployment rose from 5.2% in March 2020 to 7.5% in April. Young people and women were particularly affected as they have a disproportionate representation in retail and service industries, which were greatly impacted by lockdowns and social distancing rules.

COVID-19 had an immediate and transformative impact on the world of work (Brynjolfsson et al., 2020). Governments in many countries responded to the pandemic by imposing social distancing measures in public places, including offices and other work environments. Workers were categorised as "essential" and "non-essential" (Hodder, 2020; Kniffin et al., 2021). Those in essential roles often continued to operate in their normal workplace, but COVID-19 meant that

many faced a spike in technology-related work intensification. For example, Hodder (2020) notes the enormous increase in call volumes to the UK NHS call centres when the pandemic first broke out. Another example is the substantial increase in workload for warehouse workers as online shopping replaced traditional shopping. During the pandemic "telecommuting" or "working from home" became the norm for many non-essential workers. While this trend had been underway for several years, there is little doubt that the pandemic accelerated it greatly. Hupkau and Petringolo (2020) note that 2.9 million Britons worked from home in 1998. This had increased to 4.2 million or 14% of the workforce by 2014. Before the pandemic, employees had the opportunity to occasionally work from home if their employer was supportive and the technology enabled it. However, during the pandemic, many workers were directed to work from home, either by health orders or company policy (Nagel, 2022). Eurofound estimated that 50% of Europeans worked from home during the pandemic, compared to 12% in pre-pandemic times (Galanti et al., 2021). These figures may be underestimated, though. Early in the pandemic, the International Labour Organization estimated that up to 80% of the global workforce was impacted by full or partial workplace closures (Savic, 2020).

The sudden requirement to work from home had a dramatic impact on the digitalisation of the workplace. The adoption of new technologies can sometimes be slow in organisations; however, the pandemic created an urgency. Workers who had not previously used videoconferencing applications were suddenly dependent on them as they moved from one ZOOM call to another throughout the day. During this period, schools were closed in many countries. Therefore, workers found themselves not only working from home but also sharing their workplace with partners who were doing the same and with children attending online classes. This meant juggling work tasks with preparing more meals at home while also helping children with distance learning (Galanti et al., 2021).

Some early analyses suggested that many were quite positive about working from home. Dubey and Tripathi (2020) conducted an analysis of Twitter "tweets" regarding working from home during March and April 2020. Their sentiment analysis showed that 73% of tweets were positive, expressing emotions of trust, anticipation and joy. In some recent Australian research conducted by Deloitte Australia and Swinburne University (2022), 34% of flexible location workers preferred working from home, while 44% preferred hybrid working. Yet, working from home for extended periods does have significant consequences. For example, it has implications for the way in which virtual teams interact and how supervisors lead (Kniffin et al., 2021). Worker wellbeing is another important consideration. There were reports of a significant increase in social isolation and loneliness during the pandemic (Hwang et al., 2020; Kniffin et al., 2021). As video conferencing through ZOOM or MS Teams replaced face-to-face meetings, many workers felt that they had to be online and available all the time (Hodder, 2020), with implications for work-life conflict and job satisfaction.

Möhring et al. (2021) conducted a longitudinal study of satisfaction with work and family in September 2019 and April 2020. They found a significant reduction in satisfaction during this period, particularly for mothers as they took on disproportionate amounts of childcare. Indeed, emerging data suggests that working mothers had an especially difficult time during the pandemic (Hupkau & Petringolo, 2020; Schieman et al., 2021). The move to telecommuting reinforced traditional gendered roles as working mums bore the brunt of trying to juggle schooling and working from home (Hodder, 2020). Hupkau and Petringolo's (2020) study indicates that the amount of housework increased by about 25% during the pandemic, but the lion's share still fell to women. Some emerging studies also suggest that the wider health impacts of working from home may be quite significant. In clinical trials during the pandemic lockdowns, Gibbs et al. (2021) found that those working from home experienced an increase in sedentary behaviour on non-workdays, reduced sleep quality, impacts on mood and reduced health and quality of life outcomes.

The prevalence of employee surveillance technologies has grown rapidly during the COVID-19 pandemic and, therefore, has attracted considerable scrutiny from researchers (Cousineau et al., 2023). Workplace surveillance technologies can now monitor keystrokes, internet usage, emoji usage, idle time, facial expressions, audio, voice and biometrics. Ollier-Malaterre and colleagues' (2023) review of these technologies highlights that they vary in their degree of personal and social invasiveness but nevertheless place considerable pressure on workers to remain constantly available to their employers.

COVID-19, therefore, has been a major disruptor to work. For many people, it has shifted the workplace into the home and significantly increased their reliance on mobile technology to stay connected with colleagues. My research was conducted both during and after the pandemic lockdowns in Australia and will shed some light on how this major disruptive event has shaped the ways in which workers now engage with mobile technology as well as the positive and negative implications for their wellbeing.

2.3.5. Autonomy: The "Bright Side" of Mobile Technology

Thus far in this section, I have discussed how mobile technology is reshaping the workplace, a trend which has intensified during the recent COVID-19 pandemic. What has this meant for workers' experience of autonomy and control? Scholars suggest that mobile technology can lead to a number of positive outcomes for workers. Chief amongst these are improvements in autonomy and job performance.

2.3.5.1 Autonomy

Mobile technology appears to enhance feelings of autonomy in two ways: (1) time and location flexibility; and (2) job control. Flexibility comes in several forms, including the ability to work from home or other locations and to vary the hours of work (Brown & Palvia, 2015). It, therefore, is an

important determinant of work-life balance (Hill et al., 2001). Several qualitative studies highlight the link between mobile technology usage and enhanced work flexibility. One of the earliest studies, conducted by Golden and Geisler (2007), focused on the use of Personal Digital Assistants (PDAs). These devices, introduced in the mid-90s, assisted workers to manage their diaries through calendaring functionality and were essentially a forerunner to smartphones. Participants in this study spoke of the flexibility that PDAs gave them to manage the boundaries between work and home in a more fluid way. Jarvenpaa and Lang (2005) report similar findings in their research. They highlight that participants welcomed the freedom and scheduling flexibility which mobile technology enabled. The lawyers and consultants in Mazmanian et al.'s (2013) study also used technology to enable locational and temporal flexibility. By controlling the time and location of work, these knowledge workers had the flexibility to work away from the office with the peace of mind that they were still connected. Consultants in Leclercq-Vandelannoitte et al.'s (2014) study also benefited from enhanced flexibility when using smartphones. The technology gave workers "the freedom to work anywhere" (p. 549), which they embraced as a tool to integrate work and family needs. Research participants in an Australian study undertaken by Williams et al. (2008) outlined how they used communication technology to enact autonomy and flexibility over work time scheduling and job content. However, this flexibility often came at a cost for workers, including extended hours and less time with family and friends. The enhanced flexibility that mobile devices enable may also have a gender component. In a recent study of Australian lawyers, Foley et al. (2024) found that women with caring responsibilities experienced the devices as "emancipatory", facilitating greater participation in the profession.

Researchers have made limited attempts to quantify the relationship between mobile technology usage and worker flexibility (Jeffrey et al., 2016). Two studies are worth noting. Leung (2011) proposes a positive relationship between Information and Communications Technology (ICT) connectedness and perceptions of boundary flexibility and permeability (Ashforth et al., 2000; Clark, 2000) and tests this hypothesis using a telephone questionnaire of 1,041 full-time workers in Hong Kong. He creates the ICT Connectedness Index (ICTI) to measure the "scope and intensity, centrality and goals and breadth of ICT use" (p. 252). By analysing the correlations between variables, Leung finds that ICT connectedness is positively and significantly related to both boundary flexibility and permeability. In a later quantitative study, Nam (2013) considers the impact of technology usage on work-life balance. His analysis of data from the Pew Networked Workers Survey (2008) shows that mobile and internet usage is a positive predictor of perceptions of work flexibility.

Job control is the second form of autonomy which emerges as a theme in mobile technology literature. Several studies emphasise that mobile devices improve workers' control over their job tasks and environment. Once again, this theme is primarily highlighted in the qualitative literature. The Blackberry users in Middleton's (2007, p. 171) Canadian study described the devices as

"empowering". These workers used the Blackberry to more effectively manage a demanding work environment, providing them with "liberation, freedom and peace of mind" (p. 171). While the technology assisted with job control, Middleton also notes that it helped to reinforce a culture of overwork, extending work beyond the realm of the office.

In interviews with Matusik and Mickel (2011), professionals described the benefits of using mobile devices in terms of increased efficiency, peace of mind, connection with colleagues, and lower anxiety. While many were highly enthusiastic about their experiences, others were more reflective, noting the trade-offs in terms of heightened expectations of responsiveness outside of hours and the flow-on impact on family life. Mazmanian et al. (2013) also describe a group of knowledge workers using devices intensively both inside and outside the office. Again, these workers were very positive about the role that devices played in enhancing their autonomy. They used their devices to "keep an eye" on work, manage their availability, control their communications and increase their flexibility (Mazmanian et al., 2013, p. 1342). Somewhat paradoxically, these devices also eroded autonomy as intense usage led to an "escalating engagement" with work (p. 1345). Cavazotte and colleagues' (2014) interviews with 42 corporate lawyers reveal a similar set of experiences. These professionals described smartphones as providing a sense of control, discretion and flexibility over their work. Yet they also experienced the negative aspects, which intensified their work and damaged their family life. Dery et al.'s (2014) research on an international bank in Australia highlights how Blackberry users valued the device as a tool which freed them from the boundaries of the office. However, consistent with the findings of other works, this capability also resulted in longer hours and left users managing a complex interface between work and home.

A small number of quantitative studies have explored the relationship between mobile technology and job control. Fujimoto et al. (2016) suggest that mobile technology would enable social connectedness for Japanese users, leading to improved perceptions of autonomy and lower levels of mental exhaustion. Their analysis reveals a significant positive relationship between mobile technology usage and job autonomy. Román and colleagues (2018) examine the impact of mobile technology usage on sales professionals in Spain. Applying the Job Demands and Control model (Karasek, 1979), they find that mobile devices are a critical resource for workers, enabling significant job control leading to lower levels of stress. Richardson and Thompson (2012) find that both the duration and frequency of work connectivity after hours is positively related to the perception of job control. However, a subsequent study by Ward and Steptoe-Warren (2014), which attempts to replicate these findings, reveals that Blackberry usage after hours actually reduces job control.

2.3.5.2 Performance

According to Orlikowski and Scott (2008), the primary reason why organisations deploy ICT is to improve the productivity of their workforce. Extant research suggests that workers who use ICT

extensively report higher levels of productivity and effectiveness. For example, scholars have established a strong link between telecommuting and employee productivity. In a study of IBM teleworkers, Hill et al. (1998) show that those teleworkers who used virtual office arrangements had higher self-reported performance ratings. A meta-analysis undertaken by Gajendran and Harrison (2007) finds a positive relationship between telecommuting and supervisors' ratings of employee performance.

A limited number of qualitative and quantitative studies have examined the productivity impact of mobile technology. Noelle Chesley (2010) collected data from the Couples and Careers survey between 1999 and 2001. She finds that frequent users of ICT reported higher levels of work performance, but cell phone users experienced no improvement in their effectiveness. However, it is worth noting that this research was conducted before the emergence of smartphones, when devices were less sophisticated and primarily used for voice services.

Towers et al. (2005) use a mixed methods approach to examine the outcomes of communications technology in a large Canadian government department. Research participants viewed these technologies as important tools enhancing their effectiveness in responding to client needs. As an "always on" device, government workers saw the Blackberry as an enabler of productivity at home in the evenings. In other research, 80% of respondents in the Networked Workers Survey (Madden & Jones, 2008) said that mobile technology had enhanced their effectiveness at work. Quantitative analysis undertaken by Brown and Palvia (2015) also shows that device usage during office hours contributed to higher levels of employee performance. However, after-hours usage led to work-life conflict without the benefit of any incremental improvement in performance. Finally, a study of hospitality workers undertaken by Jeong et al. (2016) also finds a strong association between device usage and perceptions of enhanced performance.

The link between mobile technology and productivity is not consistently positive in the literature. Several researchers have observed that constant connectivity through emails, texting, instant messaging and notifications brings a steady stream of interruptions which distract workers, reduce performance and lead to "work fragmentation" (Mark et al., 2005, p. 321). Workers often anticipate these interruptions by regularly checking inboxes, which disrupts the "flow" of work (Duke & Montag, 2017). Karr-Wisniewski and Lu (2010) suggest that workers are interrupted on average every three minutes. Their study highlights that technology can lead to performance improvement, but this relationship becomes negative at high levels of usage when "technology overload" sets in. Ren et al. (2023) also suggest that the relationship between after-hours digital connectivity and work performance is curvilinear. They found in two studies that digital connectivity is related to higher levels of job performance up to an inflexion point, after which the relationship becomes negative. An ethnographic study of an investment management company in the US showed that interruptions distracted workers for an average of 25 minutes from their original task (González & Mark, 2004). However, Wajcman and Rose (2011) challenge the

concerns raised by some scholars in relation to interruptions. They argue that in a world of constant connectivity, technology-mediated interruptions do not distract people from work but, in effect, become the work itself.

2.3.6. Control: The “Dark Side” of Mobile Technology

In the previous section, I have summarised the literature suggesting that mobile technology can put workers in the driving seat by improving their autonomy over where, when, how, and how well they work. Yet the convenience of constant connectivity may come at a high price. Extensive technology usage has been linked with a series of negative outcomes, including various health impairments and depression (Arlinghaus & Nachreiner, 2014), problems with sleep (Lanaj et al., 2014) and stress (Nam, 2013). In sharp contrast to the more optimistic accounts suggesting that mobile technology is empowering for workers, an alternative perspective is provided by those who paint a picture of this technology as “enslaving” for users (Agger, 2011; Leclercq-Vandelannoitte et al., 2014). This critical approach centres on two key themes. First, mobile technology extends work into the home, leading to work-life conflict; this has been labelled as “work extensification” (Currie & Eveline, 2010). Second, mobile technology increases the pace and volume of work resulting in “work intensification”.

2.3.6.1 Work-Life Conflict

Scholars such as Fenner and Renn (2010) and Currie and Eveline (2010) suggest that mobile technologies are work-extending devices pushing work beyond the traditional temporal and locational boundaries into the home. While these devices afford users the flexibility to work ‘anywhere, anytime’, the downside comes in the form of work-life conflict. For many professionals, a work smartphone is a “constant companion” (Diaz et al., 2012, p. 501) carried with them everywhere, permanently turned on and providing an easy means to respond to emails and texts during family and leisure time (Derks et al., 2016). As a result, these technologies blur the lines between work and home (Chesley et al., 2013). Indeed, Kossek and Lautsch (2008) go so far as to warn that using these technologies can turn the home into “electronic cottages” (2008, p. 153).

Concerns about the impact of excessive connectivity on work-life balance have prompted regulators in some countries to introduce new employment legislation. In 2017, France enacted a law which requires employers to negotiate with employees regarding their right to “disconnect” from technology after a 35-hour week (Agence France, 2016). New legislation in Spain gives employees similar rights (Wisenberg Brin, 2019). The German Labour Ministry has implemented new rules preventing managers from contacting staff out of hours, and other large German employers such as VW and BMW have introduced similar policies (Vasager, 2013). In Australia, legislation protecting the right to disconnect was introduced in August 2024.

Using mobile technology outside of working hours has significant implications for work-life conflict, as workers not only sacrifice family time for work purposes but also keep their psychological focus

on the office (Duxbury et al., 2014). Boswell and Olson-Buchanan (2007) find that employees who were ambitious and highly involved in their work were more likely to use work-related communications technology after hours. Their statistical analysis shows that this practice was associated with higher levels of work-life conflict, measured both by the worker and their partner. Fenner and Renn (2010) label these new practices as Technology Assisted Supplemental Work (TASW). Their study also points to the disruptive impact on family life by highlighting a positive relationship between TASW and work-to-family conflict. This TASW scale is also used by Wright et al. (2014) in a later study. Their regression analysis shows that when research participants used mobile devices after hours, their perceptions of work-life conflict increased. This, in turn, was directly linked with job burnout.

Using Conservation of Resources (COR) as a theoretical framework, Richardson and Thompson (2012) explore the impact of Work Connectivity Behaviour After-hours (WCBA). Results of their quantitative study indicate that WCBA had a positive relationship with work interference with family. In a subsequent study, Ward and Steptoe-Warren (2014) use the same theoretical framework and model to reveal how Blackberry use after hours was closely related to work-life conflict. Schieman and Young (2013) also find that work contact outside of regular hours, when enabled by ICT, was the cause of work-life conflict and sleep problems. Furthermore, they reveal that the strength of this relationship was weaker when participants had some autonomy over the work scheduling.

"Work extensification" is a term used by Currie and Eveline (2010) to describe how communication technologies impact the lives of Australian academics. Currie and Eveline find that the ability to connect with work from home provided useful flexibility in managing arrangements with young children. However, the overwhelming evidence from this study was that technology placed a significant burden on the personal lives of these professionals by blurring the lines between work and home and ensuring that they were permanently "on call" during family time. A study conducted by the Australia Institute in 2013 also highlighted the problem of technology and work-life conflict. The researchers discovered that workers who checked their email every hour outside of work experienced higher levels of work-life interference compared to those who only did so once daily (Pocock & Skinner, 2013).

Work-life conflict is also a central theme emerging from qualitative studies of mobile technology. Cavazotte and colleagues' (2014) interviews with directors, lawyers and engineers in Brazil highlighted that the smartphone extended working hours, encroached upon family time and, ultimately, led to "the collapse of the frontier between work and non-work time" (p. 79). Some of the participants reported a compulsion to covertly answer work emails during vacations or family events, which caused spousal resentment and marital conflict. Similar accounts are provided by Mazmanian et al. (2013). The patterns of device usage enacted by the knowledge workers in their study created adverse consequences. Intensive device usage led to an "escalating engagement"

(p. 1345) with work, which produced higher levels of stress and ultimately reduced autonomy. Shared assumptions developed between coworkers regarding accessibility and responsiveness outside normal working hours. This further increased stress levels and blurred the boundaries between work and home.

While most research indicates that intensive mobile technology usage leads to work-life conflict, a limited number of studies suggest that devices can be a resource supporting work-life balance. In Wajcman et al.'s (2008) study, 54% of the respondents said that the mobile phone helped them improve their work-life balance, leading the authors to reject the suggestion that this technology creates work extensification. Preferences for work-life integration or segmentation (Nippert-Eng, 2008) may, however, be a factor. Duxbury et al. (2014) found that “integrators” embraced the Blackberry as a tool which enhanced their work-life balance, while “struggling segmentors” were concerned about the intrusion on their private lives. Andrade and Matias (2021) reveal evidence that age may also be a moderating factor. Their study shows a positive relationship between expectations of after-hours communication and family conflict for older workers, but not younger workers. A recent Scandinavian study (van Zoonen et al., 2020) finds no relationship between after-hours smartphone use and work-life conflict.

The impact of the COVID-19 pandemic and subsequent lockdowns on work and life integration is beginning to emerge in scholarly research. During the pandemic, many workers were confined to their homes for long periods and the reliance on mobile technology to remain connected with colleagues increased dramatically. As the boundaries between work and home disappeared, the potential for conflict increased. However, it also had positive implications for work-life balance as commuting time was eliminated. While it will take some time to fully assess the implications for work-life balance, the early evidence so far is somewhat mixed. Schieman et al.'s (2021) Canadian study suggests that work-life conflict decreased during the first six months of the pandemic, although this improvement was not experienced by parents with younger children. There are, however, some important gender nuances to be considered. Shockley and colleagues’ (2021) research highlights how childcare and education at home fell disproportionally on the shoulders of working women with implications for their work-life balance and wellbeing.

2.3.6.2 Work Intensification

Much of the research on the negative impact of mobile technology is concerned with device usage after normal hours, such as in the evening or over the weekend. However, high levels of communication technology usage during regular work hours are also problematic, with implications for both the pace and volume of work. Work intensification emerges from the literature as the second dimension of the control side of the mobile technology paradox. In the 2012 AWALI report, Skinner et al. operationalise work intensification to include three elements: “the frequency of working at high speed, tight deadlines and work overload” (p. 9). They suggest that rising work intensity is impacting a large portion of the Australian workforce, with 54% of

workers having more work to perform than is possible for one person. There is increasing concern amongst scholars that high adoption rates of mobile technology are leading to a more intense working environment for many employees. According to Chesley et al. (2013), this comes in three forms. First, mobile technology increases the pace of work, particularly where organisational norms create an expectation of rapid responses to emails at any time of day or night. Second, a constant flow of emails tends to distract employees from tasks. Third, mobile connectivity encourages multitasking, which may overload workers.

Several quantitative and qualitative studies point to a link between mobile connectivity and work intensification. Duxbury et al. undertook the 2001 National Study on Work-Life Conflict in Canada, including over 30,000 respondents. 70% of the participants said that mobile technology had increased their workload while 50% said it contributed to stress. Using regression analysis, Chesley (2010) shows that higher levels of ICT usage were positively related to perceptions of workload and an accelerated pace of life. The type of device used appeared to exert an influence, with laptop usage being strongly associated with pace and workload, while cell phones were not. In an Australian study, Bittman et al. (2009) find a correlation between frequent usage of mobile phones at work and feelings of being rushed and time-pressured. They conclude that while mobile technology may be viewed as a productivity tool by management, it is ultimately experienced as a source of work intensification by workers.

Ayyagari et al. (2011) also find that constant connectivity with technology is a predictor of work overload. Workers in their study reported feeling pressured and rushed when using ICT. Data analysis shows a strong link between this experience of overload and perceptions of strain, leading the researchers to conclude that "technostress" is a concerning problem for many workers. The constant urge to respond to emails from colleagues is a key factor driving the experience of "workplace telepressure". Barber and Santuzzi (2015) highlight that personality traits including conscientiousness, combined with organisational norms of responsiveness, reinforced workplace telepressure. Their empirical research indicates an association between connectivity and telepressure which resulted in adverse consequences for workers, including poor sleep quality, absenteeism and high turnover.

It is not simply the device features automatically leading to work intensification, but rather the way the technology interacts with other environmental and cultural factors. Barley et al. (2011) provide a useful case study, demonstrating a strong association between the amount of time spent on email and feelings of overwork. In interviews, participants said that the longer they spent on email, the more overloaded they felt. Yet, analysis of their survey results showed that other technologies, such as teleconferencing, were equally problematic, but participants did not complain about these in the interviews. Barley et al. suggest that email is uniquely positioned as a symbol of stress within organisations, as cultural norms of responsiveness and availability combine to induce anxiety for workers with swollen inboxes.

Evidence of work intensification can also be found in several qualitative studies of mobile technology. Middleton (2007) describes how Blackberrys changed the nature of meetings as workers were required to keep in constant contact by monitoring emails or stepping out to take a call. Mazmanian et al. (2013) also find that intense usage of mobile technology accelerates the pace of work and resulted in longer hours. However, their contention that workers are "unwittingly" engaged in work intensification through smartphone usage is challenged by Cavazotte et al. (2014). Their research participants talked of the increased workload, demands for availability, intense monitoring and incursion on family life. Yet, rather than rejecting the technology, they embraced it wholeheartedly. Cavazotte et al. (2014) report that these workers were not simply blind to the negative consequences of smartphone usage but simply rationalised it through a narrative of personal autonomy and free choice.

The COVID-19 pandemic may have accelerated the impact of technology-induced work intensification (De-la-Calle-Durán & Rodríguez-Sánchez, 2021). Many workers who became dependent on videoconferencing during lockdowns can probably relate to the research participants in Waizenegger and colleagues' (2020) study. They described how using virtual meetings meant connecting more and more with coworkers, but this left some feeling exhausted and overwhelmed from "ZOOM fatigue". In another study, Schmitt et al. (2021) find that people who increased their use of digital tools during the pandemic experienced more cognitive overload with negative implications for their wellbeing.

2.3.7. The Paradox of Mobile Technology: Empowerment and Enslavement?

Much of the research on mobile technology tends to focus on discrete paradoxical outcomes of autonomy or control. However, a few studies have provided a more complete account of how both sides of the mobile technology paradox are experienced.

According to Jarvenpaa and Lang (2005), the Empowerment/Enslavement paradox is one of eight tensions that are intrinsic to mobile technology. Using data collected from 33 focus groups, they highlight that mobile technology provides independence for users while at the same time making them dependent on the device. Another paradox can be found in the way that these devices fulfil certain needs, such as protecting family security, but simultaneously create and heighten the same needs. Mobile technology can facilitate competence but also create a sense of incompetence as users struggle with new device features. Jarvenpaa and Lang (2005) also draw our attention to other paradoxes which are endemic in mobile technology, including planning/improvisation, engaging/disengaging, public/private and illusion/disillusion. In outlining the empowerment/enslavement paradox, they describe how their research participants valued the new freedoms which the technology offered. Devices provided greater connectivity and improved coordination, which enhanced their flexibility and autonomy. Yet the nature of connectivity was "24/7" and, as a result, their participants struggled to maintain distance from work and colleagues. Participants lamented the fact that the technology also eroded their freedom

through reduced personal time, more work pressure and closer supervision. Jarvenpaa and Lang (2005) argue that the eight paradoxes of mobile technology are shaped by situational and contextual factors. These include how the technology is used, the motivation of users and the structure and culture of the organisation.

Mazmanian et al. (2013) provide one of the most significant works on the tensions between autonomy and control for users of mobile technology. This study examines in depth the impact of these new technologies on the workplace. It explores the ways in which mobile email devices can enhance the autonomy of knowledge professionals whilst also restricting it through intensified engagement with work. Mazmanian et al. describe a group of knowledge workers who are "connecting continually" (p. 1342) with their work. They used their devices intensively while engaging in other activities both inside the office and beyond. These professionals were very positive about the role that devices played in enhancing their autonomy. They reported using their devices to "keep an eye" on work, manage their availability, control their communications and increase their flexibility (p. 1342). However, the patterns of device usage enacted by these knowledge workers had significant and adverse consequences. The researchers note that intensive device usage led to an "escalating engagement" with work, which created higher levels of stress and reduced autonomy (p. 1345). In the investment firm, shared assumptions developed between coworkers regarding accessibility and responsiveness outside normal working hours. This further increased stress levels and blurred the boundaries between work and home.

Despite the negative consequences, Mazmanian et al. (2013) reveal that professionals rationalised their compulsive device usage in terms of personal choice, rather than something they were forced to undertake. They speak of being "workaholics" or "type A personalities" (p. 1348). Continuous connectivity became embedded in their image of what it means to be a competent professional. Mazmanian et al. describe how mobile devices led to intensified engagement with work, which significantly reduced autonomy, increased stress levels and impacted personal lives. They label the phenomenon as the "Autonomy Paradox" (p. 1350). On the one hand, device usage provided the opportunity to enhance autonomy by affording temporal and spatial flexibility and a level of control over one's availability and communications. On the other hand, the continuous usage of these devices led to norms of greater responsiveness and availability, which ultimately deprived professionals of their autonomy. Mazmanian et al. conclude that knowledge workers became "unwittingly" drawn into a world of intensive work by such devices:

> Having the freedom to use the device anywhere, anytime, the professionals ended up using it everywhere, all of the time. (p. 1350)

In contrast to the two previous studies, Ter Hoeven et al. (2016) use a quantitative approach to explore the autonomy paradox of mobile technology. They focus on examining the practical consequences of the autonomy paradox on wellbeing. They used the Job Demands-Resources model (Demerouti et al., 2001) to explain the advantages and disadvantages of communication

technology usage for employees. Communication technology provides employees with resources, such as control over information and accessibility. However, it also places demands on employees, including interruptions and unpredictability. Findings from Ter Hoeven et al.'s quantitative study reveals that technology usage can indeed produce paradoxical outcomes for employees. Technology enhances employee wellbeing through improved accessibility and efficiency but reduces it through interruptions and unpredictability. Ter Hoeven et al. focus on one aspect of the mobile technology paradox by examining accessibility and interruptions. However, they encourage other scholars to explore how other ICT resources and demands can produce paradoxical outcomes for employee wellbeing.

2.3.8. Mobile Technology and Employee Wellbeing

In previous sections, I have outlined how mobile technology usage has been associated with a range of positive and negative outcomes for workers. Broadly speaking, the literature can be divided into studies showing that mobile technology either enhances or inhibits employee autonomy and empowerment. The outcomes of technology usage (including job autonomy, performance, work-life conflict and work intensification) have implications for the wellbeing of workers. However, the impact of mobile technology on job satisfaction and life satisfaction as measures of employee wellbeing (Brown, 2012; Lopes et al., 2014) have not been adequately tested in the literature. Only a handful of studies have explored the impact on job satisfaction, and these have offered opposing accounts, whereby mobile technology can have a positive impact and a negative one. Furthermore, these studies have typically considered the impact of mobile technology use in the evenings or on weekends, with limited attention given to device usage during normal working hours. Moreover, the impact of mobile technology use on life satisfaction remains unexplored.

2.3.8.1 Job and Life Satisfaction

As outlined previously, several studies have linked mobile technology usage with perceptions of autonomy and job control, factors which are known to influence job satisfaction (Humphrey et al., 2007; Thompson & Prottas, 2006). Román et al. (2018) have discovered that mobile technology was a useful resource for sales professionals by allowing them to control the demanding aspects of their roles, resulting in lower levels of stress and ultimately higher job satisfaction. Gajendran and Harrison (2007) undertook a meta-analysis of data from 46 studies on telecommuting. They found that telecommuters experienced higher levels of autonomy and work-life balance, leading to moderate levels of job satisfaction.

There also appears to be a link between mobile technology usage, job performance and job satisfaction. Limbu and colleagues (2014) studied the impact of communication technologies on the work attitudes of pharmaceutical sales representatives. Their analysis shows that when organisations invest significantly in ICT infrastructure and training, employees report higher levels of administrative performance and job satisfaction. The link between technology and job

satisfaction was higher for participants who used ICT extensively and had a stronger technology orientation. Jeong et al. (2016) present similar findings in a study of hospitality workers. Participants who assessed mobile devices as improving their performance enjoyed higher levels of job satisfaction and lower turnover.

Yet the picture emerging from the limited research on mobile technology usage and job satisfaction is not clear-cut. For example, work-life conflict resulting from higher levels of connectivity can also erode job satisfaction (Wright et al., 2014). A study conducted by Diaz et al. (2012) shows that when employees use technology to stay connected outside of hours, this increases their sense of control. Yet after-hours connectivity also created work-life conflict and diminished job satisfaction as a consequence. Diaz et al. conclude that mobile technology is a "doubled-edged sword" in terms of its impact on job satisfaction.

Life satisfaction is an important indicator of the quality of one's life (Veenhoven, 1996). Extant research has highlighted that job satisfaction and life satisfaction are closely related (Erdogan et al., 2012; Warr, 1990), and both are commonly used as measures of wellbeing (Danna & Griffin, 1999; Erdogan et al., 2012). Life satisfaction is influenced by a range of factors, one of which is the experience of work. For example, research has highlighted that job control can predict life satisfaction (Day, 2002; De Cuyper et al., 2009; Rau, 2006). However, work can also be a source of dissatisfaction in life. Being overloaded at work creates conflict, which, in turn, reduces life satisfaction (Boekhorst, 2017; Fein et al., 2017; Kossek & Ozeki, 1998). As I have outlined, mobile technology is a source of both positive outcomes, such as autonomy, and negative ones, including work intensification and conflict. Therefore, its potential impact on wellbeing is likely to extend beyond the workplace and into one's broader life. Despite this, I have been unable to uncover any research which explores the impact of mobile technology on life satisfaction. This is a gap in the literature which I will address in this study.

2.3.8.2 Stress and Burnout

Stress can be thought of as a physiological or psychological response to work-related demands and challenges (Ganster & Rosen, 2013). Technology can be a source of significant demands for workers. The term "technostress" was first coined in the 1980s but has taken on increased importance with the proliferation of communication devices over the past decade. Ayyagari et al. (2011) describe technostress simply as the "stress caused by ICTs (p. 832). Their study concludes that work overload and work-life conflict related to high ICT usage are strong predictors of technostress. Mazmanian and colleagues' (2013) exploration of the "Autonomy Paradox" highlights how excessive device usage, particularly at night, was a stressor for workers. 24/7 accessibility and expectations of responsiveness led to heightened work overload and stress. Towers and colleagues' (2005) qualitative study explores how "work-extending technologies" had implications for stress. Many of their participants found that using a laptop and smartphone

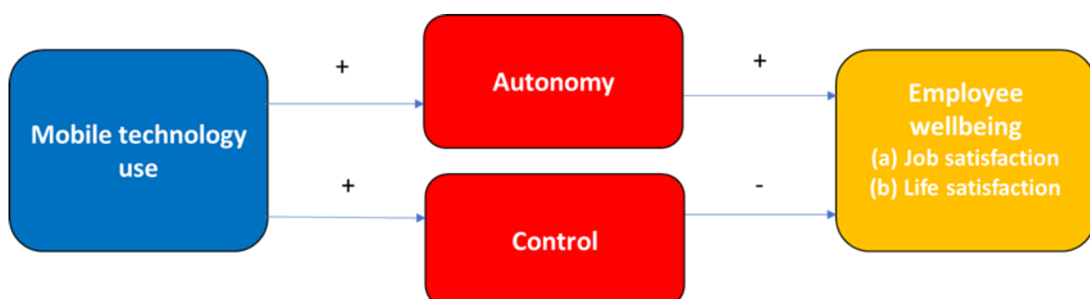
extended their workload and working hours, reducing time available for their families and increasing their stress levels.

Stress is also closely related to burnout, which is regarded as another key indicator of psychological health at work (Wright et al., 2014). Maslach (2003) theorised that burnout is a reaction to job-related emotional and interpersonal stress. Burnout, therefore, can emerge from prolonged stress and can be characterised by exhaustion, cynicism and detachment (Maslach, 2003). Several studies have highlighted how excessive technology usage can lead to burnout. In a qualitative study, MacCormick et al. (2012) find that burnout was a concern for "hypo-connectors" who were often "addicted" to work and whose wellbeing suffered as a consequence. Wright et al. (2014) find that as people used communications technology more outside of work hours, they experienced high levels of work-life conflict. This had wellbeing implications including lower job satisfaction and higher burnout. Ter Hoeven et al. (2016) explore the "practical consequences" of the communication technology paradox. They found that communication technology usage (CTU) can both increase and decrease burnout. CTU acts as a job resource when it improves communication efficiency and accessibility and then moderates burnout. Yet paradoxically when CTU acts as a job demand by creating interruptions and unpredictability, burnout will increase.

2.4. A Preliminary Model of the Mobile Technology Autonomy-Control Paradox

The core objective of my research is to develop and test a conceptual model which explores the autonomy-control paradox of mobile technology and its implications for employee wellbeing. As I have outlined in this chapter, the theme of autonomy and control is a recurring one in the literature on mobile technology. In the final section of this chapter, an initial conceptual model drawing upon the key insights from the literature will be provided.

Figure 2.1
Preliminary Model of the Mobile Technology Autonomy-Control Paradox



The preliminary conceptual model outlined in Figure 2.1 has two parts. The left-hand side of the model outlines the relationship between mobile technology usage and perceptions of work-related autonomy and control. Mobile technology usage is conceptualised as the extent to which mobile

technology devices (smartphones, tablets and laptops) are used for work-related purposes. This includes usage both during normal hours and outside of normal hours, such as evenings, weekends or vacations.

Mobile technology enhances the autonomy of workers. This can be experienced in several ways. Using mobile devices allows workers greater location and temporal flexibility. Professional workers are no longer confined to the office environment. Smartphones and laptops now allow workers to connect from home, cafés, airport lounges, on public transport and even on the side of the football field while watching their children. The ability to work from different locations also enables schedule flexibility. As many people working from home experienced during the pandemic lockdowns, mobile connectivity allows people to "time shift". Ease of connection with the office means that workers can start their day earlier or later; they can attend to children, domestic duties or medical appointments in the middle of the day and log back in during the evening or on weekends if required. Device usage also enhances job control by enabling workers to monitor their workload and manage their availability. Finally, mobile devices directly improve the job performance of workers. They are an essential tool in managing the flow of information, responding to colleagues quickly and completing tasks efficiently. In this model, "autonomy" is conceptualised as a higher-order construct which combines the benefits of using mobile technology devices. In summary, mobile technology enhances workers' freedom or autonomy to undertake their roles more effectively. Therefore, mobile technology should be positively associated with perceptions of autonomy.

However, as I have outlined in the literature review, there is a "dark side" of technology usage which paradoxically enhances control over workers. The flexibility to work at different times and in different places allows work to spill over into the home domain. Work can now be done at night and during the weekend, which are times traditionally reserved for family and friends. Consequently, workers have less time available to spend on leisure and family activities, and their psychological focus is often stuck in the office. Therefore, mobile technology usage can increase work-life conflict. Mobile technology extends control over workers in another way. High levels of device usage can lead to a very intensive work environment. These devices, and the installed applications, are designed to facilitate rapid communication. This can place additional obligations on workers to respond to colleagues quickly both during and outside normal hours. Not only is the pace of work accelerated but the volume of work can increase also. Mobile devices now provide numerous channels, including SMS, WhatsApp, voice, teleconferencing and collaboration portals, which allow work requests to be received at any time of the day or night. Emerging research has highlighted that this intensive work experience can leave workers feeling overloaded and overwhelmed. In this model then, "control" will be conceptualised as a higher-order construct which combines the work-life conflict and work intensification outcomes of using mobile technology devices. In summary, mobile technology extends control over workers through the

experience of work-life conflict and work intensification and, therefore, device usage is positively associated with perceptions of control.

My conceptual model illustrates how the tension between autonomy and control is a recurring experience for many mobile technology users. This technology affords users temporal and spatial flexibility at work. Yet, this flexibility results in more permeable work/home boundaries, which leads to spillover and conflict. Similarly, use of the technology strengthens feelings of autonomy and productivity at work through enhanced communication, management of information and connection with colleagues. However, this enhanced connectivity often leads to increased workload and a faster pace of work. Mobile technology users are therefore confronted with an obvious contradiction in that the technology improves their sense of autonomy while simultaneously eroding it. Like all paradoxes, the two poles of autonomy and control are not exclusive but interdependent. For example, the freedom to work “anytime, anywhere” can often result in working “all of time and everywhere” (Mazmanian et al., 2013).

The second part of my preliminary conceptual model, shown on the right-hand side of the diagram, illustrates the impact of mobile technology usage on employee wellbeing. Here again, the paradox continues, as device usage can have both positive and negative consequences for wellbeing. First, I suggest that mobile technology enhances job satisfaction when mediated by higher levels of autonomy. Extant research highlights that discretion and flexibility at work are predictors of job satisfaction (Gajendran & Harrison, 2007; Scandura & Lankau, 1997). While it has not been tested previously in the literature, I also propose that technology usage can further enhance life satisfaction more generally. Again, the autonomy benefits that mobile devices provide can have a direct impact on improved satisfaction outside of work. Research highlights a close association between autonomy at work and life satisfaction (Day, 2002; De Cuyper et al., 2009; Rau, 2006). Furthermore, it is also possible that device usage enhances life satisfaction through the indirect outcome of higher satisfaction at work.

However, the paradox of mobile technology means that usage can also lead to lower employee wellbeing. High levels of mobile technology usage extend control over workers by accelerating the pace and volume of work, leading to work intensification. Work-life conflict is also heightened when workers have the discretion to connect to work during evenings or at weekends. Limited research has been conducted to investigate the impact of mobile technology usage on employee wellbeing. However, the broader research on work-life conflict and work intensification highlights the negative implications for employee wellbeing. For example, Kossek and Ozeki's (1998) meta-analysis of 32 studies revealed that work-family conflict led to lower job and life satisfaction. Furthermore, several studies have outlined that job and life satisfaction are lower when workers experience work intensification and overload (Boekhorst et al., 2017; Fein et al., 2017; Yildirim & Aycan, 2008). Therefore, I would expect that mobile technology usage is positively associated

with job and life satisfaction when mediated by autonomy and negatively associated with job and life satisfaction when mediated by control.

In this chapter, I have provided an overview of paradox theory and discussed how the autonomy-control paradox is a central theme in the literature on mobile technology. Building on this literature, a preliminary conceptual model exploring the impact of the autonomy-control paradox on employee wellbeing has been outlined. The next stage of this research is an exploratory study to further refine and develop this conceptual model. The results of this exploratory study and the methods used are the subject of the next chapter.

3. An Exploratory Qualitative Study of Mobile Technology

The objective of this study is to develop and test a conceptual model which explores the autonomy-control paradox of mobile technology and its wellbeing consequences for workers. Drawing on the available literature, a preliminary conceptual model of mobile technology was outlined in the last chapter. Central to this model is the suggestion that using technology strengthens feelings of flexibility, job control and performance at work. Therefore, mobile technology is positively associated with the experience of autonomy. However, enhanced connectivity often results in increased workload, a faster pace of work and spillover into the home, leading to the experience of being controlled. Furthermore, both the autonomy and control outcomes of mobile technology usage have contradictory implications for employee wellbeing. In this chapter, I present the results of an exploratory qualitative study of mobile technology usage and how these findings are used to further develop the conceptual model.

3.1. Mixed Methods

To explore the mobile technology paradox, this study uses a mixed methods approach. Mixed methods emerged in the 1980s and have grown steadily in popularity with researchers ever since (Creamer, 2018; Plano & Ivankova, 2016). It is often regarded as a “third wave” or “third paradigm” which integrates qualitative and quantitative approaches, building on the combined strengths of these methods and limiting the weaknesses (Venkatesh & Brown, 2013). Qualitative and quantitative methods have some inherent strengths and weaknesses. For example, qualitative approaches are a very useful way of describing a phenomenon in rich detail by drawing on the personal experiences and meaning of participants. However, the findings may not be generalisable to other groups, and it can be more difficult to make predictions from the data. By contrast, quantitative data can be used to test hypotheses and make predictions, and the results can usually be generalised beyond the study. Its limitation lies in the fact that quantitative methods may not reflect participants’ deeper understanding of the phenomenon (Johnson & Onwuegbuzie, 2004). Researchers often prefer one or the other approach, and debates between “purists” on both sides have led to something of a “paradigm war” (Creamer, 2018; Johnson & Onwuegbuzie, 2004). However, as an alternative approach, mixed methods can leverage the strengths of both qualitative and quantitative methods to produce stronger and more credible research (Plano & Ivankova, 2016). Qualitative or quantitative studies may be more appropriate depending on the research objective and context, but when combined, they can provide a superior result. In a review of mixed methods research, Bryman (2006) found that this approach was particularly popular in sociology, social psychology and organisational behaviour. Scholars have offered multiple definitions of mixed methods, with little consensus. In fact, Johnson and Onwuegbuzie (2007) have presented varying definitions from nineteen different scholars in the field. For the purposes

of this study, however, I will use the definition of mixed methods provided by Plano and Ivankova (2016):

> A process of research in which researchers integrate quantitative and qualitative methods of data collection and analysis to best understand a research purpose. (p. 2)

Several scholars have also outlined frameworks or typologies of mixed methods. Leading scholars who have provided typologies include Greene et al. (1989), Cresswell (2010) and Tashakkori and Teddlie (2015). Greene et al. (1989) have contributed one of the most influential typologies (Mark, 2015). They list five key reasons to undertake mixed methods. Triangulation aims to corroborate the results of one method with that of the other. Mixed methods can also have a development rationale where the results of one method can be used to develop or inform the other. Complementarity refers to the illustration or clarification of results between methods. Initiation is concerned with the "discovery of paradox and contradiction, new perspectives of [sic] frameworks, the recasting of questions or results from one method with questions or results from the other method" (Greene et al., 1989, p. 259). A final rationale for mixed methods suggested by Greene et al. (1989) is expansion, which "seeks to extend the breadth and range of enquiry by using different methods for different inquiry components" (p. 259). Bryman's (2006) review of mixed methods studies indicates that the expansion and complementarity categories were used as the primary rationale in more than half of the literature. While Greene et al. (1989) have been criticised for collapsing categories, the simplicity of this typology is very attractive (Creamer, 2018).

Qualitative and quantitative data can be combined in many permutations to form mixed methods research. Ultimately, the "mix" is influenced by the objectives which underpin the research. According to Cresswell et al. (2011), mixed methods are also shaped by three "key decisions", including timing or sequencing; integration or mixing; and weighting or prioritising. Researchers can collect qualitative and quantitative data at the same time or with one type following the other. In concurrent timing, researchers collect both sets of data at the same time, while in sequential timing, one stage follows and is dependent on the other. For example, sequential timing could be used in a scenario where qualitative research was conducted first to generate hypotheses to be tested in a subsequent quantitative phase. How the data is integrated or mixed represents another key decision for the researcher. Plano and Ivankova (2016) highlight that the two most popular ways of mixing are combining the results following the interpretation of each stage and connecting the results so that one stage influences the other. Priority or weighting refers to the importance that the researcher places on the different forms of data collection. Studies can be weighted towards qualitative or quantitative data collection, or they can be given equal priority (Plano & Ivankova, 2016). Therefore, research methods can be considered as a continuum with "pure qualitative" at one end and "pure quantitative" at the other. Mixed methods can be found in the middle but can still be weighted more heavily towards one or the other end of the continuum

(Johnson & Onwuegbuzie, 2004). Morse (2003) introduced a useful notation system which summarises some of these key decisions. This system uses capitalisation to identify priority and arrows or plus signs for timing. Therefore, a sequential study in which the dominant qualitative research precedes the quantitative data collection would be represented by the following notation: QUAL → quan.

Undertaking an exploratory qualitative phase allowed me to refine and further develop the preliminary conceptual model beyond the extant literature outlined in the previous chapter and also learn about workers' real-life experiences of the phenomenon. Therefore, my approach to mixed methods falls into the "development" category outlined by Greene et al. (1989). Using Morse's (2003) notation system my approach can then be summarised as qual → QUAN.

During the exploratory qualitative study, 22 interviews were conducted with 16 research participants. Findings from the qualitative phase and how these have influenced my conceptual model are outlined in this chapter. First, I provide a summary of the research setting and an outline of the methods used. A detailed profile of how, when and where my participants used mobile technology follows. I then examine how interviewees experienced the autonomy-control paradox. The social context of mobile technology use emerged as a key theme in the interviews, and I examine how this shaped the paradox. Wellbeing consequences of the paradox, both positive and negative, are then outlined. Finally, I summarise the key findings and how these have been used to refine my conceptual model.

3.2. Research Setting and Methodology

3.2.1. Research Sites and Participants

Throughout 2021, 22 interviews were conducted with 16 research participants. Fifteen participants worked in "TechCo", a pseudonym for one of Australia's leading technology companies. TechCo employs approximately 10,000 people and provides a range of IT and communication services. Its parent company has operations in Asia, North America and Africa. The other participant was employed by one of Australia's big four banks, "FinCo", employing over 40,000 people. A summary of the job roles and demographic characteristics of the participants is provided in Table 1. Pseudonyms have been given to each interviewee.

Table 3.1
Details of Research Participants

Pseudonym	Organisation	Job role	Demographics
Kate	TechCo	Rewards Consultant	Not married, no kids, 20–30
Ashley	TechCo	IT Project Manager	Married, 2 kids, 40–50

Dipal	TechCo	IT Project Manager	Married, 2 kids, 40–50
Julia	TechCo	Business and Communications Manager	Married, no kids, 40–50
Melissa	TechCo	HR Director	Married, 2 kids, 40–50
David	TechCo	Product Manager	Married, 2 kids, 50–60
Brad	TechCo	Strategic Business Development Manager	Married, 2 kids, 40–50
Nick	TechCo	Commercial Manager	Married, 2 kids 30–40
Sarah	TechCo	Service Transition Manager	Not married, no kids, 40–50
Amanda	TechCo	Solution Designer	Married, 2 kids, 40–50
Rohan	TechCo	Procurement Manager	Separated, 1 child, 30–40
Harry	TechCo	Senior Producer	Married, 1 child 30–40
Ian	TechCo	Associate Director, Digital	Married, no kids, 30–40
Phillip	TechCo	Delivery Manager	Married, 3 kids, 40–50
Ben	TechCo	Sales Manager	Married, no kids, 30–40
Craig	FinCo	Strategy/Transformation IT Architect	Married, 2 kids 40–50

TechCo interviewees came from a variety of functions including IT, Sales, Marketing, Corporate, Service Delivery and Media. Most participants were in professional or managerial roles. Forty per cent of the TechCo interviewees were female, and most of the participants were married with children.

Some of the participants were personal contacts of mine and some were referred by an IT Director and Sales Director, but most were selected randomly to provide some functional coverage across the organisation. The FinCo participant was a personal contact of mine. Both organisations were interesting research sites because their employees used mobile technology extensively for work purposes. I contacted each of the participants initially by telephone, provided a short summary of my research goals and invited them to participate in a research interview. I explained that participation was voluntary and confidential. Explaining the purpose of the research piqued the participants' interest and all were enthusiastic about participating.

Initial interviews were conducted early in 2021 and were mostly held in person using meeting rooms in TechCo. Two were conducted using MS Teams videoconferencing, and the interview

with the FinCo participant took place in my home. Additional interviews in late 2021 were conducted exclusively using MS Teams in line with COVID-19 protocols.

3.2.2. Interview Format

Before the interviews commenced, I again provided an overview of my research and outlined what the interview involved. I asked permission for the interview to be recorded, provided confidentiality assurances and obtained consent to proceed (Cresswell, 2013; Rubin & Rubin, 2012). The interviews were recorded using an application called *Otter,* which records and transcribes voice to written text.

Interviews followed a semi-structured format using a protocol (Cresswell, 2013). Questions were informed by my initial conceptual model and covered participants' job accountabilities, mobile technology use, the benefits and downsides of using devices and whether these influenced job characteristics such as performance, flexibility, speed and volume of work, job control and work-life balance. Some demographic information was also collected.

Taking guidance from Rubin and Rubin (2012), the topics covered in the protocol were linked in a logical fashion', starting with a discussion about participants' roles and then proceeding to how they used technology to perform that role and then how technology influenced their experiences in the workplace. Sensitive demographic questions were included at the end of the protocol so that trust and rapport were first established with the interviewee (Rubin & Rubin, 2012).

The interview protocol was used as a strong guide for the discussion. However, the interview protocol evolved over time such that themes raised by some research participants were probed in later interviews. On some occasions during the interviews, I asked the participants to provide more details or clarify a particular point. Sometimes, the answers led me to ask a follow-on question. I was careful to reassure the interviewees that there were no right or wrong answers and that I was solely interested in their individual experiences (Rubin & Rubin, 2012). The average interview time was 43 minutes.

At the end of the first round of interviews, some preliminary analysis was undertaken. This highlighted the emergence of a significant theme regarding the social context of mobile technology usage, which required further examination. Specifically, I began to observe that technology norms as well as the quality of the relationships with supervisors and coworkers were factors shaping the outcomes of mobile technology usage. Therefore, I undertook a further review of the literature on normative practices, social exchange and technology. This informed my ideas and, as a result, I conducted some follow-up interviews with six of the original participants in late 2021. These discussions explored the impact of social relationships on technology use and participants' experiences as a result. Follow up interviews were shorter, lasting approximately 25 minutes. I asked questions about participants' teams, their interactions and connectivity with colleagues and their relationships with supervisors and peers.

My interview style was informal and relaxed to build rapport with the interviewees and gain their confidence (Rubin & Rubin, 2012). We would often begin and end the interviews with some friendly ‘chit chat’. At times, participants disclosed personal information about their relationships or family matters. I managed this with considerable sensitivity. I found participants to be very enthusiastic, engaged and open in the discussions. They often provided lengthy answers and offered considerable detail when I probed for more information. They came across as enthusiastic about the topic, open and honest in their answers and quite generous with their time. At the end of the interviews, I thanked participants for their time and reinforced the confidential nature of the discussion. Several interviewees remarked that they found the topic quite interesting.

All interviews were played back within 24 hours while details were still very fresh in my mind (Rubin & Rubin, 2012). The Otter application transcribed the recording to text with a relatively high degree of accuracy. Errors were identified in the playback and then corrected in the text. Where relevant, I also noted the tone of the interviewee, their emphasis on particular comments and whether they laughed or used humour (Barbour, 2011). The transcripts were read twice to ensure the final version was a faithful representation of the interview.

3.2.3. Thematic Analysis

Interview transcripts were uploaded to NVivo to undertake a thematic analysis. Software programs such as NVivo are commonly used in qualitative research as they allow researchers to organise the data, code and retrieve information, search for key words and explore relationships between concepts and themes (Cresswell, 2013; Sharan & Tisdell, 2015).

Before embarking on coding, each of the transcripts was read twice. This allowed me to become familiar with the content of each interview and what the participant was really saying. I then prepared a one-page summary recording key discussion points, my observations and some very provisional interpretations, which allowed me to get an initial “feel” for the data.

As the purpose of the interviews was to inform and develop my conceptual model, I used both inductive and deductive approaches to coding. A provisional coding structure guided by my research goals, preliminary model and interview protocol was created in NVivo. This structure was then applied to each of the interview transcripts in turn. I did a quick scan of the coding structure before each session so that the codes were fresh in my mind. Throughout the coding process, I remained open to emerging codes which were added to the coding structure in NVivo and applied to subsequent transcripts (Cresswell, 2013). I also ran some word frequency queries in NVivo to check whether I had captured the major codes in the interviews. While this did not generate any new codes of significance, it did uncover some material which needed to be added to the existing coding structure.

After the initial coding exercise was complete, I took note of the emerging themes. Many of these were in line with my preliminary research model. However, some new themes also emerged, such

as the "impact of COVID-19" or the "social context of mobile technology", which featured prominently in discussions. I also was conscious of where codes intersected (Rubin & Rubin, 2012). This proved useful in understanding the relationship between technology usage after hours and work-life conflict, for example.

In the early stages, the coding structure grew quite quickly. After the initial coding round, I reviewed all codes and edited the structure. Repeated codes were eliminated, and several codes were merged. For example, the code "mobility" was merged into the code "work from anywhere". My coding evolved iteratively over several cycles. New codes were created while others were merged, refined or fell by the wayside. A research journal was kept throughout this process. This allowed me to keep track of work that had been completed, my thoughts and observations and areas that required further investigation and analysis (Sharan & Tisdell, 2015).

Following several rounds, codes were then organised together under specific themes. At the end of this analysis, I had four major themes, including multiple codes and sub-codes, which are now summarised in Table 3.2 and discussed in the remainder of this chapter.

Table 3.2
Interview Themes, Codes And Sub-Codes

Theme	Code	Sub-code
A profile of mobile technology usage	Patterns of usage	Device types
	Frequency and duration of usage	After hours usage
	The impact of COVID-19	Working from home
		The introduction of MS Teams
		Blurred boundaries
	Constant connectivity	
A paradox of autonomy and control	Flexibility	Locational flexibility
		Spatial flexibility
	Job control	Getting on top of things
		Monitoring work
		Intervening quickly
	Job performance	Collaboration
		Connecting at speed
		Multitasking
		Expectations of performance
	Work-life conflict	Negative impact: Work-life conflict
		Positive impact: Work-life balance
		Exercising control
	Work intensification	Speed of work
		Volume of work
		Multitasking

	The paradox of mobile technology	Awareness of the paradox
The social context of the paradox	The team and supervisory environment	Connecting with coworkers
		Connecting with super-visors
	The social structuring of the mobile technology paradox	Social exchange
		Mobile technology norms
Wellbeing and mobile technology	Exhaustion and burnout	
	Addiction	
	Job and life satisfaction	

3.3. A Profile of Mobile Technology Usage

3.3.1. Patterns of Usage

In the early stages of each interview, I spent some time discussing with participants how they used mobile technology. This allowed me to build a picture of the patterns of usage. The research participants all reported using a laptop and smartphone for work purposes, but tablets were not common. Comments from interviewees reflected the critical presence of laptops in working life. Craig (IT Architect) gave a potent example when describing how in FinCo (the bank where he was employed), it was employees working on laptops from home who managed the mortgage deferral crisis at the beginning of the pandemic. Kate (Rewards Consultant), Julia (Business Manager) and Nick (Commercial Manager) felt that using a laptop was a normal practice for them and they could not imagine an alternative.

Laptops were commonly used for more detailed or "heavy duty" work, as IT Architect Craig labelled it. Using Microsoft Office and specialist applications was the norm. Brad (Business Development Manager) used his laptop to access customer reports, prepare quotations and update customer details. Ashley (IT PM) used her laptop for tracking projects, while Nick (Commercial Manager) used it for spreadsheeting. Rohan (Procurement Manager) used a cloud-based procurement system, "Ariba", to manage the tendering process with vendors. Naturally, all participants used their laptops to send and read emails, which for many was the morning ritual starting their day.

By contrast, mobile phones were largely used as a communication tool. For example, the IT division in TechCo used WhatsApp as a way of communicating updates across large project teams. These devices also enabled communication (voice calls, emails, texts) for participants while on the move. Melissa (HR Director) mentioned logging into MS Teams' video conferences while walking to meeting rooms. Ashley (IT PM) regularly dictates emails to her smartphone while driving, and Kate and Julia often work on their phones while commuting on public transport or as a car passenger.

3.3.2. Frequency and Duration of Usage

When asked how often they used mobile technology throughout the working day, "constantly" or "all of the time" were common responses. Melissa (HR Director) somewhat comically described using mobile technology "like an IV drip!". The COVID-19 lockdowns meant that MS Teams meetings had replaced face-to-face ones and, therefore, significantly increased technology usage during the day.

All participants described spending the bulk of their technology time on laptops rather than smartphones, although exact estimates of duration did vary somewhat. Phillip, Dipal and Craig represented the upper end of smartphone usage, engaging with a handheld device for up to 3 hours per day, while Harry was an outlier at 5 to 6 hours. At the lower end of the spectrum, Kate and Rohan used their smartphones for only 30 minutes during the day. The others typically used a smartphone for up to an hour.

All participants engaged in some level of after-hours use of technology devices; however, the extent varied considerably. Kate, Julia and Ashley all spoke of checking emails while commuting. Ashley, in particular, appreciated the ability to dictate emails to her phone while driving, and editing them later on. David liked to check emails on his phone early in the morning before commencing his working day. Julia and Melissa always made a point of checking their email before going to bed, while Ashley (IT PM) often lay in bed in the dark, still connected.

Higher levels of usage reflected the operational nature of some roles. At the upper end, IT Project Manager Ashley worked 2 to 3 hours in the evenings, while Dipal often worked till 9pm every night during the busy phase of a project. Sarah (Service Transition Manager) recalled how in a prior role, she would regularly be on email until 10pm in the evenings. Kate also mentioned that she usually spent "one to many hours" on email after finishing her regular hours. However, the level of after-hours usage for most participants was less than 1 hour.

Some participants worked what could be regarded as "extreme hours". For example, Sales Manager Ben told me his hours are dictated by customer needs and he works "non-stop". The previous week he had worked to 3am on a few occasions to complete a tender. Rohan worked 14 hours per day, twice a week, while Amanda described working 12 hours most days and spending a half day working on weekends.

Working extensively during the weekends was not a common experience for most research participants. However, the operational nature of some roles did occasionally require significant weekend work. Sarah recalled that in a previous operational role, she had regularly worked up to 6 hours on Saturdays and Sundays. Craig gave an account of how a late call on a Friday evening saw him working throughout the entire weekend to resolve an IT issue.

3.3.3. The Impact of COVID-19

The COVID-19 pandemic and the subsequent lockdowns had a significant impact on the working patterns of participants and the ways they engaged with mobile technology.

3.3.3.1 Working From Home

Of course, COVID-19 had a major impact on the location of work, and at the time of my research, all my research participants worked from home for at least part of the week. During the first lockdowns in spring and winter 2020, most TechCo employees were required to work from home. Initial interviews were conducted in early 2021 when participants had adapted to hybrid working (home and office) for months. Interviews held later in 2021 meant that all participants were once again working exclusively from home. So, like most organisations, the corporate office environment was replaced overnight with working from a dedicated home office, dining room table or hastily reconfigured bedroom. Opportunities for face-to-face interactions with colleagues disappeared. Those in sales, such as Brad and Ben, could no longer meet with customers, while Phillip, a service delivery manager, was unable to work from his customers' premises. The pandemic heightened the reliance on mobile technology to stay in touch with colleagues and customers.

3.3.3.2 The Introduction of MS Teams

The pandemic was a direct trigger for heightened engagement with mobile technologies. MS Teams, a communications platform which includes video conferencing, file sharing and messaging, was introduced in TechCo in mid-2019 and was used moderately. However, the outbreak of COVID-19 saw the technology rapidly and widely adopted. MS Teams became an immediate replacement for face-to-face meetings when TechCo employees were required to work from home. Amanda was particularly effusive in her description of MS Teams, saying it was a "game changer" which "made communication really easy and seamless".

Participants were almost universally positive with their commentary on MS Teams. Kate, for example, told me how critical MS Teams was for communication in TechCo during the pandemic lockdown. Ashley (IT PM) noted how MS Teams had "revolutionised" IT project meetings. Dipal stated that MS Teams allowed him to immediately schedule meetings with very large project groups in Australia and overseas, without the need to organise conference bridges. Like many leaders in TechCo, Ian used technology to schedule daily "check in" meetings with his team during the lockdowns.

Amanda, Ben, Brad, Phillip and Ashley all highlighted that using MS Teams on laptops and mobile phones improved collaboration. For example, Ben told me how collaborating on MS Teams reduced the time required to prepare a sales pitch from days to just hours.

In addition to video conferences and file sharing, the MS Teams messaging facility was also widely used in the organisation. This allowed another channel of communication in addition to email,

SMS texting and other messaging applications, including WhatsApp and Signal. Another key benefit of MS Teams was that it enabled working from home, something which became embedded in TechCo beyond the lockdowns and was greatly valued. Clearly, this was critical during the pandemic. However, HR Director Melissa commented that MS Teams had been a “great leveller”, eliminating the “distance bias” that many people had felt when working from home in pre-COVID-19 times. Nick expressed similar sentiments. He was a regular telecommuter before the pandemic, and the technology helped to normalise this way of working in TechCo.

3.3.3.3 Blurred Boundaries

One of the most striking impacts of the pandemic for participants was the blurring of boundaries between work and home. The most obvious form was the removal of any real physical boundaries as the office and home became one. Nick, a parent of young children, found this quite challenging:

> If I finished my day here (office), I've got like an hour and a half or whatever to sort of gather my thoughts before I'm at home with the family. Whereas if you finish at home, you know you walk out of the office and you go straight into, you know.... like we've got young kids so, you know, there's, who-knows-what sort of chaos going on, right, so there’s little space in between. (Nick, Commercial Manager)

Like most families during the lockdowns, my research participants now shared a working space with their partners and children. Additionally, temporal boundaries also dissolved, or at least became quite fluid. Starting and finishing times changed and many appreciated the flexibility that working from home gave them to attend to family matters. A downside was that it was not always clear when people were actually working. As traditional nine-to-five notions of work started to break down, so too did hesitations about calling people after hours. Ben told me: “I don't think it's outlandish to call someone at seven…..(because) I can actually see when they're at the computer”.

While the pandemic lockdowns changed the patterns of work, it was the technology which allowed people to informally reach out after hours with expectations that colleagues would be online. As Ian highlighted:

> Someone's messaging you on Teams, or whatever it may be to say, "Hey, are you there? Can you help? SOS". Do you know what I mean? If you don't have that, then you're not going to say anything. But if you do have that, you feel obliged a lot of the time to respond or to look at it. (Ian, Associate Director, Digital)

While the blurring of boundaries certainly allowed more opportunities for flexibility, it also contributed to longer hours.

> I do more hours remotely than I do in the office. Working in the office, I didn't bring my laptop home every day. Some days I just lock it in the bottom drawer. Whereas now my laptop is always there…It blurs boundaries, and it makes your working day longer. (Amanda, Solution Designer)

Craig mentioned that FinCo had undertaken some analysis of working hours for IT teams during the lockdowns. He said that the lack of a "go home time" and the disappearance of social commitments meant that IT teams worked very long hours. Julia confirmed that TechCo had also undertaken a similar analysis, which showed a significant increase in working hours.

3.3.4. Constant Connectivity?

Research participants gave the impression they were almost continuously using mobile devices (laptops, in particular) throughout the working day. Amanda said: "Now that we're working remotely to a large degree, I am on my laptop for many hours, all day, every day". Julia referred to her mobile connectivity as "it's constant, it's consuming". Melissa was finding the amount of time she spent on her devices quite challenging:

> It's like an IV drip. If I, if I really think about it and I use today as an example. Today it's probably been a particularly heavy day of meetings. I've had it with me since eight this morning, and I was on calls driving in. I've literally been on it this whole time, either the phone or the laptop. (Melissa, HR Director)

High levels of device usage in TechCo, did, to a certain extent, reflect its industry position as a technology leader. Enabling connectivity to customers was simply part of its DNA. The culture of the organisation and the subcultures of its divisions were another factor shaping how workers engaged with technology. Sarah's description of TechCo being a "meeting-heavy" culture was reinforced by many of the other participants. They referred to being "continuously in meetings" (Ashley), "in meetings pretty much from nine to six" (Julia), "there's a lot of time spent in meetings" (Melissa), "nonstop virtually" (Sarah) and "so many meetings, back to back" (Ashley). For many, the days were filled with meetings, which during the lockdowns took place on MS Teams, and for some, the meetings would regularly spill over into the evenings.

Several of my interviewees came from the IT division which was known to have a "long-hours culture". High levels of connectivity had been normalised in the IT division to the extent that Julia recalled her colleagues expressing shock when an employee chose not to have an email application on his personal phone.

> There's a guy on my team who did not have his work email on his phone. There was kind of this shock amongst the leadership team, like "What? How does he work? How does he function? Why does he get a night off?" (Julia, Business Manager)

Therefore, it was clear to me that the industry that TechCo operated in, as well as aspects of its culture, were significant contributors to the high levels of technology engagement of its workers. However, the COVID-19 pandemic and lockdowns further accelerated digital engagement. During the lockdowns, videoconferencing on MS Teams replaced face-to-face meetings and these new practices continued even when workers were permitted to return to the office.

With many of my research participants spending so much of their day in meetings, they often used mobile technology to simultaneously perform other tasks. This often involved attending MS Teams meetings while answering emails and texts, making phone calls, reading documents or even attending two meetings simultaneously. Many participants said this was commonplace in TechCo. The introduction of MS Teams added another channel of communication for the participants, which meant colleagues could now contact them through MS Teams messaging in addition to email, texting, WhatsApp and Signal.

"Constant connectivity" is a term which has been used widely in the literature on mobile technology (Kolb, Caza, & Collins, 2012; Mazmanian, 2013; Wajcman & Rose, 2011). Indeed, it was a common experience for participants to be engaged with one device or the other throughout the day, for periods in the evenings and weekends and occasionally on holidays. Of course, this varied considerably between the participants. People like Ben, Harry and Amanda were at the higher end of the usage scale. Yet even for these people, "constant connectivity" is something of a misnomer. In reality, people are not perpetually tied to their devices. Participants did, or at least attempted to, exert a certain level of control over their devices. This is something I will explore in a later section.

Most interviewees experienced, if not constant connectivity, at least a very high level of digital engagement. This allowed them to extract the benefits of autonomy from mobile devices while at the same time experiencing more management control. This is the very essence of the mobile technology paradox, which will be explored in the next section.

3.4. A Paradox of Autonomy and Control

A high level of engagement with technology afforded participants the benefits of autonomy, flexibility and enhanced performance. However, this came with work intensification and work-life conflict.

3.4.1. Flexibility

Flexibility emerged as one of the strongest themes in the interviews, being mentioned by all participants. Terms like "work anywhere, anytime", not being "tied to a fixed location" or not "bound to a laptop or desk" were used to describe the perceived freedom that using these devices offered.

Working from home became the norm during various stages of the pandemic in 2020 and 2021. As I highlighted earlier, the introduction of MS Teams was something of a "game changer" during the pandemic, not only normalising this practice but making it more effective. Ashley recalled being quite sceptical initially about working from home, but her experience during the pandemic convinced her of the benefits. Others, like Melissa, Julia, Nick and Ben, had worked from home before the pandemic, but the introduction of MS Teams made it a significantly better experience. Mobile technology allowed people to work from other locations too. The phrase "work from

anywhere" was used by several participants. Ben and Phillip described how they connected with customers and colleagues from home, the local coffee shop or from customer premises. Ian described how he was able to work on a major IT incident from an Airbnb rental in Queensland on Christmas Eve. We might question whether working on Christmas Eve is a good example of flexibility. However, Christmas Eve was actually a working day for Ian, which he was able to do from his holiday home and then start his leave.

Sarah used the technology to work from different locations at work (usually outside), but during the lockdown, she would regularly take calls from different parts of her house or when out for a walk to "balance out" the longer hours which came with working from home. Others mentioned that they would work on the bus or train, take calls or dictate emails while driving, or attend personal appointments while remaining contactable.

Locational flexibility can work in tandem with temporal flexibility, as Kate explained:

> If I was bound to the workplace, I'd be bound by the hours that I was present here. So I wouldn't be able to, to log on outside of working hours, I wouldn't be able to work from home. I've started trying to work from home two days a week. (Kate, Rewards Consultant)

The ability to use mobile technology to adjust working times was mentioned by about 40% of participants. They spoke of logging in at different times of the day or night, adjusting their working times around the natural daily rhythm of their work or the needs of their family. For example, TV producer Harry found that his mornings and evenings were very busy as he followed the news cycle in Europe quite closely. This allowed him the flexibility to focus on his daughter in the afternoon. Some of the other fathers – David, Phillip and Rohan – also enjoyed the freedom to log off in the afternoon to spend time with the family and then log back on later in the evening. Nick liked the flexibility to finish tasks at home instead of waiting around in the office for hours for colleagues to complete things he needed.

Flexibility, both locational and temporal, had several clear advantages for the participants. Chief amongst these, for the parents in particular, was the ability to spend time with family or attend appointments during what would normally be seen as work hours. As Melissa noted,

> There's days when you just need to log off you can get home, you can go see the kids, you know concert or whatever it might be. So I think it does allow you that flexibility to do other things in what might be core hours even, and then you can make up for it, after. So, I think that is an upside, using it after hours. (Melissa, HR Director)

Reduced travel time was another benefit of locational flexibility. David enjoyed using MS Teams to connect with customers, avoiding the need to "travel long distances". Nick lived on the NSW Central Coast, so working from home saved him 3 hours per day. Kate saved the same number

of hours, time which she redirected to work. Both Nick and Kate felt more productive when working from home due to the lack of commuting time.

3.4.2. Job Control

Mobile technology contributed to participants' flexibility, allowing them to vary their place or time of work. Aside from flexibility, mobile technology enhanced participants' autonomy in other ways. The technology which enabled intense connectivity through multiple communication channels, and for some at least, a seemingly never-ending flow of emails and texts, was also used to control it. According to Melissa, the same device that can leave someone feeling "overwhelmed" can also be used to manage their workload so that they can ultimately "relax and switch off".

> I don't think any of us would keep up with the pace or the amount that we have to get through, without these devices. (Melissa, HR Director)

3.4.2.1 Getting on Top of Things

Several of the interviewees described connecting to work after hours to "get on top of things". For example, Julia would spend time on Sunday to "prep" for a busy week ahead. This meant that she could "go into the week feeling prepared and comfortable about the week rather than, like, chasing my tail all week". Melissa does not like a "backlog of emails", so she tries to respond to all her emails at the end of the day and will also work on the weekends so that "it's one less thing that I have to do on Monday". For Ben, "getting on top of things" meant starting his day very early, before others were logged on, "because I can get my work over to them and they can't respond to me because they're not awake (laughs)". When Sarah worked in a previous operations role in TechCo, she had a very high workload, which meant that she would regularly log on after hours and on weekends to "feel on top of things".

3.4.2.2 Monitoring Work

Using the technology to monitor work also afforded participants a sense of control. Brad told me that he would scan his emails while on holidays: "I don't want things to go to shit while I'm away". After-hours monitoring of work was particularly important for the IT Project Managers Ashley and Dipal as they used offshore resources in different time zones to continue work when the Australian teams had logged off. During the deployment stages of IT projects, both described watching developments unfold in WhatsApp and intervening when required. Dipal said: "So after a certain time in the evening, I will shut my laptop, but my eyes will be on the WhatsApp messages going back and forth".

In his operational IT role, Ian was also highly connected with his offshore teams, as he described: "Because my team is scattered across three different countries, my mailbox tends to follow their timeline also". During our interview, he insisted on showing me his email inbox to highlight the constant barrage of emails throughout the night. He outlined how he would monitor hundreds of emails and messages, reading some, skimming others and replying only when he needed to.

3.4.2.3 Intervening Quickly

Close monitoring of devices allows users to quickly intervene and resolve issues. For Brad, intervening quickly while on holidays allowed him to ensure that things did not go awry in the office, thereby putting him in control. Craig described how IT teams would “go off track” and request a call to discuss options that had already been decided. However, a quick email intervention from Craig allowed him to “nip things in the bud” by reconfirming the decision, thereby avoiding the need for an hour-long conference call during his personal time. David felt in control when he was able to resolve a problem quickly without having to travel into the office: “You can access the systems, you can access the information and potentially resolve the issues quickly without, you know, without waiting”.

3.4.3. Job Performance

The relationship between mobile technology usage and job performance was widely noted by my interviewees. Mobile devices enhanced job performance through improved collaboration, connecting at speed and multitasking.

3.4.3.1 Collaboration

The functionality to collaborate with colleagues was mentioned by a number of interviewees. Here they were referring to MS Teams, which had been used extensively on laptops and mobile phones during the lockdowns. Sales Manager David used this technology to co-create proposals with colleagues “on the fly”, something which had previously taken hours was now reduced to just 15 minutes. Phillip liked the ability to load meeting documents to his MS Teams site for everyone to read, without filling up inboxes. Brad collaborated with colleagues to create sales documents on MS Teams. Ashley referred to the use of electronic whiteboards for “workshopping”, which had become commonly used by the organisation.

3.4.3.2 Connecting at Speed

The ability to connect quickly with large groups of people was a clear benefit for the project managers, in particular. Ashley and Dipal led large project teams in Australia and Asia and would often need to communicate with them at short notice.

Dipal compared the challenges of setting up a conference bridge for large project teams in Sydney and the Philippines with the ease of using MS Teams. Ben, a Sales Manager, relied on his mobile phone to respond quickly to customer requests. He felt that this quick response allowed him to maintain customer relationships and grow revenue.

> A lot of customer satisfaction is based around responsiveness, being able to respond fast and escalate things and get things done quickly. We have a saying in our team, that "time kills deals". (Ben, Sales Manager)

3.4.3.3 Multitasking

Multitasking on devices was another way of strengthening job performance. It was commonplace for interviewees and their colleagues to multitask while in meetings, often sending and reading emails and texts or taking calls. Multitasking also extended to making calls or composing emails (using voice) while driving to or from work. This is something that Ashley, Julia, Melissa, Sarah and Ben did quite regularly. For Rohan, multitasking meant working on 15 different projects simultaneously and using technology to keep abreast of them all.

> All this can only be managed because of it, because of the technological tools that are available to us. Otherwise, you know, it could be hard to do it, it just boosts your productivity. (Rohan, Procurement Manager)

3.4.3.4 Expectations of Performance

Enhanced performance often results in higher expectations. An example of this can be found in communication responsiveness. Mobile technology allows people to respond, intervene and rapidly resolve issues. However, repeated practice means that responsiveness becomes expected as the norm. As David said:

> You know that there's an expectation that we should fix things straightaway. So, it's given us the benefit, but it's also raised the bar in terms of expectations of what we can do. (David, Product Manager)

Rohan noted that TechCo’s significant investment in technology meant that expectations of performance had increased. Of course, these rising expectations may also come from the individual. Harry described how the ability to “squeeze more into the day” meant that he was always pushing himself to do more.

3.4.4. Work-Life Conflict

Work-life conflict and balance emerged as some of the strongest themes in the interviews, with all participants having clear views on this subject. For the most part, participants could be divided into two groups, one believing that mobile devices had a negative impact on work-life balance (i.e., work-life conflict), the other experiencing both positive and negative effects.

3.4.4.1 Negative Impact: Work-Life Conflict

Using mobile technology, particularly after hours, was directly linked to work-life conflict for a number of participants. Not surprisingly, heavy users of mobile technology in the evenings and weekends reported significant intrusions on family and personal life. Sarah recalled spending up to 5 hours working on Saturdays and Sundays and missing out on time with friends and the opportunity to recharge as a result.

Those without kids mentioned how connecting at night or on the weekends took time away from hobbies and socialising. For parents, connectivity reduced the time they could spend with their children, or it tended to distract them when they were with family. Ashely felt this quite deeply:

> After hours, I am this "guilty mother". I feel that the kids are suddenly growing up and I'm not doing what I would like to do with them because in the evenings I'm not invested as much. (Ashley, IT Project Manager)

For similar reasons, Melissa spoke of not "being present" with her kids. Working fathers Dipal and Craig also described the negative impact that technology had on family life. Not surprisingly, participants' partners and families provided unsolicited feedback on how after-hours connectivity impacted them.

Dipal's kids told him how his behaviour changed when a big IT deployment was being implemented. They said he was less relaxed, less engaged with them, and their short conversations became quite "cryptic". Even Harry recalled being chastised by his mother for his technology habits.

3.4.4.2 Positive Impact: Work-Life Balance

The ability to maintain connectivity with family members throughout the day, work from home or at different times, or bring work home to better distribute the load, were highlighted as ways of enhancing work-life balance. Technology can also be used in other ways to improve work-life balance. Craig mentioned how a quick out-of-hours email can stop an issue escalating quickly and avoid the need to "give up your personal time then for the next 30 to 60 minutes". Phillip simply used his laptop or phone to play relaxing music while working after hours, which he felt brought him a sense of balance.

3.4.4.3 Exercising Control

During my interviews, it was notable that those who experienced less work-life conflict often employed strategies to curtail the negative impact of technology. As highlighted earlier, Julia reduced the intrusion of connectivity on her personal life by carrying two phones and leaving the work device in her home office. Philip recalled how work previously had a negative impact on his family life because he could not relax. However, he addressed this by turning off notifications while on holidays, not syncing his email, and heeding his supervisor's advice to "get away from work, we'll be alright". Rohan controlled the impact of work-life conflict by using the flexibility enabled by mobile technology to adjust hours in a way that worked for the family. Brad's approach was to "compartmentalise" his work and home life, often checking on work for short bursts while on holidays but quickly detaching afterwards.

3.4.5. Work Intensification

Engelbrecht et al. (2020) define work intensification as "having too much work to perform for the amount of time given; thus a form of role or work overload, coupled with time demands placed on

the employee”. The extant literature on work intensification emphasises several themes, including the increased speed of work; higher volumes of work; greater effort; time pressure; tight deadlines; and mental exhaustion (Boxall & Macky, 2009; Burke et al., 2010; Green, 2004). My research group provided numerous examples of work intensification and much of this was clearly related to technology usage and connectivity practices.

3.4.5.1 Speed of Work

Most of the participants felt that using mobile technology increased the pace of their work. They described how technology reduced the amount of time required on tasks, which consequently increased their speed. Brad, Nick, Ashley and Dipal described this pace in positive terms, as something which increased their efficiency. However, Melissa sounded a note of caution, suggesting that increased speed led to an efficiency paradox where she was “just responding to all the noise that's coming in. If I think about it, you know, are we living in a paradox of we're not as efficient as we think we are? We're actually just creating more work”.

Dipal outlined another reason for this increased pace by explaining that coworkers now expected faster responses using applications such as WhatsApp. The ease of using these applications meant that there was “no excuse” for not responding quickly, and it was important to be seen as a “quick responder” in the IT division where he worked. Using these devices to multi-task was another factor which contributed to heightened speed and momentum. Ashley provided a good example of this.

> I think that I can chat or email, at any time, it just keeps things moving. So, I think the speed at which we would deliver things or the speed at which we would get a task done, it’s easier. (Ashley, IT Project Manager)

Speed begets the need for further speed. David also mentioned that the technology “raises the bar” and, as a result, there is a “heightened expectation that we can do things quicker”. Dipal’s reputation as a “quick responder” meant that colleagues had an expectation that he would continue to turn things around quickly for them.

Kate had a different perspective on mobile technology and speed, suggesting that the multiplicity of different communication channels (email, texting, MS Teams) meant that work requests reached her more quickly than ever before.

3.4.5.2 Volume of Work

Using the technology to work at pace means that the volume of work is also intensified. Indeed, this is the very essence of work intensification – more tasks completed during the same period of time (Burke et al., 2010; Green, 2004). A majority of interviewees felt that using mobile technology influenced the volume of their work. Some viewed this quite positively and others negatively. Ashley felt that using mobile technology increased her speed and, therefore, allowed her to

achieve more in the day. Dipal was equally positive, saying that it was easier to get things done using mobile technology and, as a result, he was delivering a higher volume of work. Nick said that using mobile technology opened up more channels for work to be requested of him. However, he equated this increased volume of work positively, with higher productivity on his part.

> Well I guess it's part of sort of being more efficient, you just get more and more stuff thrown at you, right? So now you know you might have emails coming through with requests to do stuff as well as, like, while you're on a Teams call at the same time, while you're getting texts from someone else. (Nick, Commercial Manager)

However, others were not as positive. For example, Craig said the ease of contacting people meant that he was “pulled into” more meetings. Julia complained that as she was always contactable on mobile devices, the “work keeps coming in”, which greatly extended her day. Kate echoed Nick’s views that technology afforded many informal avenues to assign tasks to people, but, unlike Nick, she was not enthusiastic about this. Just as speed leads to more speed, Ben felt that performing tasks with mobile technology led to more work:

> Yes, I think [mobile technology] increases the volume of work coming to me and why that is because it increases the work the volume of work coming out of me. (Ben, Sales Manager)

The blurring of work and home boundaries during the lockdowns also meant that for many the working day simply got longer, adding to the range of tasks that could be completed. Amanda told me that when she worked from the office, she would rarely bring her laptop home, but now she found that it was “always there”, and as a result, she often got up in the mornings and immediately started working in her dressing gown. She summarised this quite succinctly when she said that a mobile device “blurs boundaries and it makes your working day longer”.

3.4.5.3 Multitasking

Technology multitasking was quite prevalent in TechCo, and this contributed to a more intense working environment. Julia described how she often “straddles” several MS Teams meetings at once, putting herself on hold in one meeting to join another. In her face-to-face meetings, it was the norm for employees to be working intensely on laptops or smartphones while others were presenting. Julia felt that intense work pressure, the operational environment and a rapid-response culture drove these behaviours. HR Director Melissa, who joined TechCo from a professional services firm two years prior, was quite surprised by the norm of colleagues being “face down” in meetings.

> When I first joined two years ago, I was quite shocked by the amount of devices and multitasking in meetings. Where I'd come from it was actually incredibly rude to do that. There was almost this cultural norm of, it had to be like, you know, face down and you were present in a meeting. (Melissa, HR Director)

In summary, my interviews revealed a clear relationship between mobile technology usage and work intensification. The dependency of interviewees on this technology contributed to a faster work environment, higher workload and more multitasking. Several participants described the impact of these more intensive work practices in negative terms, such as "exhausting" or "overwhelming". However, others did not pass any judgment on the increased pace and volume of work associated with mobile technology. In fact, some, such as Nick and Dipal, interpreted this in more positive terms as a form of efficiency.

3.4.6. The Paradox of Mobile Technology

The interviews provided strong support for the central hypothesis of this research that, paradoxically, mobile technology both enhances and inhibits employee autonomy. Participants experienced a clear tension between the opposing forces of job autonomy on one hand, and work intensification on the other. They were unanimous in their belief that mobile technology greatly enhanced their productivity and effectiveness at work, primarily by facilitating communications with colleagues and customers but also by allowing them to get more things done. Furthermore, using these devices gave participants a sense of control over their work. Their autonomy was further enhanced by the flexibility to work at home and other locations and at different times.

However, mobile technology also contributed to a loss of control for employees, both in their work and personal lives. Constant engagement with technology contributed to a more intense working environment for several participants. Mobile technology supported a "quick response" culture which encouraged these employees to work at pace. The ease of communicating through multiple channels provided several avenues by which additional work could be received. Multitasking in meetings, a constant flow of emails, texts and notifications from MS Teams and WhatsApp, and back-to-back video conferences also contributed to a more intense work environment. While some viewed the additional speed and volume of work as evidence of productivity, others simply found it exhausting.

Mobile technology also facilitated the spillover of work into the personal and family lives of research participants, thereby reducing their autonomy at home. Heavy users of mobile technology in the evenings and on weekends reported significant disruption to their family and personal lives, describing how they were distracted from children, partners, domestic chores and socialising. Yet, the temporal and locational flexibility flowing from using mobile technology did, paradoxically, also provide some opportunities to strengthen work-life balance. Here again, interviewees were caught between the opposing forces of job flexibility and work-life conflict, one giving freedom, the other removing it.

In summary, for my participants the use of mobile technology was an inherently paradoxical experience, as these devices improved their sense of autonomy while at the same time diluting it.

3.4.6.1 Awareness of the Paradox

Interviewees demonstrated a high level of awareness of the paradox inherent in device usage. Their experiences were often framed in terms of the "double-edged sword" metaphor using phrases such as "good and evil" or "love-hate". They understood that a device affording them the freedom to work at different times and places also meant, by extension, that work could invade personal times and spaces when they did not want it to. For example, Kate enjoyed the flexibility to take work home but pointed out: "It's also a big downside, because I feel like I'm at work 24-7".

Similarly, while participants appreciated that mobile technology strengthened their job performance, they understood that this resulted in an intensive work environment, which involved fatigue and being overloaded. Rohan told me how the productivity dividends of mobile technology were reaped by the company, but the costs were picked up by the employee.

> It comes at a cost; the individual is providing extra hours…. it drains you. So, at times, it's not sustainable to work in this kind of fashion, continuously for months. (Rohan, Procurement Manager)

While there was a high level of awareness of the paradox, interviewees did not always share the same perspective on it. Some felt that the trade-off between flexibility and longer hours was a reasonable one. David, for example, referred to this as a "quid pro quo". However, others struggled with these trade-offs. Harry told me in quite a sombre tone:

> It's so hard, because I know it's so essential…It makes me better at my work, but it potentially doesn't make me a better person. Which is a hard one to swallow. (Harry, TV Producer)

In a similar way, Ashley gave the impression of being somewhat trapped between the benefits that technology provided her and the costs that came with it:

> It's a love-hate relationship, right, I love it because I wouldn't have it any other way. But I hate the fact that I struggled to put boundaries around it. (Ashley, IT Project Manager)

In this section, I have described how the research participants, through their intensive engagement with mobile technology, experienced moments of genuine autonomy and flexibility, but this often came at a cost of work-life conflict and an intensive workplace. Now I will turn my attention to examining how this paradox was shaped by their social environment.

3.5. The Social Context of the Paradox

During my first round of interviews, several participants discussed mobile technology in the context of their interactions with their supervisors and coworkers. There was a suggestion that leadership practices, and work relationships more generally, influenced connectivity behaviours and outcomes. This piqued my interest in how the social context interacted with technology usage. As a result, I explored some of the literature on theories of social exchange and social norms, and how these may be useful in understanding how workers engage with technology. This line of

research is consistent with the concept of sociomateriality advanced by academics including Wanda Orlikowski, who rejects more "deterministic" theories of technology (Orlikowski & Scott, 2008). At the core of this approach is the proposition that people and technology do not exist as discrete entities but rather influence each other in ways which lead to outcomes for organisations and employees. Put simply, sociomateriality suggests that it is not the features of technology which solely determine consequences but rather the interplay between these material properties and the social environment.

Therefore, in my second round of interviews, I focused some questions on understanding the structure of teams, interactions with coworkers and supervisors, and the communication practices in which participants engaged. I was particularly interested in understanding the underlying social relationships and ways of communicating, and whether these influenced the experience of using mobile technology.

In this section, I will outline the social environment in which my interviewees operated and how they used mobile technology to connect with coworkers and supervisors. I will then examine how social relationships and normative practices shaped the autonomy-control paradox.

3.5.1. The Team and Supervisory Environment

My research participants worked in various functional team settings including Sales, Service Delivery, IT, Human Resources and so forth. Team sizes were typically around 5 to 8 people but were as high as 20 in the case of Human Resources. Some of the participants performed essentially the same role as their peers. For example, Phillip was a Service Delivery Manager for a large retail customer and his peers performed the same functions but on different customer accounts. Others, however, performed a unique specialist role within a larger team. For example, Julia was the Business and Communications Manager for IT and sat on a leadership team with Directors who all led large IT teams.

Relationships within participants' teams appeared to be quite strong. They spoke of their colleagues being "friendly", "collegial" and "supportive" and the teams being "closely knit". Indeed, these descriptors seem to align well with teams who enjoy a high level of Team–Member Exchange (TMX) (Banks et al., 2014). Seers (1989) proposes the construct of TMX as a measure of the effectiveness of the relationships between team members. In high TMX relationships, members are more willing to help, share information and recognise their colleagues (Seers, 1989). Julia's description of her team is quite illustrative of this:

> I feel extremely supported by my colleagues. I get a lot of encouragement from my colleagues. My colleagues show gratitude for what I do, and I try and display the same to them. And I feel like I add value to what they do, and I feel appreciated by them. I certainly appreciate them. I think there's a high level of trust and cabinet solidarity between us as well. (Julia, Business and Communications Manager)

Participants' supervisors ranged in seniority from first-line leaders to Associate Directors and Directors, and up to Executive Committee members in the case of Melissa and Julia. Due to the matrix structure in TechCo, some of the participants had two or more supervisors. Again, interviewees were largely positive about the quality of relationships they had with supervisors. They used words like "competent", "supportive", "nice bloke", "listens", "trust", "empowerment", "flexible", "reasonable", "cloak of protection" and "very human". In fact, only one of the participants, Ashley, described having a poor relationship with her supervisor, who was quite new and largely absent and uninvolved.

3.5.1.1 Connecting with Coworkers

Research participants used mobile technology to stay in regular contact with colleagues. Throughout the day, they used phone calls, email, texting, WhatsApp, MS Teams conferencing and messaging, and Signal to connect with peers. Digital engagement with coworkers intensified greatly as a result of the COVID-19 lockdowns. Face-to-face meetings and casual desk and hallway encounters were replaced by video conferencing for project, one-to-one and team meetings. Engagement with colleagues was particularly intensive for the IT Project Managers. Ashley described the interaction with her project team in the following way:

> We literally are continuously in meetings or discussing things or in workshops, so I would like to say of the 8-hour working day, I think I'm six hours talking to them. (Ashley, IT Project Manager)

Communications with colleagues would spill over into the evenings for some. This was particularly true in the IT teams, where the extensive connectivity with coworkers reflected the operational nature of the work. Melissa was quite surprised by the late-night calls when she joined this team as HR Director, telling me: "I remember thinking 'Oh, God, do you guys ever sleep?'".

Working with overseas colleagues and partners, particularly in Southeast Asia, meant that some participants often worked later in the evenings due to time differences. Kate and Julia worked closely with colleagues in BigTechCo, the overseas parent company. Due to the 3-hour time difference, they regularly communicated with overseas colleagues well into Sydney evening time, while it was still afternoon in Asia. Julia also added that cultural differences meant that her overseas colleagues did not appreciate the negative impact that time zones could have on those in the Sydney office.

Due to time differences, Project Managers Ashley and Dipal often sent emails and messages or conducted videoconferences late into the evening with their Asian-based teams. Similarly, David regularly communicated with overseas Telco partners late at night. Harry (TV Producer) found that his day started early and finished later, as he needed to be in regular contact with his colleagues in Europe.

3.5.1.2 Connecting with Supervisors

Participants reported a lower level of interaction with their immediate supervisor when compared with peers. They would typically communicate with their supervisors at weekly team meetings and fortnightly one-on-one meetings. Between these meetings, participants reported texting, WhatsApping or calling their supervisors for assistance or advice either daily or every few days. The level of contact with supervisors varied between the participants, seemingly reflecting the quality of the relationships. For example, Amanda, who described her manager Paula as "amazing", "supportive" and "strong", would speak with her every day. By contrast, Ashley said she received no support from her manager and had not spoken with him in five weeks. After-hours contact with managers was considerably less than that with peers and tended to be restricted to urgent matters.

3.5.2. The Social Structuring of the Mobile Technology Paradox

Connecting with colleagues and supervisors did appear to shape the paradoxical outcomes of mobile technology usage in two ways. Supportive relationships with coworkers and colleagues tended to accentuate the autonomy side of the mobile technology paradox. By contrast, norms of responsiveness and availability tended to dilute the experience of autonomy while increasing the control dimension associated with mobile technology usage. Each of these will be outlined in the next section, starting with a short overview of social exchange theory.

3.5.2.1 Social Exchange, Supportive Relationships and the Autonomy-Control Paradox

I highlighted earlier that most of the interviewees described good relationships with their supervisors. Participants, by and large, found supervisors to be supportive, friendly and competent, characteristics often associated with high Leader–Member Exchange (LMX) relationships (Dienesch & Liden, 1986). LMX is concerned with how leaders and followers develop effective relationships (Graen & Uhl-Bien, 1995). At the heart of LMX theory is the notion that leaders and followers can develop partnerships which result in positive outcomes for both (Graen & Uhl-Bien, 1995). LMX departs from earlier average leadership style" theory which suggested that leaders treat all followers in a similar way (Dienesch & Liden, 1986). Instead, LMX theory states that leaders can vary the quality of relationships with their subordinates (Dulebohn et al., 2012). Those in the "in group" are the trusted "favourites" who tend to receive more information, support and interesting work assignments. Followers in the "out group" will have a more formal relationship with their leader and receive less support and access to rewards (Dienesch & Liden, 1986). High LMX relationships are, therefore, characterised by affection, obligation and reciprocity, while low LMX relationships tend to be more transactional in nature, focusing on employment conditions and pay for performance (Dulebohn et al., 2012).

Dienesch and Liden (1986) outline three dimensions of LMX: (1) contribution refers to followers' task performance; (2) loyalty is the degree of commitment and support demonstrated by each

party; and (3) affect is the degree of interpersonal attraction in the relationship. Liden and Maslyn (1998) add a fourth dimension of LMX: professional respect.

According to LMX theory, the varying quality of leader-follower relationships can have significant consequences for workers. When LMX is high, followers tend to receive higher levels of support, preferential treatment, more communication and more rewards. However, in low LMX relationships, support, trust, information and rewards are limited, which tends to stifle the effectiveness of both followers and leaders (Brunelle, 2013). Since the development of LMX theory in the 1970s, researchers have investigated the significant benefits that close leader-subordinate relationships can deliver for both parties. Studies have linked high LMX with a range of positive outcomes, including job satisfaction, organisational commitment and lower turnover (Dulebohn et al., 2012). Of particular relevance to my study are the research findings connecting LMX with various dimensions of employee empowerment and control. For example, research has shown that in high LMX relationships, workers receive more information, have more involvement in decision making and experience more workplace flexibility (Liden et al., 2000; Thompson & Prottas, 2006; Warner & Hausdorf, 2009). Support provided by leaders also appears to have a significant impact on employee performance (Dulebohn et al., 2012; Graen & Uhl-Bien, 1995; Sepdiningtyas & Santoso, 2017). High LMX can also be a resource for workers, allowing them to cope with the demanding or controlling elements of the workplace, including work-life conflict (Major & Morganson, 2011), work pressure (Tummers & Bronkhorst, 2014) and stress and burnout (Thomas & Lankau, 2009).

Building on LMX theory, Seers (1989) develops the construct of TMX (or Team–Member Exchange) as a quality measure of the relationship one has with coworkers. Seers theorises that reciprocal relationships could exist between peers in which assistance, information, ideas, recognition and feedback are shared. Trust, respect, support and appreciation are, therefore, the hallmarks of relationships high in TMX. While considerable research has been undertaken in relation to LMX, TMX remains under-explored in the literature. However, extant literature does indicate that TMX, like LMX, is an important resource for workers. For example, studies suggest that when workers enjoy positive and supportive relationships with their peers, they will also experience higher levels of empowerment (Chen & Klimoski, 2003; Liden et al., 2000; Schermuly & Meyer, 2016). Furthermore, studies suggest that TMX is a predictor of higher performance levels (Banks et al., 2014; Liden et al., 2000; Olya & Ki, 2018).

Before undertaking the second round of interviews, I conducted a literature search to examine whether prior research had been undertaken on the topic of social exchange and mobile technology usage, and I identified just one relevant study. Harris et al., (2015) hypothesise that high LMX would moderate the positive relationship between technology overload and work-life conflict. However, their data unexpectedly revealed that high LMX intensified the relationship. This counter-intuitive result prompted Harris et al. (2015) to call for more research in this area.

Broadening my search to the construct of social support, I located two additional studies. Salanova et al. (2013) find that the experience of technostress is reduced when workers receive strong support from colleagues and supervisors. A more recent study by Park et al. (2020) highlights the role that social support plays in reducing the impact of burnout.

This limited research, along with some observations from my early interviews, suggests that the quality of relationships with supervisors and peers may be a factor in shaping the outcomes of mobile technology usage. This influenced my approach in the second round of interviews. Specifically, I asked additional questions on how participants connected with colleagues, the impact that this had, and how they experienced these relationships.

During the interviews, I noted several examples of good working relationships which allowed participants to derive additional benefits from using mobile technology. A case in point was Julia, who felt trusted and empowered by her supervisor. She told me that she quickly responded to her manager’s emails at night, not because she felt compelled to do so but because she liked him and wanted him to be successful. In return, she received considerable support from her manager who allowed her to work flexibly. Similarly, Ben felt that his supervisor, Andrew, trusted him and he, therefore, did not see the need to check in daily: “You know what you're doing, just do it”. He also felt that Andrew’s role modelling of flexible hours gave him the freedom to do the same: “Andrew has three young children. So I know that when it gets to four o'clock, like, there's just no way I'm speaking to him [again] till seven”.

Another participant, Kate, told me that her supervisor “places value on work-life balance”. Consequently, she felt that this gave her more flexibility to decide when she should connect or not. Similarly, Phillip felt that his supervisor was respectful of his personal time: “Generally, you know work time is work time, and after hours is your time, unless it's urgent”.

Long hours are the norm in the media and entertainment industry. Yet, TV Producer Harry felt that TechCo was more supportive of the need for flexibility than the other organisations where he had worked. He contrasted this with his last employer, where he would regularly work late at night to get on top of things, but his punctuality would be questioned by his manager if he arrived late in the morning.

> If I've got to take my kid to the doctor, no one's messaging me "are you finished at the doctor yet?". The previous place I worked: "You said you'd be back at one". Whereas at TechCo, if I'm not back at one because I stopped to get my kid lunch, I'm an extra half an hour with her I quickly had coffee with her because you know I don't get that time back. No one's gonna argue you won't make up the work. (Harry, TV Producer)

Supportive leaders allowed their teams to tap into the flexibility enabled by using mobile technology, while protecting them, to a degree, from the potential downside of work-life conflict.

Yet, there were also examples of unsupportive leaders who simply allowed their teams to suffer from the worst excesses of technology usage. For example, Craig (IT Architect) described how senior leaders in FinCo came to expect their teams to continue to work longer hours after the initial mortgage deferral crisis brought on by the pandemic had passed. He described how junior technology staff were working excessively long hours due to a "leadership deficit", which led him and other colleagues to step in and escalate the problem to senior management. Another example was provided by Ashley, who worked very long hours in her role as Project Manager. She had a new supervisor who was acting in the role and had almost no contact with her. As a result, she felt there was "no support, you feel as if you're on your own". The almost complete absence of her supervisor meant that no one was providing instrumental support, such as additional resources or emotional support by "checking in", which could have reduced her long hours or addressed the impact that it had on her personal life. Harry provided a further example of how a poor relationship with a supervisor contributed to feelings of disempowerment. In his previous organisation, he found his supervisor's regular critique of his work by text message quite disenfranchising:

> My boss was sitting on the couch watching the game. And I'm putting the game to air live. So I'm sitting there making the game that he's sitting at home watching. So he's a real armchair critic. And he used to text me and say "Why did you do that?" or "I noticed that happened". And I brought it up to him and said, "Look", I know that you've been in the industry a long time but if you're texting me while I'm trying to concentrate, am I doing my job or am I reading your text? So now if you've got a problem with something I've done that's no problem, we're here to make it the best it can be. Don't you think the best time to text me would be after I'm physically working on the thing you want me to be good at?" (Harry, TV Producer)

Finally, some comments from participants suggested that strong relationships with supervisors and peers allowed people to maximise the performance benefits from using mobile technology devices. In Julia's case, the closeness of her peer relationships meant that she experienced a high level of cooperation from them. She felt they were very responsive to her requests for information, and this, in turn, enhanced her productivity using mobile technology. As I noted earlier, Amanda had a particularly high level of respect for her manager Paula, describing her as "amazing". She gave me the strong sense that her admiration for Paula meant that she wanted to reciprocate by working longer hours and contributing more.

> She works really long hours, late into the evening. I don't feel like she expects us to work these hours, but you do have a degree of, I guess, modelling by example. You feel a little pressure to match it. If she was only working nine to five, I'd probably be a bit resentful if I was working much longer. Because whatever I'm doing, she's doing more. You know, I don't feel like she's asking me to do something that she wouldn't do. (Amanda, Solutions Designer)

3.5.2.2 Mobile Technology Norms

Extant research on mobile technology suggests that normative practices can shape the context in which workers use these devices. Scholars have focused, in particular, on the themes of availability and responsiveness. Studies suggest that when workers feel "compelled" to be available to colleagues, they are more likely to work extended hours (Derks et al., 2015). Workers learn from peers and supervisors the "expected" work and technology practices in their organisation. When they observe others responding to emails quickly after hours, they are often inclined to behave in the same way (Barber & Santuzzi, 2015; Matusik & Mickel, 2011).

The technology practices of my participants were shaped to a degree by norms of responsiveness and availability. Most participants described their colleagues as being responsive or very responsive to their communications. In fact, being responsive to colleagues was highly prized in the organisation. HR Director Melissa described it as being "systemic in our culture". She recalled receiving very clear signals about after-hours responsiveness when she first joined TechCo two years ago:

> When I first arrived, I always remember walking into the first meeting, SLT meeting, and there was Brian (MD Networks). He's on the phone, bang, bang, bang, bang, bang, talking to someone. And I was like, "what, the?" Then I started to realise [that] if something happens to the network, we got to be on it. If your boss asks you something, you have to respond. You'd get these random texts from the ELT (Executive Leadership Team) meetings going, "What's the headcount for blah, blah? Tell me now!" (Melissa, HR Director)

Dipal had a similar perspective on the embeddedness of this norm in the TechCo culture. He told me that people were expected to respond quickly to WhatsApp messages to prevent a "bottleneck". Both Ashley and Julia commented that since the implementation of new technologies, such as MS Teams and Signal, expectations of responsiveness had increased.

Being available to colleagues throughout the day and after hours was also another technology norm which was valued in the organisation. Rohan felt there was an expectation that he be available to work after hours because he had a company-issued smartphone and laptop.

> The expectation that, okay, you have a phone and you have a laptop, which allows you to access it [email], so you should, can respond to it late at night. (Rohan, Procurement Manager)

Julia (Business Manager) also described feeling under significant pressure to be available to connect with colleagues overseas, as she did not want to be judged as someone who "drops the ball". In FinCo, the bank where Craig (IT Architect) was employed, the unwritten rule was that if you were given a work phone, you were expected to be contactable in the evenings. Both Craig and David (Product Manager) felt that these expectations of after-hours availability were reasonable and consistent with a professional working environment. However, Brad was

somewhat critical of the value placed on being responsive and available after hours, believing that it was simply a strategy by some to present themselves in a favourable light to their bosses:

> Well, it's showing [yourself] to be conscientious and you know that "I'm working to all hours" and trying to keep up appearances. (Brad, Strategic Business Development Manager)

Of course, such norms need to be learned by new members of the organisation, even when they are in senior leadership roles. Julia offered a great example of how the newly hired CIO had not yet learned the organisation's expectations of being available and connected when he left his smartphone at his desk for several hours while in meetings elsewhere. Julia recalled how his Executive Assistant commented to her angrily: "Well, he needs to learn that's not gonna fly. That won't fly here. You can't be away from the phone for three hours". This example demonstrates just how pervasive norms of availability and connectedness were in TechCo. In this case, a relatively junior member of staff, an assistant, was incredulous that her new boss, the CIO, was unavailable to her for a few hours.

Being responsive and available to external customers and suppliers was a requirement for some of my participants. Ben, an enterprise sales manager who was responsible for some large corporate accounts, told me that "customers demand responsiveness". Customers also had an expectation of Ben's availability after hours, with little consideration for his personal time. He dealt with "C-suite" customers who would call him rather than the call centre about personal connectivity issues they were experiencing. For Rohan, a procurement manager, having a mobile phone meant that he was expected to be available to suppliers after hours to "provide them guidance on when a particular submission is due or liaise with them in a way so I need to be available".

It was clear to me from my interviews that these norms were not prescriptive (i.e., what people say) but rather descriptive (i.e., what people do) (Barber & Santuzzi, 2015). Ashley, Sarah, Dipal and Melissa all commented that nobody told you that you had to be available after hours. Instead, the technology behaviours were descriptive, in the sense that they were learned socially through the role modelling of supervisors and peers. Once learned, repeat practice allowed these behaviours to be further embedded. As Melissa said, "You end up, you just end up adopting certain habits and it becomes a habit". She described her supervisor as having an "insatiable appetite for work", as "always on" and as someone "who must need very little sleep". She really appreciated her supervisor's responsiveness to her communications and wanted to do the same for her team.

The pressure or obligation to respond quickly sometimes did not come from a direct supervisor but other senior leaders in the organisation. Ashley told me how she was being chased up by a project leader who was using the name of his managing director to exert some pressure on her.

Brad also felt that people were influenced by the after-hours technology practices of senior leaders.

Being responsive and available to colleagues was rewarded in TechCo, causing these behaviours to be further normalised. Amanda told me that one of her motivations to remain connected after hours was to “get ahead”. Ben was happy to be contacted by his customers because he saw a direct correlation between this level of responsiveness and customer satisfaction, sales and, ultimately, his commission. While Dipal simply enjoyed the social recognition of being viewed as a “quick responder”.

3.5.2.3 Technology Norms and the Autonomy-Control Paradox

While previous literature has focused on how social norms are a predictor of after-hours technology usage (Fenner & Renn, 2010; Richardson & Benbunan-Fich, 2011), my interviews revealed they may also be a factor shaping the autonomy-control paradox. The technology norms of being responsive, available and connected with peers, supervisors and customers, although highly prized, came at a cost for the participants. Being available and on standby to work, particularly after hours, of course, means that an individual’s personal autonomy is reduced. As Rohan outlined:

> You develop that habit of frequently checking your phone for emails, so that's also kind of an addiction that if you keep the phone next to yourself, then you will be constantly checking for emails maybe, eight or nine times. (Rohan, Procurement Manager)

Expectations of availability and responsiveness in the evening also directly contributed to the experience of work-life conflict and reduced wellbeing. Ashley reflected on the requirement to be constantly engaged with colleagues after hours in this way:

> You’re constantly "on". There is no switch off. You think you've finished for the day and then a WhatsApp message pops up and you're, like, "how did this happen?" And then you're back on again and back into calls and you're back into doing. But even on the weekend, when you're just trying to unwind at that point and you're like, "okay, here we go again”. (Ashley, IT PM)

Technology norms also appeared to strengthen the degree of work intensification, that is, increased pace and workload associated with mobile technology usage. The normalisation of after-hours communication with peers and supervisors added to a sense of overload felt by some. While Ben was understanding of his supervisor’s after-hours contact, he did feel that it came with a very large workload. The speed of leaders’ responsiveness encouraged some to behave in the same way, which further reinforced a sense of pace in TechCo. Referring to her supervisor, Melissa said: “She's got a pace that she's operating at. You've got to keep up with that pace”.

So, these norms contributed to the experience of work-life conflict and work intensification and, in turn, negatively impacted the wellbeing of some participants. David told me that an expectation to be available by customers led to feelings of stress because “now there's an expectation that

they can make contact with us anywhere, pretty much at any time and expect that we'll be able to help". While Rohan recognised that the importance of staying connected after hours to complete tasks by certain deadlines, he felt that it left him "drained" and "the body and mind tends to give up".

However, not everyone experienced the cultural expectation to be connected with peers, supervisors and customers. There was evidence to suggest that the absence of these norms in some teams tended to contribute to feelings of autonomy. For example, Ian found that apart from his weekly one-to-one meetings with his manager, communication with him was quite limited, which he felt contributed to a sense of empowerment.

3.6. Wellbeing and Mobile Technology

In the previous two sections, I have outlined how users of mobile technology can experience the paradoxical outcomes of autonomy and being subject to control, and further how this can be shaped by the social environment at work. A key objective of this research is to explore the relationship between mobile technology and employee wellbeing. More specifically, I seek to understand how the experience of autonomy and control enabled by technology usage can enhance or reduce wellbeing.

3.6.1. Exhaustion and Burnout

Throughout my discussions, I kept track of comments made in relation to wellbeing issues. Several of the interviewees referred to the negative health consequences of intensive device use. Terms like "exhausting", "consuming", "addiction", "draining" and "fatigue" were used to describe some of their experiences. There appeared to be two principal drivers of these wellbeing concerns. First, the relentless nature of constant communications through multiple channels, often occurring simultaneously, gave little time for any respite and, therefore, could be quite taxing. Julia noted:

> I find it so exhausting. There are so many ways you can be contacted via phone call or a Team's meeting or a Team's call or a chat message or a text message or a Signal message or WhatsApp message. It's just exhausting because it's constant. There's a lot. It's easy for people to place demands on you. (Julia, Business and Communications Manager)

Second, having a mobile device at home meant that work often spilled over into personal hours, increasing stress levels and reducing time to relax and recover. For example, Craig told me that he came "very close" to being burned out due to the requirement to be constantly "on call" for senior executives in the evening.

3.6.2. Addiction

Melissa, Ashley, Craig, Harry and Rohan likened their use of mobile technology to a form of addiction. Ashley, in particular, described using her mobile phone compulsively and was unable to resist responding to emails and getting dragged into conversations late at night.

Melissa similarly found that the compulsive lure of her smartphone meant that her evenings would be impacted negatively.

> I don't think I can switch off. It just goes on, and then I'm thinking of that email when I'm lying in bed or if there's something which has come in which I think I should reply, but I think oh at 11 I can't be bothered. Then I'm lying in my bed thinking of that or drafting that email in my head and I'm thinking, Oh! I shouldn't have looked at it! There was no need for me to look at it (laughs). Nobody was expecting me to reply to that email at 11 at night. It could have waited [until] first thing in the morning. (Melissa, HR Director)

While I am not suggesting that any of my participants were genuinely "addicted" to mobile technology, the use of that term did at least suggest to me that some recognised that they had an unhealthy relationship with their devices.

3.6.3. Job and Life Satisfaction

I asked my participants directly whether they felt that using these devices either enhanced or detracted from their job satisfaction or their satisfaction with life more broadly. I found that, paradoxically, mobile technology both enhanced and reduced job satisfaction. On the positive side, mobile technology was referred to as a "tool" or an "enabler" which allowed people to better perform their roles. The performance-enhancing aspects of mobile technology were, for some, a contributor to their satisfaction at work. Phillip said:

> I can resolve a situation or get something done quicker if you need to reach out to someone or a team. The ability to get a result or find the information you need is a lot easier. I think the technologies have a positive impact of working with TechCo. (Phillip, Delivery Manager)

For Dipal, it was the "convenience" of using mobile technology which enhanced his effectiveness as Project Manager and, in turn, contributed to his job satisfaction. Flexibility was another factor in strengthening job satisfaction. Phillip liked that the technology allowed him to adjust his work time and also reduce commuting. Others valued the opportunity to work from home. Amanda connected to work remotely but still felt that "it's almost like you're still working together in a team environment". Ben enjoyed the flexibility, which enhanced his work-life balance and job satisfaction.

> Without the tools, I would have to be at my desk from nine to five at least. And that would give me no flexibility … or work-life balance. Therefore, you know, I probably wouldn't be in this job. (Ben, Sales Manager)

Yet, there was clearly a sense that the performance-enhancing aspects of mobile technology usage, when pushed too far, led to the experience of work intensification creating dissatisfaction. For example, Melissa felt that the constant messaging through these devices improved her operational effectiveness. However, it was also a source of distraction which reduced her ability

to think strategically and undertake more complex and value-adding work. As a result, her enjoyment of work was diminished.

Reducing the work intensity and work-life intrusion associated with mobile technology usage can increase job satisfaction. Ashley, who at times had been a very heavy user of mobile technology at night, told me that her job satisfaction had improved now that she removed MS Teams and Outlook from her phone.

While most of the participants felt that mobile technology influenced their job satisfaction, either positively or negatively, some felt it made no difference. Sarah, reflecting on this topic, said that "it's just something that's there". Julia could see the potential of technology to reduce her job satisfaction by eating into her personal time. However, she controlled this by having two phones and leaving her work device in her home office.

In summary, participants provided some evidence that mobile technology usage can have positive and negative implications for wellbeing. There was also a level of recognition that these factors can co-exist. Nick summed up his feelings about mobile technology in the following quote, which I felt captured the sentiment of many of the research participants:

> You know, the good things would be sort of the efficiency gains, the store of information, the flexibility. But you know, then, there's also some, some downsides of like lots of information coming into you all at once. Kind of that blending of work and life. Yeah, it can get muddled. Yeah, so you know, I feel like it's a net benefit but it's not without its downsides. (Nick Commercial Manager)

3.7. Summary of Key Findings

At the start of this chapter, I outlined my motivation in undertaking a qualitative exploratory study, which was to learn firsthand how workers experience the phenomenon of the mobile technology paradox and to use these findings to further develop my conceptual model. The picture emerging from discussions with the research participants is one of intense engagement with mobile technology. Most used a combination of smartphones and laptops frequently throughout the day and often into the evenings. Devices were a constant presence in the work lives of these individuals, used on the daily commute, to check emails first thing and last thing at night, on their sofas in the evening, in restaurants at weekends, and while on vacation. Out-of-hours technology usage was driven by a combination of workload volumes, the requirement to work across time zones, personal work ethics and cultural norms.

The central position that mobile technology occupied in participants' working lives was further strengthened with the adoption of new technologies during the pandemic lockdowns. The introduction of MS Teams in mid-2019 in TechCo and the subsequent COVID-19 lockdowns dramatically increased the criticality of the laptop as a communication device, particularly for video conferencing from home.

There was strong evidence to support the central hypothesis of this research that, paradoxically, mobile technology enhances employee autonomy while enabling their control. Mobile devices were used to boost job performance and effectiveness, primarily by allowing participants to connect at speed with colleagues and customers, and by enabling more collaboration and information sharing. Furthermore, using these devices increased their level of job autonomy by allowing them to monitor work, "get on top of things" and intervene quickly. Their autonomy was further enhanced by the flexibility to work from home and other locations, and at different times. Indeed, the ability to work outside of the office was a critical requirement during the pandemic lockdowns.

However, mobile technology also contributed to the enactment of control over participants both in their work and personal lives. Constant engagement with technology contributed to a more intense working environment. Cultural expectations of quick responses accelerated the pace of work. Mobile technology enabled many additional channels, such as texting, email, voice, and MS Teams, by which requests could be received. This contributed to a larger volume of work, longer hours and multitasking across many different electronic platforms. Mobile technology also facilitated the spillover of work into research participants' personal and family lives, thereby reducing their autonomy at home. Heavy users of mobile technology in the evenings and on weekends reported significant disruption to their family and personal lives, describing how they were distracted from children, partners, domestic chores and socialising. However, some did manage to limit the impact of work-life conflict by adjusting their hours, turning off notifications or trying to compartmentalise the worlds of work and home. It was also noteworthy that some participants felt that using mobile devices contributed positively to their work-life balance by enabling locational and scheduling flexibility.

Therefore, the paradox of simultaneous autonomy and control was a central feature of how these workers experienced mobile technology. Indeed, they were quite aware of this paradox. Some responded to this constructively, believing, for example, that the trade-off between flexibility and longer hours was a reasonable one. However, others struggled with the tensions between the additional freedoms gained and the corresponding restrictions using language such as "love/hate" or "good and evil".

During my qualitative research, a significant new theme emerged revealing how the mobile technology paradox was shaped by the wider social environment in which participants worked. The quality of relationships they enjoyed with supervisors and coworkers, as well as the technology norms and expectations of colleagues, seemed to enhance the degree of autonomy and control they felt when using these devices. Many of the participants described very close, supportive and productive relationships with their manager or peers, something which is strongly aligned with the concept of high LMX or TMX. These positive relationships appeared to intensify the autonomy that participants derived from their technology usage. Participants described how

they were able to access the flexibility benefits of using the devices because of the trusting and close relationship they had with their supervisor. Cooperative relationships with peers also contributed to enhanced performance when using devices. I also noted how the absence of supportive relationships meant that participants suffered the worst excesses of intense mobile technology usage, including work overload and a lack of flexibility and empowerment.

While close and supportive relationships with supervisors and colleagues enhanced the autonomy side of the paradox, the social environment, in other ways, accentuated the control dimension. This was particularly evident from the technology norms cultivated by supervisors and coworkers, which framed expectations of digital availability and responsiveness. Feeling obliged to be responsive to the communications of colleagues, customers and suppliers, or to be available or "on call" after hours, was a common experience for participants. These expectations were not "directed" but rather socially learned from coworkers, reinforced and rewarded. However, adhering to these norms meant that the flexibility and freedom of participants were reduced. While the autonomy dimension of the paradox was diluted by these norms, the control side was strengthened. Technology norms encouraging speedy response times strengthened an already intensive work experience, while expectations of after-hours availability added to longer hours and work-life conflict.

Finally, interviews with my research participants provided some support for my proposition regarding the impact of mobile technology on employee wellbeing, outlined in the preliminary conceptual model. In line with the core theme of paradox, it was clear to me that mobile technology usage had both positive and negative implications for the wellbeing of my participants. The flexibility and performance benefits of devices were valued by some, who felt that mobile technology contributed to their level of job satisfaction. Yet, the high volume of communications across multiple channels, often simultaneously, was experienced as "exhausting" by some. Constant communications contributed to a more intensive work experience and reduced the amount of time and psychological focus available for families. Consequently, some of the participants experienced mobile technology as something which depleted their satisfaction.

In conclusion, the findings from the qualitative phase of this research provided strong support for the preliminary conceptual model outlined in the previous chapter. Importantly, the results further developed the conceptual model by adding another critical dimension: the role of the social environment in shaping the mobile technology paradox. Drawing then on the literature review outlined in Chapter 2 and the results of the exploratory study described here, a revised conceptual model of the mobile technology autonomy-control paradox will be presented in the next chapter.

4. Conceptual Model

In Chapter 2, I outlined the extant research on mobile technology, and then guided by this, I presented a preliminary conceptual model. An exploratory qualitative study was then undertaken, which provided a more in-depth understanding of the phenomenon and how it was experienced by my research participants. This added significantly to the conceptual model by highlighting the social context which shapes the paradox. In this chapter, I will outline a revised conceptual model building on the available literature, informed by findings from the qualitative phase of this research, and supported by relevant theoretical frameworks. This conceptual model will be tested in the quantitative phase of this research.

A revised conceptual model is outlined in Figure 4.1. The model is designed to answer the following research questions:

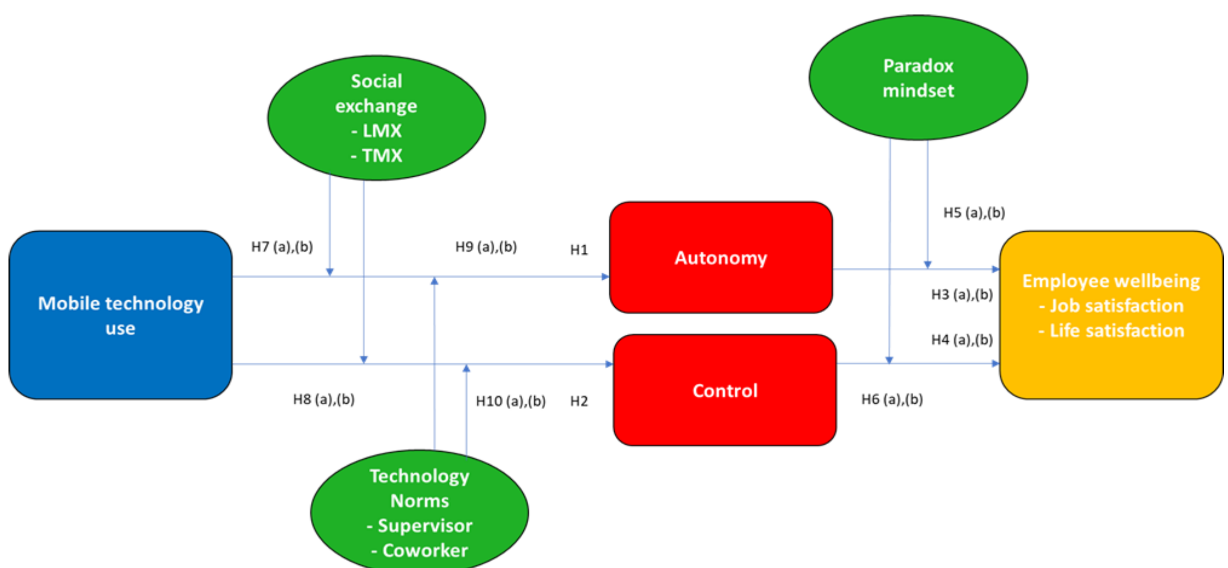
RQ1: How is mobile technology usage associated with the paradoxical outcomes of autonomy and control?

RQ2: How does the autonomy-control paradox impact employee wellbeing?

RQ3: How do social factors shape the impact of the autonomy-control paradox on employee wellbeing?

This conceptual model and its supporting hypotheses will be discussed in detail in the coming sections.

Figure 4.1
Revised Conceptual Model



4.1. The Autonomy-Control Paradox of Mobile Technology

4.1.1. Mobile Technology Usage

Researchers have used several methods to measure the extent of mobile technology usage (Ďuranová & Ohly, 2016). A common method is to record the frequency of usage (Ďuranová & Ohly, 2016). Participants in studies undertaken by Boswell and Olson-Buchanan (2007), Fenner and Renn (2010) and Chesley (2014) were asked how often they used mobile devices, either during the day or after hours. Scales typically ranged from "not at all" to "very often" or "always". An alternative method is to ask respondents to record the duration of their technology usage. Richardson and Thompson (2012), Ward and Steptoe-Warren (2014) and Fujimoto et al. (2016) use this method by asking participants how much time they had spent on these devices, either during their normal work hours or in the evenings. Another method is to ask respondents to record the extent or intensity of usage by utilising statements such as: "I use my smart phone intensively" (Derks & Bakker, 2014).

In this study, mobile technology usage is conceptualised as the extent of using mobile technology devices (smartphones, tablets and laptops) for work-related purposes. This includes usage during normal hours and outside of normal hours, such as in the evenings, on weekends or vacations. Using a similar approach to Richardson and Thompson (2012) and Ward and Steptoe-Warren (2014), this study measures mobile technology usage by recording both the frequency and duration of device use.

4.1.2. The Autonomy Side of the Paradox

The central thesis of the autonomy-control paradox is that mobile technology simultaneously enhances and restricts the freedom of workers. The autonomy dimension of the paradox is experienced through a combination of enhanced flexibility, job control and job performance.

According to Deci and Ryan (2000), autonomy is one of three innate human needs. In their self-determination theory, they argue that people are motivated to actively pursue autonomy, or the ability to self-organise, to satisfy their intrinsic needs. The attainment of autonomy, they suggest, leads to a state of wellbeing, while its absence results in "psychological costs" (Deci & Ryan, 2000, p. 248). Several scholars have theorised about the nature of autonomy in the workplace. Hackman and Oldham (1975) define job autonomy as "the degree to which the job provides substantial freedom, independence and discretion to the employee in scheduling the work and in determining the procedures to be used in carrying it out'' (p. 162). In their job characteristics theory, they state that job autonomy is one of five job dimensions which lead to motivation, job satisfaction and performance. Job autonomy, Hackman and Oldham suggest, leads to a "psychological state" (p. 160) in which people experience "responsibility for the outcomes of their work" (p. 162), resulting in higher job performance and job satisfaction. Breaugh (1985) extends the work of Hackman and

Oldham by explaining that autonomy should be conceptualised as the level of discretion workers exert over work methods and scheduling, and the criteria for performance evaluation. More recently, Morgeson and Humphrey's (2006) theory of job autonomy incorporates three dimensions: (1) work scheduling autonomy; (2) decision-making autonomy; and (3) work methods autonomy.

Extant research suggests that high levels of technology usage are positively related with perceptions of flexibility. Job autonomy (Breaugh,1985; Morgeson & Humphrey, 2006) is characterised by the degree of freedom that workers have over the location and timing of work. The autonomy enabled by mobile devices extends to a degree of flexibility over the scheduling and location of work. Mazmanian and colleagues' (2013) 'Autonomy Paradox' study shows how legal workers experienced a degree of "freedom" when using technology. Mobile devices placed decisions on when and where to work directly in their hands. Dery et al. (2014) also reveal how workers felt 'liberated' from the physical constraints of the office when using devices. This theme of temporal and locational flexibility is also present in a further qualitative study undertaken by Leclercq-Vandelannoitte et al. (2014), which describes how knowledge workers leveraged smartphones to "work from anywhere" and, therefore, also benefited from enhanced flexibility when using devices, allowing them to integrate family and work responsibilities. In one of the few available quantitative studies, Leung (2011) demonstrates a positive relationship between technology usage and perceptions of work flexibility. Furthermore, one third of participants in a study undertaken by Duxbury et al. (2014) agreed that mobile technology afforded them more freedom to decide where they conducted their work.

Aside from enabling flexibility for workers, mobile technology has also been associated with another defining element of autonomy, that of job control, or control over tasks and the work environment. For example, research participants in the "Autonomy Paradox" study (Mazmanian et al., 2013) gained a sense of control over their availability and workload by using Blackberry devices intensively. They would use these devices to monitor work, "buffer availability" and control communications with colleagues. Similarly, lawyers in Middleton's (2007) study reported a greater sense of control over their work and the ability to manage a demanding work environment when using mobile devices. Quantitative studies conducted by Fujimoto et al. (2016) and Román et al. (2018) also point to a positive link between mobile technology usage and job control.

Related to these themes of flexibility and job control, mobile technology is also regarded as a driver of productivity within organisations (Brynjolfsson, 1993). As outlined in Chapter 2, the relationship between mobile technology usage and enhanced job performance is a theme which emerges in the literature. Mobile technology can improve productivity by allowing employees to continuously monitor work and productively use commuting time (Schlachter et al., 2017). Meta-

analysis of telecommuting practices shows a positive impact on employee performance (Gajendran & Harrison, 2007). Brown and Palvia (2015) provide statistical evidence linking device usage to higher levels of employee productivity. Similarly, Chesley (2010) reports that regular users of mobile technology believed that they were more effective at work. While most of the literature points to a positive relationship between mobile technology usage and job performance, some studies suggest that it can also be dilutive. Studies undertaken by Gonzalez and Harris (2005) and Karr-Wisniewski and Lu (2010) highlight that phone calls, emails and texts are a source of interruptions for workers, distracting them from their primary tasks.

Participants in my research interviews used mobile technology to strengthen their job autonomy. Mobile devices allowed them to work at different times and from several locations, including at home, during their commute and in cafes, holiday homes and other third places. Job control was also enhanced by allowing participants to "get on top of things", monitor work, intervene quickly and prevent issues from escalating. Participants also described how mobile technology enhanced their performance by sharing information, quickly connecting with colleagues and customers, collaborating and multitasking.

Findings from my interviews add to the emerging literature which suggests that using mobile technology increases the autonomy of workers. It enables them to change the location and timing of work to suit their needs, allows them to exert control over work tasks, and contributes to heightened job performance. Taken together, this constitutes the "autonomy" side of the mobile technology paradox. Building on the empirical literature and the findings from my interviews, the following hypothesis is proposed:

H1: Mobile technology usage is positively associated with perceptions of autonomy.

4.1.3. The Control Side of the Paradox

As we have seen, mobile technology can enhance the autonomy of workers. Yet, it has also been linked with disempowering outcomes. This is the core of the mobile technology paradox, that usage simultaneously produces employee autonomy and enables management control. The control side of the paradox is experienced as a combination of work-life conflict and work intensification. Like autonomy, it is, therefore, conceptualised and measured as a higher-order construct in my proposed conceptual model. The first of these two sub-dimensions is the negative impact on the work-home interface. Mobile technology affords workers greater discretion to determine the scheduling and location of work. Job tasks that were previously conducted in the office can now be performed at home and outside of regular hours. While this may allow greater freedom to balance work and family demands (Wajcman et al., 2008), it also weakens the boundaries between work and home, making them more permeable (Valcour & Hunter, 2005).

Greenhaus and Beutell (1985) define work-family conflict as a “form of interrole conflict in which the role pressures from the work and family domains are mutually incompatible in some respect” (p. 77). Conflict can be time based, strain based or behaviour based. Frone et al. (1992) argue that work-life conflict is bi-directional, in that work can interfere with the family, but family can also interfere with work (p. 65).

Two of the most influential frameworks attempting to explain the interface between work and the home are boundary theory (Ashforth et al., 2000) and border theory (Clark, 2000). In boundary theory, Ashforth et al. (2000) describe the role transitions that people make as they move between the domains of work and home. These separate domains have their own cultures and are associated with specific roles, such as worker, parent or friend. The boundaries between these places can be based on time or location. Boundaries are “flexible” when they allow work to be conducted outside of typical temporal and locational settings. “Permeable” boundaries allow the role to be situated within one domain but psychologically involved in another (such as the worker who takes personal calls in the office).

Clark (2000) developed a similar framework called border theory in which she suggests that workers are regular “border crossers”, moving across the “lines of demarcation” between work and the home (p. 756). Like Ashforth et al. (2000), she notes that borders vary in terms of their strength, determined by the level of flexibility and permeability. Border flexibility and permeability can be influenced by workplace policies and norms. The preference of workers to either fully integrate work and home or totally segment them, and the spectrum in between, is also an important factor (Nippert-Eng, 2008). When a high level of flexibility and permeability exists, borders are relatively weak and allow the domains to blend into one another. This can create role conflict and negatively impact work-life balance.

Boundary and Border theories provide a useful lens to consider the impact of mobile technology on workers. Mobile devices enable boundaries to become more flexible by shifting the time and place of work (Valcour & Hunter, 2005). They also cause boundaries to be more permeable, for example, when users make the psychological shift from being a parent in the evening to being a worker responding to emails. Boundary and Border theories suggest that weaker boundaries have negative implications for work-life balance (Ashforth et al., 2000; Clark, 2000). Several studies highlight that work-life conflict and spillover are a direct consequence of intense mobile technology usage. According to Glavin and Schieman (2012), technology operates as a job demand by encouraging more contact outside of work. While technology created more schedule control for their study participants, this ultimately led to role blurring and work-to-home conflict. Similar findings can be found in the works of Fenner and Renn (2010) and Diaz et al. (2012), who highlight a positive relationship between communication technology usage and work-life conflict.

Workers also experience the control side of the mobile technology paradox through its second subdimension, that of work intensification, a phenomenon which involves working at increased speed, with a higher volume of tasks and multitasking. Work intensification has been linked with the computerisation of jobs (Green, 2004) and has implications for many professions (Selwyn et al., 2017). While work intensification can drive positive outcomes for organisations in terms of enhanced performance and productivity (Green, 1999; Lopes et al., 2014), it can have serious consequences for workers in terms of reduced job satisfaction (Brown, 2012; Green, 2004) and higher levels of stress (Paškvan et al., 2016). In a case study of Australian schools, for example, Selwyn et al. (2017) show how the introduction of a new digital management system resulted in longer hours, overwork and increased speed.

Scholars have started to consider the ways in which mobile technology can result in work intensification. Mobile devices allow workers to stay in constant contact with the office, without the need to ever “shut down” (Dery et al., 2014). When this contact is shaped by organisational norms encouraging constant availability and responsiveness, work intensification can be the result. Barley et al. (2011) demonstrate a strong association between the amount of time spent on email and feelings of overwork. Ayyagari and colleagues (2011) also find that constant connectivity increased the speed of work and led to feelings of work overload and strain. Similarly, Chesley (2010) finds that the frequency of ICT usage was related to perceptions of higher workload and a faster pace of work.

There was a clear link between the extent of mobile technology usage and the experience of both work-life conflict and work intensification for my research participants. Intense engagement with technology increased both the pace and volume of their work. The blurring of boundaries, particularly during the COVID-19 lockdowns, meant that work tasks could now easily spill over into their personal time, resulting in a longer working day, which limited the time available for family and friends.

Based on the existing literature and my qualitative findings, the following hypothesis is outlined:

H2: Mobile technology usage is positively associated with perceptions of control.

4.2. Mobile Technology Usage and Wellbeing

This section develops the expectation that wellbeing is impacted positively by the autonomy dimension of mobile technology and negatively by the control dimension. Furthermore, building on cognitive approaches to managing paradox (Miron-Spektor et al., 2018), I suggest that having a paradox mindset strengthens the positive impacts and buffers the negative ones.

4.2.1. Employee Wellbeing

According to Warr (1990), employee wellbeing can be considered along three dimensions: (1) psychological wellbeing, that is, satisfaction or dissatisfaction; (2) physical wellbeing; and (3) social wellbeing. Subjective or psychological wellbeing is a cognitive and emotional evaluation of how people feel about their jobs and life more generally (Ilies et al., 2015). The study of employee wellbeing has received heightened interest over the past two decades (Ilies et al., 2015; Loon et al., 2019). This is not surprising as employee wellbeing has serious implications for individuals, organisations and society more broadly (Guest, 2017; Johnson et al., 2020; Schulte & Vainio, 2010). Employee wellbeing has been linked with a range of physical and psychological conditions (Danna & Griffin,1999). For organisations, high levels of employee wellbeing have been associated with increased productivity, organisational citizenship, and reduced absenteeism, staff turnover and safety risks (Danna & Griffin,1999; Ilies et al., 2015). More broadly, of course, wellbeing has also been recognised as a critical factor in people's quality of life and, consequently, in the functioning of society (Danna & Griffin,1999; Ilies et al., 2015). Therefore, the OECD has established a range of indicators to measure the presence of strong wellbeing (Guest, 2017). Lower wellbeing carries significant costs for societies. According to the National Health Commission, the total cost of mental health to the Australian economy is approximately $60b each year (quoted in Johnson et al., 2020). The examination of employee wellbeing has taken on increased significance in recent years as the COVID-19 pandemic highlighted the serious impacts on employee workloads, job insecurity, disconnection from work and isolation (De-la-Calle-Durá & Rodríguez-Sánchez, 2021).

Scholars have provided many different definitions of employee wellbeing (Guest, 2017; Loon et al., 2019; Schulte & Vainio, 2010). However, commonly accepted is Waddell and Burton's (2006) definition that employee wellbeing is "the subjective state of being healthy, happy, contented, comfortable, and satisfied with one's life" (p. 4).

Various studies have examined the antecedents and consequences of employee wellbeing. Predictors include transformational and authentic leadership, meaningful work, autonomy, organisational support, HR practices, and emotional intelligence (Guest, 2017; Loon et al., 2019; Voorde et al., 2012). Outcomes of employee wellbeing are important both for individuals and organisations, and include job performance, organisational citizenship, and lower turnover and absenteeism rates (Ilies et al., 2015; Loon et al., 2019; Schulte & Vainio, 2010).

Changes in workplace technology can impact on the wellbeing of employees. Some changes can bring positive improvements for employees, such as the automation of boring or repetitive tasks, or in the case of mobile technology, the ability to work from home (Guest, 2017). However, technology can also contribute to lower levels of employee wellbeing. For example, Green (2004)

highlights how the introduction of new technologies in the 1980s and 1990s was accompanied by a large increase in levels of work intensification. More recent technologies such as self-service systems and artificial intelligence, which are intended to improve productivity, can lead to worker uncertainty and anxiety (Johnson et al., 2020).

Several theories of employee wellbeing have been advanced by scholars. Affective events theory (AET) was proposed by Weiss and Cropzano (1996). They argue that work events can result in positive affective outcomes, such as joy and happiness, or negative ones, including anger or sadness. These emotional responses, in turn, drive organisational citizenship or counterproductive behaviours. Therefore, they see events and emotional responses as structuring employee wellbeing positively or negatively. The Job Demands and Resources model (JD-R), which I have outlined previously, is one of the most widely used frameworks in explaining employee wellbeing (Ilies et al., 2017; Lesener et al., 2019; Schaufeli & Taris, 2014). Demerouti et al. (2001), and later Schaufeli and Bakker (2004), categorise the physical, social and organisational aspects of work as either job demands or job resources, both of which shape wellbeing. Job demands include workload, work pressure, emotional demands and role conflicts. By contrast, resources such as autonomy, flexibility and social support enable the achievement of job goals, reduce job demands and facilitate personal growth. Demerouti et al. (2001) and Schaufeli and Bakker (2004) suggest two processes by which job demands and such resources influence wellbeing. First, excessive job demands or a lack of resources eventually lead to stress and burnout. In a later version of the model, Schaufeli and Bakker (2004) also highlight that resources result in employee engagement. Therefore, wellbeing is a function of the balance of demands and resources (Guest, 2017). Second, job resources can buffer the negative impact of demands on stress or burnout. In particular, the social support provided by supervisors and colleagues appears to play a significant role as a moderating factor (Schaufeli et al., 2006). Therefore, the demands and resources which accompany jobs, whether at the role, social or organisational level, have significant implications for employee wellbeing.

Extant research has confirmed the usefulness of the JD-R model in investigating employee wellbeing (Schaufeli & Taris, 2014). A meta-analysis of 84 quantitative studies which leveraged the JD-R framework found that job resources were associated with employee wellbeing and job performance (Nielsen et al., 2017). An earlier meta-analysis conducted by Crawford (2010) produced similar results. As cross-sectional studies cannot confirm casual relationships, longitudinal studies of the JD-R model have also been conducted. Lesener and colleagues' (2019) meta-analysis of longitudinal studies again provides robust support for the JD-R framework.

Locke (1969) defines job satisfaction as "a pleasurable or positive emotional state resulting from the appraisal of one's job or job experience" (p. 316). A considerable body of research has

examined the antecedents of job satisfaction. Providing workers with autonomy, challenging and meaningful tasks and limiting workload appear to be key factors in sustaining job satisfaction (Rayton, 2006; Saari & Judge, 2004). In turn, job satisfaction can result in higher productivity, lower employee turnover, less absenteeism and greater life satisfaction (Morrison, 2008; Spector, 2008).

Veenhoven (1996) defines life satisfaction as “the degree to which an individual judges the overall quality of his life-as-a-whole favourably”. Life satisfaction, therefore, is an important indicator of the quality of one’s life. A range of work factors, including work intensity, work-life balance and autonomy, have been linked with life satisfaction (Erdogan et al., 2012; Fein et al., 2017; Haar et al., 2014; Kossek & Ozeki, 1998; Valcour & Hunter, 2005). As with job satisfaction, it can produce positive outcomes, including higher levels of performance (Erdogan et al., 2012; Warr,1990). While job satisfaction has featured prominently in management research, life satisfaction has received considerably less attention (Erdogan et al., 2012). However, both wellbeing measures are closely linked. While the classic view is that job satisfaction influences life satisfaction, it is possible that the relationship is bi-directional, with happiness at work influencing happiness at home and vice versa (Erdogan et al., 2012; Warr,1990).

4.2.2. Paradox, Job and Life Satisfaction

The JD-R model (Demerouti et al., 2001) provides a useful framework to consider the impact of mobile technology usage on employees’ psychological wellbeing. I propose that mobile technology acts as a job “resource” by enabling autonomy and flexibility but paradoxically also a job “demand” in terms of work pressure and information overload (Ter Hoeven & van Zoonen, 2015). The few available studies which have explored this topic suggest that technology usage can have both an indirect positive and negative effect on job satisfaction. Nam (2013) find that workers with a preference for work-life integration enjoyed higher levels of job satisfaction when using mobile technology as it enabled work flexibility. Limbu et al. (2014) highlight a link between technology use, productivity and job satisfaction. The sales professionals in Román and colleagues’ (2018) study were able to use devices to gain more job control, which reduced stress and increased their satisfaction. During my interviews, several of the participants reflected on the impact that using mobile technology had on their job satisfaction. Participants spoke of the usefulness of the technology in getting their job done and enhancing productivity. The flexibility to work in different places and at different times was also recognised as a factor which contributed to a positive assessment of wellbeing.

Looking beyond the limited mobile technology research, a substantial body of literature suggests that job “resources” such as flexibility and autonomy are positively related to job satisfaction (Gajendran & Harrison, 2007; Scandura & Lankau, 1997). I have been unable to identify any extant literature which examines the association between mobile technology usage and life satisfaction.

However, the broader research suggests that a linkage is highly likely. Work is an important source of life satisfaction. It provides meaningful tasks, financial security, interpersonal relationships, feelings of competence and autonomy (Erdogan et al., 2012). Several studies highlight that autonomy and decision-making latitude are antecedents of life satisfaction (Day & Jriege, 2002; De Cuyper et al., 2009; Rau, 2006).

The literature, then, on both job and life satisfaction provides us with some useful signposts on the likely impact of mobile technology on employee wellbeing. I propose that the empowering outcomes flowing from mobile technology usage (including job control, flexibility and performance) contribute to higher levels of both job and life satisfaction. Applying JD-R theory and building on the limited available literature, the following hypotheses will be tested:

> *H3 (a), (b): Mobile technology usage is positively associated with (a) job satisfaction and (b) life satisfaction when mediated by perceptions of autonomy.*

Mobile technology not only produces paradoxical outcomes of autonomy and control, it also has a paradoxical impact on employee wellbeing, that is, both enhanced and reduced job and life satisfaction. As I outlined in the last chapter, my research participants also drew attention to the negative impact of mobile technology usage on their wellbeing. Terms such as “exhausting”, “addictive” and “relentless” were used to describe their experiences. A constant flood of emails, texts and notifications, underpinned by a culture which encouraged availability and responsiveness, led to an intensified pace and volume of work, which for some, diminished their enjoyment of their jobs. This also had implications for interviewees’ lives more broadly, as longer working hours created conflict disrupting family life. These findings add to the very limited available research on mobile technology usage and psychological wellbeing of employees. For example, Wright and colleagues’ (2014) quantitative study, referred to earlier, also shows that work-life conflict resulting from higher levels of connectivity erodes job satisfaction. Quite surprisingly, this has not been investigated further in subsequent studies. Moreover, the negative impact of mobile technology usage on the broader wellbeing measure of life satisfaction has not been considered. Once again though, we can take some cues from the wider literature on employee wellbeing. Several studies highlight that work-life conflict and work overload are associated with diminished life satisfaction (Erdogan et al., 2012). Kossek and Ozeki's (1998) meta-analysis of 32 studies reveals that work-family conflict led to lower job and life satisfaction. Similar results were produced by Amstad et al. (2011). The absence of this conflict, in other words work-life balance, has been shown to improve satisfaction with life (Haar et al., 2014). Work intensification and overload also have negative consequences for life satisfaction. Boekhorst et al. (2017) show that higher levels of work intensity led to emotional exhaustion, which reduced life satisfaction. Yildirim and Aycan's (2008) study shows that nurses who experienced work overload

had lower levels of both job and life satisfaction as a result. This linkage between work intensification and lower life satisfaction is also highlighted in empirical research conducted by Fein et al. (2017).

The wellbeing literature then confirms that job resources can promote job and life satisfaction while demands can detract from it. Mobile technology is an increasingly significant resource and demand, and its paradoxical impact on employee wellbeing, therefore, requires deeper examination beyond the limited studies that have been produced. Building on the JD-R framework and the employee wellbeing literature the following hypothesis will be tested.

> *H4 (a), (b): Mobile technology usage is negatively associated with (a) job satisfaction and (b) life satisfaction when mediated by perceptions of control.*

The two previous hypotheses suggest a linear relationship between mobile technology usage and employee wellbeing when mediated by the experience of autonomy and control. It is, of course, also possible that these relationships may be non-linear. For example, there may be a limit on the positive contribution that mobile technology-enabled flexibility can add to job and life satisfaction. Moreover, too much flexibility may damage the wellbeing of those looking for some structure in their roles. While remaining open to the possibility of non-linear relationships, the weight of previous research findings examining the impact of job characteristics on job and life satisfaction suggests linear paths; therefore, this is reflected in my hypotheses.

4.2.3. Paradox Mindset as a Moderator

Paradox literature highlights how organisations and individuals respond to and manage tensions. The tensions underlying paradoxes can lead to anxiety and uncertainty, as paradox challenges the natural desire for order and consistency (Ingram et al., 2016; Lewis, 2000; Schad et al., 2016). Lewis (2000) categorises six defensive responses that flow from the anxiety associated with these tensions: splitting; projection; repression; regression; reaction formation; and ambivalence. These defensive reactions provide short-term relief from anxiety or discomfort but can intensify the tension over time. Smith and Lewis's (2011) Dynamic Equilibrium Model, outlined in Chapter 2, highlights how these tensions can provoke defensive reactions from individuals and organisations. Individuals tend to prefer certainty and consistency. When faced with contradictions, they can react defensively, with confusion, anger, frustration, denial, depression and other negative emotions (Smith & Lewis, 2011). The tensions that underpin paradox, therefore, carry an emotional load for individuals, which can diminish their wellbeing. Classic psychology theorists, such as Freud and Jung, note that tensions and contradictions lead to defensive reactions and negative emotions such as frustration and anxiety (Schad et al., 2016).

While individuals can react defensively to paradox, acceptance may be a more useful strategy. Poole and Van De Ven (1989) suggest that individuals and organisations can accept paradox and use it constructively. Lewis (2000) also highlights three positive alternatives: acceptance, confrontation and transcendence. An emerging body of literature highlights how cognitive approaches to managing paradox can produce positive outcomes, including enhanced leadership (Zhang & Han, 2019; Zhang et al., 2015); innovation (Ingram et al., 2016) and performance (Miron-Spektor et al., 2018; Zhang et al., 2015). Miron-Spektor et al. (2011) describe paradoxical frames as "mental templates individuals use to embrace seemingly contradictory statements or dimensions of a task or situation" (p. 229). Paradoxical frames allow individuals to choose "both/and" thinking, see the links between opposing elements and generate new ideas. In laboratory studies, they found that participants who approached problems with a paradoxical frame demonstrated more complex thinking, which increased exploration and enabled creative outcomes. Building on earlier cognitive approaches, Miron-Spektor et al. (2018) define paradox mindset as "the extent to which one is accepting of and energized by tensions" (p. 26). They argued that individuals who understand the interconnectedness of paradox learn to embrace it and manage it in a more productive way. A paradox mindset allows people to feel comfortable with tensions and seek integrative "both/and" strategies to manage them. For example, being the best individual performer and a great team player is an obvious tension. However, those with a paradox mindset understand that these two competing demands are interrelated and can facilitate one another.

Miron-Spektor et al. (2018) examine the paradox mindset in the context of a consumer products organisation managing the paradox of in-role performance and innovation. Supporting their hypothesis, Miron-Spektor et al. find that time scarcity exacerbates the tension between performance and innovation. However, a paradox mindset moderates the impact of these tensions on performance and innovation. As a result, workers with a paradox mindset experienced higher levels of both performance and innovation. According to Miron-Spektor et al. (2018), "an acceptance of paradoxes can lower the negative emotional impact of paradoxical tension and can even turn a negative situation into a positive situation" (p. 78).

Only a handful of studies have examined the paradox mindset. Zheng et al. (2018) propose that adopting a paradox mindset would allow female leaders to manage agency-communion tensions, resulting in improved leadership performance and the resilience of followers. Sleesman (2019) examines the paradox mindset in "escalation of commitment" scenarios, that is, the tension between stopping or continuing a failing course of action. They find that those with a paradox mindset will optimistically push forward and escalate their commitment. This is the first study to demonstrate a link between the paradox mindset and optimism. Liu and Zhang (2020) find a positive association between the paradox mindset and thriving at work as well as innovative work

behaviour. This association with thriving at work is important as it again reinforces previous research that those with a paradox mindset tend to experience more positive emotions. Boemelburg et al. (2020) demonstrate that paradoxical leadership is a key antecedent of the paradox mindset. Furthermore, engaging in paradox tasks strengthens this mindset over time.

Therefore, an emerging theme in the literature suggests that a paradox mindset may be an effective way of overcoming the tensions associated with paradox. I argue that a paradox mindset is a useful cognitive tool to enhance the positive wellbeing outcomes and alleviate the negative wellbeing outcomes which flow from the mobile technology paradox. Users of mobile technology experience an obvious contradiction in that the technology improves their sense of autonomy while at the same time eroding it. Cognition can play an important role in overcoming this paradox of technology usage. Those with a paradox mindset can "live with" and "work through" tensions (Aust et al., 2015). I propose that workers with a paradox mindset are more likely to see the interconnectedness of autonomy and control that results from mobile technology usage. For example, they may understand and accept that there is a relationship between the affordance of "working anywhere" and the unintended consequence of work spilling into the home and personal time. I am reminded of my interview with David (Product Manager), who spoke of the tension between the flexibility which mobile devices provided and the accompanying requirement to work after hours. David recognised this contradiction but accepted it as a reasonable "quid pro quo".

Individuals with a paradox mindset are more comfortable with tensions and look for ways to manage them. As a paradox mindset is an important coping mechanism which relieves the anxiety associated with contradictions (Zheng et al., 2018), it may play a useful role in allowing mobile technology users to manage the autonomy-control paradox in ways which lead to stronger wellbeing outcomes. Therefore, I propose that having a paradox mindset allows users of mobile technology to better harvest the positive wellbeing outcomes of mobile technology usage. Furthermore, I also propose that a paradox mindset is a coping mechanism buffering the negative wellbeing outcomes. These expectations are stated as follows:

> *H5 (a) and (b): Paradox mindset strengthens the positive association between mobile technology usage and (a) job satisfaction and (b) life satisfaction when mediated by perceptions of autonomy.*

> *H6 (a) and (b): Paradox mindset weakens the negative association between mobile technology usage and (a) job satisfaction and (b) life satisfaction when mediated by perceptions of control.*

4.3. Social Structuring, the Paradox and Employee Wellbeing

Thus far, my conceptual model has proposed the existence of a mobile technology-enabled autonomy-control paradox, which has positive and negative implications for employee wellbeing. The final part of my conceptual model investigates the social context of mobile technology usage, and in particular, how interactions with supervisors and colleagues can shape the impact of the autonomy-control paradox on employee wellbeing. Theories of sociomateriality (Orlikowski, 1992; Orlikowski & Scott, 2008) draw our attention to the ways in which the material features of technology combine with the social and cultural environment to influence behaviours and outcomes. Sociomateriality was intended as a rebuff to deterministic theories stating that technology alone was responsible for outcomes such as productivity or work overload. An example of this can be found in email usage. A key feature of an Apple iPhone is that emails can be sent from many locations outside of the office. Yet, a user's decision to send a late-night work email from home, while enabled by this feature, is influenced by broader social and cultural factors including workload, the expectations of supervisors and colleagues or the "long work hours" culture of the organisation. In this way, the material properties of the technology combine with social factors to shape how, when and where devices are used and the benefits or costs that are extracted.

Barley et al. (2011) note that social forces play a critical role in structuring people's technology use. However, they also emphasise that "a shortcoming of most research on communication technologies and stress is inadequate attention to social and cultural dynamics" (p. 889).

This study explores two ways in which the social context of work shapes the impact of the autonomy-control paradox on employee wellbeing. First, I examine how positive and close working relationships with supervisors and coworkers can interact with both sides of the paradox. I then focus on how the technology behaviours and norms demonstrated by leaders and colleagues can structure both autonomy and control and ultimately influence job and life satisfaction.

4.3.1. Social Exchange (LMX and TMX), the Mobile Technology Paradox and Wellbeing

As I outlined in Chapter 3, LMX is a measure of the quality of a relationship between a leader and a follower. Dienesch and Liden (1986) theorise that leaders have unequal relationships with their followers. Some workers enjoy a close relationship (high LMX), where they receive higher levels of information, support and other resources in exchange for high performance. However, those with lower levels of LMX form an "out group" and experience a more transactional relationship with their leader.

High-quality relationships with leaders have been associated with many employee outcomes featured in the literature on mobile technology, such as autonomy, flexibility, productivity, work-

life integration and work overload. Considering that LMX is recognised as an important resource which can enable worker autonomy, it is surprising that the technology literature has not examined whether LMX may shape the paradoxical outcomes flowing from device usage. In fact, just one study (Harris et al., 2015) considers the role of LMX in the context of technology-enabled work-life conflict, and it produces some contradictory results.

However, this theme of leadership and how it intersects with technology usage was evident in the interviews I conducted during the qualitative phase of this research. For the most part, interviewees described close, supportive and productive relationships with their supervisors, which would be considered the hallmarks of high LMX. Such positive relationships appeared to strengthen the degree of autonomy these workers gained from using technology. For example, participants outlined how they were able to take advantage of the flexibility afforded by devices because of the trusting relationship they had with their supervisor.

While relationships with supervisors play a critical role in shaping our work experiences, interactions with coworkers are also very important (Banks et al. 2014; Chen, 2018; Seers,1989; Tse & Dasborough, 2008). Closely related to LMX is the construct of TMX or team–member exchange, which was developed by Seers (1989). As I outlined in Chapter 3, TMX was adapted from LMX as a measure of the quality of the relationship one has with coworkers (Banks et al., 2014). Seers argues that reciprocal relationships are formed not only with one's supervisor but with peers as well. High TMX relationships are characterised by trust, respect, support and appreciation (Chen, 2018). While LMX measures the relationship with one's supervisor, TMX measures the relationship with the team as a whole (Omilion-Hodges et al., 2016).

Research on TMX is quite sparse and the construct has not received anywhere near the same level of empirical examination as LMX (Chen, 2018; Sherony & Green, 2002). However, several studies demonstrate higher levels of TMX may be beneficial for employees and produce positive outcomes. For example, studies undertaken by Liden et al. (2000), Chen and Klimoski, (2003) and Schermuly and Meyer (2016) all highlight the positive relationship between psychological empowerment and TMX. There is also support for Seers' (1989) proposition that workers who enjoy closer relationships with colleagues are more effective in their jobs. This link between the coworker social exchange and job performance is highlighted in studies by Liden et al. (2000), Banks et al. (2014) and Olya and Ki (2018). TMX is conceptually close to the construct of coworker support. The literature on coworker support aligns with the limited research available on TMX, by confirming that autonomy and job performance are enhanced when workers experience supportive relationships with their colleagues (Baruch-Feldman et al., 2002; Choi et al., 2011; AbuAlRub, 2004; Luchman & González-Morales, 2013; Van Mierlo et al., 2006).

I argue that in high LMX and TMX relationships, the support and other resources provided by colleagues can strengthen the autonomy benefits associated with mobile technology use, resulting in higher levels of job and life satisfaction. Furthermore, these same resources can buffer the control side of the mobile technology paradox, reducing the negative impact on employee wellbeing.

The Job Demands Resources (JD-R) model is a useful theoretical framework to explore the role that leaders and coworkers can play in shaping the outcomes of technology use. As I highlighted earlier, in JD-R theory, Demerouti et al. (2001) suggest that working conditions can be described as either job "demands" or "resources". Job demands include factors such as time pressure, workload or other environmental factors, which require significant effort on the part of employees and can result in exhaustion and burnout. By contrast, job resources are those conditions leading to the attainment of job tasks and personal development, or which limit job demands. Job resources include job control, participation in decision making, rewards and recognition or career opportunities. Demerouti et al. posit that job demands will, over time, lead to exhaustion and stress, while a lack of job resources results in disengagement from work. Importantly, support from one's leader and colleagues is a useful resource for workers, which can contribute to positive outcomes or alleviate the impact of work demands.

Building on JD-R theory, I propose that LMX and TMX act as resources that can help workers benefit from the empowering aspects of mobile technology, resulting in higher levels of job and life satisfaction. Furthermore, social exchanges with supervisors and colleagues can also assist in reducing the control side of the mobile technology paradox and, therefore, buffer the negative impact on job and life satisfaction.

4.3.1.1 LMX and TMX Can Strengthen the Autonomy Dimension of the Mobile Technology Paradox and Positive Impacts on Wellbeing

There is considerable reason to believe that the experience of autonomy enabled by mobile device use will be further strengthened by the presence of LMX. According to JD-R theory (Demerouti et al., 2001), supervisor support is an important resource which can contribute to positive outcomes for workers. In high LMX relationships, workers tend to be given more responsibility, are more involved in decisions and receive more emotional support, all of which contribute to their perception of autonomy (Liden et al., 2000; Sparr, & Sonnentag, 2008). Studies also show that supportive supervisors can afford workers direct control over where, when and how to work, which has positive implications for managing work-family integration (Thompson & Prottas, 2006; Warner & Hausdorf, 2009).

However, the relationship between LMX, autonomy and wellbeing has not yet been considered in the context of mobile technology. Mobile technology can increase the temporal and locational

flexibility of workers and enhance their sense of control over tasks and the flow of work (Mazmanian et al., 2013; Middleton, 2007; Román et al., 2018). Having a supportive supervisor who enables followers to work "anytime and anywhere" is likely to enhance the experience of autonomy associated with device usage. The corollary, of course, is that an unsupportive supervisor may actively restrict a subordinate from working flexibly and, therefore, throttle the autonomy benefit of mobile device usage. Both scenarios have implications for job and life satisfaction.

Using mobile technology can also strengthen workers' performance by allowing them to monitor and respond to work issues, stay informed, collaborate with colleagues, share information, and enlist the support of others. Here again, there is an important link with LMX as research highlights a positive relationship between leader relationship quality and follower performance (Dulebohn et al., 2012; Graen & Uhl-Bien, 1995). In high LMX relationships, leaders offer more support, information and task challenge (Zhou et al., 2012). In return for this preferential treatment, subordinates feel a degree of obligation and reciprocity, which can result in higher levels of performance and contribution (Martin et al., 2016). Furthermore, these relationships are characterised by mutual respect and affection, which can also engender higher performance (Sepdiningtyas & Santoso, 2017). Finally, in closer relationships, leaders provide more feedback and advice to followers, which can improve their contributions (Zhou et al., 2012). I propose that when mobile technology is used in an environment of strong support from one's leader, the relationship between technology use and performance is likely to be stronger as all parties have a vested interest in achieving this positive outcome. This strengthened relationship between mobile technology usage and performance will ultimately be associated with higher levels of job and life satisfaction as a result.

Turning to coworkers, I propose that positive exchanges with peers or TMX will interact with the autonomy side of the mobile technology paradox in much the same way that LMX does. I argue that high TMX will further strengthen the autonomy benefits of mobile technology usage with positive implications for wellbeing. A central hypothesis of this study is that mobile technology allows workers to alter the timing and place of work, contributing to their sense of flexibility and autonomy. Of course, when workers are required to interact closely with peers to share information and resources and complete tasks, they are somewhat dependent on their cooperation in the enactment of this flexibility. Coworkers can provide important emotional support to peers as they decide to use technology to work from home, have a late start in the morning, or indeed switch technology off for a few hours while they look after children.

Aside from the emotional support, coworkers may also provide more instrumental support by "covering" for them during periods when workers require some flexibility. By contrast, when social

exchanges with coworkers are low, workers will experience less support and feel less able to benefit from the sense of autonomy or flexibility that technology provides. For example, colleagues may have an expectation that they can "see" their peers at all times and, therefore, may be critical of those who vary their hours. Unsupportive coworkers may be dismissive of those who rely on technology to work from home, perhaps regarding it as a form of "loafing" (Monzani et al., 2014).

Supportive coworkers can also allow colleagues to further exploit the performance benefits of mobile technology usage, leading to higher levels of wellbeing. I have previously outlined the important relationship between mobile technology usage and perceptions of individual job performance (Brown & Palvia, 2015; Chesley, 2010; Towers et al., 2005). Mobile technology allows workers to stay in touch with colleagues, share information and provide assistance and cooperation. Research has shown that social support from colleagues can enhance job performance through the provision of information, direct assistance with tasks, and psychological support. Putting these two factors together, I propose that when workers operate in a highly supportive environment, they are better placed to extract the performance benefits of mobile technology, which can, in turn, amplify the resulting improvements to job and life satisfaction. Of course, when colleagues are unsupportive or unwilling to share information, provide timely updates or help with tasks, mobile technology cannot fully deliver its performance-enhancing features.

The quality of relationships in the workplace, both with supervisors and coworkers, are, therefore, an important contextual factor which shapes the autonomy side of the mobile technology paradox and the positive wellbeing outcomes flowing from it. The higher-order construct of autonomy comprised of flexibility, job control and performance is stronger in supportive environments where workers benefit from higher LMX and TMX. Consequently, LMX and TMX are proposed as moderators of the relationship between mobile device usage and job and life satisfaction when mediated by autonomy. In other words, workers in high LMX and TMX relationships are better positioned to extract the autonomy benefits of mobile technology usage leading to improved job and life satisfaction. Therefore, the following hypotheses will be tested:

> *H7 (a) and (b): LMX/TMX strengthens the positive association between mobile technology usage and (a) job satisfaction and (b) life satisfaction when mediated by perceptions of autonomy.*

4.3.1.2 LMX and TMX Can Weaken the Control Dimension of the Mobile Technology Paradox and Negative Impacts on Wellbeing

The tension between empowerment and control is at the core of the mobile technology paradox. The control dimension comes in two forms. Mobile technology enables temporal and spatial flexibility at work. Yet, this flexibility results in more permeable work/home boundaries, which

leads to spillover and conflict. As Mazmanian et al. (2013) note, the freedom to work "anywhere and anytime" can become "everywhere" and "all of the time" (p. 1338). The other dimension of mobile technology-related control is experienced as work intensification, which refers to feelings of overload and the faster pace of work. Using mobile devices strengthens flexibility, job control and performance at work through enhanced communication, management of information and connection with colleagues. However, this enhanced connectivity often leads to increased workload combined with expectations of speed. Consequently, the control side of the mobile technology paradox compromises employee wellbeing by reducing job and life satisfaction. This research examines the possibility that the relationship quality between leader and coworker acts as a resource which buffers the control outcomes flowing from mobile technology usage and, in doing so, moderates the reductions in employee wellbeing.

According to JD-R theory (Demerouti et al., 2001), the support provided by leaders acts as a resource that can be leveraged to manage the negative impact of work demands. In high LMX relationships, supervisors provide resources to subordinates in exchange for their productivity (Litano et al., 2016). These resources include flexibility of place and time of work, advice and practical assistance in completing tasks. Such support allows subordinates to manage their workload in ways which reduce the impact on the work-home interface. Leaders can also reduce the amount of work pressure experienced by followers, which alleviates the experience of work-life conflict (Tummers & Bronkhorst, 2014). A meta-analysis of 52 studies conducted by Litano et al. (2016) shows that LMX has a large negative relationship with work interference in family life. Studies of supportive supervisors also highlight the role they can play in reducing the impact on work-life conflict (Dolcos & Daley, 2009; Goh et al., 2015; Kossek et al., 2014).

The JD-R model also tells us that support from coworkers can be an additional resource which moderates the negative outcomes of work, particularly stress, burnout and feelings of overload. Extant research suggests that coworker support has similar benefits to that provided by leaders. For example, in a meta-analysis of 161 samples, Chiaburu and Harrison (2008) reveal that workers with a high measure of social support experience lower levels of work overload. Support from peers can also be leveraged to help improve the work-home interface. It can ease the spillover of work into the home and lower the incidence of work-life interference (Dolcos & Daley, 2009; Frone et al., 1997).

As I have outlined in this chapter, after-hours mobile technology usage can lead to work-life conflict (Diaz et al., 2012; Fenner & Renn, 2010; Glavin & Schieman, 2012). However, supervisor support can change the work environment or at least the perception of it (Liu, 2010). I suggest that in high LMX relationships, the instrumental or emotional support provided by leaders can reduce technology-related work-life conflict and suppress the negative impacts on job and life

satisfaction. Instrumental support could take several forms. Supervisors can provide flexibility in the location and timing of work, reduce after-hours emails or lower their expectations of email responsiveness. Emotional support, such as praise, encouragement, listening or simply acknowledging a subordinate's family circumstances, may also enable workers to better cope with after-hours work, thereby lowering the perception of work-life conflict.

Moreover, I propose that support from colleagues can also act to reduce the experience of work-life conflict, which results from after-hours mobile technology usage. This can unfold in several ways. First, when flexible working enabled by mobile devices is supported by colleagues, it is likely to ease the pressure on the work-home interface as workers have more freedom to juggle work and family responsibilities in a way that best meets their needs. Furthermore, practical support to assist with tasks during the working day will limit the spillover of work into evenings and weekends. Emotional support from coworkers, which on its own will not alleviate the workload, will at least provide an important psychological boost, which can positively impact the perception of work-life conflict. Finally, a more indirect influence is that social support also eases the impact of mobile technology-induced work overload and intensification, which are known to act as antecedents of work-life conflict. When positive support provided in high LMX and TMX relationships lowers the work-life conflict emanating from mobile technology usage, the negative impact on employee wellbeing will also be lower.

Aside from work-life conflict, LMX can also play a role in reducing other negative outcomes for workers, including work overload, stress and burnout (Frone et al., 1997; Morganson et al., 2017; Thomas & Lankau, 2009). Therefore, it is likely to act as a buffer against the work intensity associated with high levels of mobile technology usage. Through the JD-R model, we know that social support is an important resource which can buffer some of the negative experiences at work. For example, LMX has been associated with lower perceptions of work pressure (Tummers & Bronkhorst, 2014) as workers feel valued and supported. Supervisor support can also lower work demands (Luchman & González-Morales, 2013) and workload (Warner & Hausdorf, 2009) by giving advice and feedback, extending deadlines or mobilising resources. In the context of technology usage, leaders in high LMX relationships may provide instrumental support by lowering their expectations of email responsiveness or provide advice and guidance on how to manage a large volume of electronic communications (Harris et al., 2015). Psychological support may also be provided through listening and displaying empathy, which can improve how well followers cope with high volumes of work. By contrast, in low LMX relationships, where exchanges between leaders and followers are more formal and transactional, subordinates lack this additional support to manage the demands of intense electronic connectivity. This is likely to further deepen the negative impact of mobile technology on job and life satisfaction.

The moderating influence of LMX on mobile technology-enabled work intensification has not been tested in the literature. However, related studies provide some interesting signposts. For example, Salanova et al. (2013) found that supervisor and coworker support reduced the experience of technostress when using ICT. Similarly, burnout associated with smartphone usage can be lower in settings where social support is experienced (Park et al., 2020).

As outlined earlier, the extant literature demonstrates that strong social support from colleagues can improve the work-home interface and moderate the experience of stress and overload. Therefore, coworker support is important when considering those contextual factors which shape the control side of the mobile technology paradox. A small number of studies have started to explore this line of inquiry. For example, Salanova and colleagues' (2015) exploration of the concept of technostress highlights that this condition is lower in environments of strong support from coworkers. More recently, Park et al. (2020) have identified that smartphone use after hours can result in burnout. However, they find this is moderated by support from supervisors and peers, particularly in unfair political environments. Therefore, it seems likely that the instrumental and emotional support provided by colleagues, which can accentuate the performance and autonomy benefits of mobile technology, can also act to suppress or lower the control dimension of the paradox and, consequently, reduce the negative impact on job and life satisfaction. For example, colleagues can empathise with workers with overflowing inboxes, offer assistance to complete tasks, provide practical advice or mentoring, or help to prioritise tasks. This support can reduce the perception of overload, work pressure and accelerated pace brought on by large volumes of technology-mediated work.

Turning to my own qualitative research, I found some examples to suggest that participants who enjoyed close and supportive relationships with their leaders were spared some of the worst excesses of mobile technology control. For example, several leaders encouraged employees to leverage the flexibility benefits of mobile technology devices as a way of reducing the potential of work-life conflict. During the COVID-19 pandemic, leaders in TechCo displayed an awareness of the increased spillover of work into the home and the increased risk of burnout and exhaustion. They were also concerned with the level of fatigue experienced when their teams were engaged in back-to-back videoconferences. Therefore, senior leaders took proactive steps to protect employee wellbeing, such as implementing ad-hoc half days and an email ban on weekends.

In summary, LMX and TMX are resources which not only shape the autonomy side of the paradox but also influence the control side and, therefore, the extent of the negative outcomes flowing from it. The effect of mobile technology usage on control, comprising work-life conflict and work intensity, is weaker in supportive environments where workers benefit from higher LMX and TMX. Consequently, LMX and TMX are proposed as resources which moderate the relationship

between mobile device usage and job and life satisfaction when mediated by control. In other words, workers in high LMX and TMX relationships are better protected from the control effects of mobile technology usage, thereby suppressing reductions to job and life satisfaction. Based on JD-R, social exchange theories and the extant empirical findings, the following expectation is stated:

> *H8 (a) and (b): LMX/TMX weakens the negative association between mobile technology usage and (a) job satisfaction and (b) life satisfaction when mediated by perceptions of control.*

4.3.2. Technology Norms, the Mobile Technology Paradox and Wellbeing

In the last section, I proposed that social exchanges with supervisors and coworkers acted as a resource which accentuates the autonomy side of the mobile technology paradox and shapes the wellbeing outcomes. However, behaviours of colleagues can also influence workers' experience of technology in negative ways, which actually strengthens the control side of the paradox. In particular, researchers have started to examine how workplace norms can shape both technology use and the outcomes flowing from it. Intense engagement with communications technology in organisations can reflect and sustain an organisational culture where long hours, 24/7 availability, and overwork are regarded as the norm. High levels of after-hours technology usage typically happen in organisations which embrace a "long hours culture" (Schlachter et al., 2017). Mazmanian and colleagues' (2013) study of a professional services firm describes how intense Blackberry usage was supported by shared assumptions regarding accessibility and responsiveness outside of normal working hours. In this organisation, it was assumed that everyone was reachable at all times. The constant checking and responding to emails served to reinforce these expectations, which further strengthened an intense engagement with work. Similarly, Middleton (2007) reveals how a "culture of hours", a "culture of performance" and a "culture of delivery" (p. 171) shapes Blackberry usage around the values of immediacy and responsiveness, which ultimately leads to intense work engagement and overload.

Social and cultural norms are often learned from supervisors and coworkers. In their theory of Reasoned Action, Fishbein and Ajzen (1975) highlight the influence of social norms on behaviour. They define subjective norms as "a person's perception that most people who are important to him think he should or should not perform the behavior in question" (p. 302). Bandurra (1977) theorises that learning is a social phenomenon: people learn behaviour from one another through direct observation, imitation and role modelling. In the work environment, people will mimic the behaviour of "social referents" (such as supervisors and colleagues) where they assess this behaviour to be successful and rewarded.

Recent research on the normative context of mobile technology usage has primarily focused on the idea that certain workplace norms determine the extent of usage. Norms of 24/7 availability, responsiveness and accessibility are treated as antecedents of after-hours communications technology usage. Several studies have examined how social norms influence workers to remain connected in the evenings. For example, a quantitative study undertaken by Richardson and Benbunan-Fich (2011) shows that subjective norms act as a predictor of laptop usage at night. Fenner and Renn (2010) also find that a "psychological climate" (p. 76), including norms, rewards and organisational goals, exerts a degree of social pressure on workers to engage in "technology-assisted supplemental work". However, contrary to their expectations, Adkins and Premeaux (2014) find that organisational norms were not antecedents of after-hours work connectivity.

The emerging research on social norms and mobile technology appears to have two principal shortcomings. First, limited attention has been given to how these workplace norms can shape the paradoxical outcomes of device usage, such as job control or work-life conflict, and in turn, how they influence wellbeing consequences for workers. This is an interesting avenue of further research that would advance the available body of knowledge regarding the impact of this technology within organisations. Second, the emerging literature has made little effort to distinguish between the norms set by leaders and those set by coworkers. Social norms established by leaders will have a significant impact on their followers. Leaders can have a profound effect on the workplace experience of employees as they determine workloads, give direction, provide feedback, approve salary increases, and influence career advancement (Skakon et al., 2010). Therefore, the weight that workers place on the norms established by their direct supervisor is likely to be significant. Indeed, workers may respond quickly to an evening email from their leader to demonstrate their proficiency, availability or loyalty; to further strengthen their relationship; to receive favourable treatment or avoid harsh treatment; or simply because they like or perhaps even fear their leader (Mazmanian, 2006; Paczkowski & Kuruzovich, 2016). However, norms cultivated by coworkers are also significant and can influence the behaviour of peers who want to enhance their reputations, "fit in" with teams, maintain friendships or relieve the anxiety of having an overflowing inbox (Barley et al., 2011). Moreover, in self-managed teams, the influence of colleagues may be considerably more important than the power wielded by leaders (Barker, 1993; Sewell, 1998). For these reasons, workers will take note of the technology practices of coworkers, and this will, in turn, shape their own behaviours.

In the following sections, I distinguish between the technology norms cultivated by leaders and coworkers and assess how both shape the impact of the autonomy-control paradox on job and life satisfaction. Leaders and coworkers who encourage colleagues to be highly responsive to electronic communications throughout the day and to be contactable after hours can shape both sides of the autonomy-control paradox. I propose that leader and coworker norms can reduce the

autonomy side of the mobile technology paradox while increasing the control side. Importantly, this has significant ramifications for the job and life satisfaction of workers.

4.3.2.1 Technology Norms, the Autonomy Side and Wellbeing

As outlined in the previous section, extant research highlights that work-related mobile technology usage can increase the level of autonomy experienced by workers by improving temporal and spatial flexibility, job control and perceptions of performance. Leaders play a critical role in shaping the work environment of followers. This extends to the degree of autonomy or empowerment experienced by workers (Skakon et al., 2010). For example, transformational leadership can activate autonomy in followers while a management-by-exception style can severely restrict it (Breevaart et al., 2014). One of the ways in which leaders can enable or restrict the autonomy of followers is through the behavioural norms that they cultivate and transmit. Leaders are an important "social referent" for employees (Bandurra, 1977). Their behaviour sends a message about what is considered appropriate or the "norm" to their followers. Technology, and in particular email, can sometimes be used by leaders in an abusive manner. Indeed, Romm and Pliskin's (1999) case study shows how the introduction of email in a university was leveraged by the department head as a weapon of "petty tyranny", provoking fear in the secretaries and academics. Mobile devices can also be used as a tool of surveillance to track the location of workers or monitor their communications (Day et al., 2012; Kim, 2015; Porter & van den Hooff, 2020). However, the power that leaders can wield with technology is often much more subtle than this. For example, the role modelling of certain behaviours by leaders may be mimicked by employees to maintain relationships, convey their competence or loyalty or simply because they like, or indeed fear, their supervisor. When leaders regularly send emails late at night or during weekends, they consciously or unconsciously encourage their followers to do the same. It can be very tempting for workers to copy the after-hours digital habits of their leaders, particularly when they are seen to be successful. Similarly, when leaders build a reputation for responding quickly to electronic communications, this signals to others a behaviour which is to be valued and imitated.

Leaders' technology habits can, therefore, shape a culture of availability and responsiveness within teams. However, these behaviours, when copied by workers, will tend to compromise some of the autonomy benefits associated with mobile technology with implications for their wellbeing. For example, when workers receive constant emails from their supervisor over the weekend and feel compelled to respond, this redirects their time and psychological focus from personal activities to the work domain, restricting their freedom in the process. Workers' autonomy can also be diminished by the requirement to quickly respond to their leader during the normal working day. In doing so, a worker will typically have to stop a particular task and focus instead on the immediate requirements of their supervisor. Moreover, compliance with the norm of responsiveness is also likely to reduce the job performance benefits of mobile technology usage. Responding to email or text interruptions from one's supervisor leads to "work fragmentation" and

reduces productivity (Mark et al., 2005, p. 321). In short, when leaders create an expectation that their followers should be contactable and responsive to their communications, regardless of the time of day or night, this tends to structure mobile technology usage as something of an "electronic leash", which restricts the freedom of workers and, therefore, poses a challenge to their wellbeing.

The literature on communication technology does provide some support for this proposition. Mazmanian et al. (2013) outline how the autonomy experienced by professionals is gradually eroded when they feel compelled to be responsive to the emails of colleagues, for instance. Similarly, in a quantitative study, Van Zoonen and Rice (2017) find that workers give up their autonomy when using social media in instances where they feel the need to respond quickly.

Coworkers are also important social "referents" (Bandurra, 1977). Workers can be influenced by the behaviours of colleagues just as much as supervisors, albeit for different reasons. They can be motivated to mimic the normative behaviours of colleagues to "fit in", cultivate friendships or advance their careers. Technology norms of colleagues can be learned and copied in ways which influence how people use mobile devices. For example, a worker may respond to an email from a peer late at night because they value the relationship (Derks et al., 2015). When workers see other members of their team constantly responding to emails quickly, they may feel the need to copy this behaviour (Paczkowski & Kuruzovich, 2016). The social pressure to remain digitally engaged with colleagues was highlighted in a study conducted by Barley et al. (2011). People felt obliged to be responsive to coworkers and expected the same in return. Quick responses enhanced workers' reputations with their peers while slow responses were met with frustration. In this way, the expectations of coworkers directed the activities of participants and diminished their autonomy in the process. Similar themes surfaced in Leclercq-Vandelannoitte and colleagues' (2014) study of French bankers, who would send emails late at night to demonstrate their loyalty. This behaviour was then copied by coworkers.

As I highlighted in the last chapter, my research interviews revealed how norms of responsiveness and availability shaped participants' technology practices. These norms reflected TechCo's market position as a leading technology provider, a culture of long work hours in some divisions, customer and supplier expectations, and the intense reliance on digital connection during the pandemic lockdowns. It was evident from my discussions with participants that being available and responsive to one's supervisors and colleagues came at a cost. Feeling obliged to respond quickly to coworkers and thus diverting focus away from other tasks, reduced the autonomy and job control normally associated with using mobile devices. Furthermore, a sense of being "on call" after hours compromised the flexibility and freedom of participants.

Using the typology suggested by Barber and Santuzzi (2015), I investigate norms cultivated by both leaders and colleagues in two categories: (1) descriptive and (2) prescriptive. Descriptive norms refer to the actual technology behaviours, such as sending emails over the weekend, which leaders and coworkers role model to their colleagues. Prescriptive norms refer to the technology expectations, such as the requirement to immediately step out of a meeting to take a call from their supervisor or peer, which workers feel they must comply with. Both descriptive and prescriptive norms combine to set a communication standard of availability and responsiveness, which dilutes workers' sense of autonomy and hampers their ability to experience the positive wellbeing outcomes of device usage.

Technology norms, just like LMX and TMX, are contextual factors shaping the autonomy side of the mobile technology paradox and, therefore, job and life satisfaction. However, unlike LMX and TMX, technology norms are a demand, not a resource, and therefore exert influence in the opposite direction with negative consequences for wellbeing. Specifically, I propose that the association between mobile technology use and autonomy will be weaker when workers are exposed to technology norms of availability and responsiveness cultivated by their supervisors and coworkers. Consequently, technology norms are proposed as moderators of the relationship between mobile device usage and job and life satisfaction when mediated by autonomy. I propose that technology norms weaken the autonomy side of the mobile technology paradox and, consequently, act as a buffer for the positive wellbeing outcomes flowing from it. Hence, the following hypotheses will be tested:

> *H9 (a) and (b): Supervisor/coworker technology norms which encourage online availability and responsiveness weaken the positive association between mobile technology usage and (a) job satisfaction and (b) life satisfaction when mediated by perceptions of autonomy*.

4.3.2.2 Technology Norms, the Control Side and Wellbeing

The control dimension of the mobile technology paradox is experienced in two ways. After-hours mobile technology usage blurs the lines between work and home and can result in work-life conflict. Higher levels of connectivity can also contribute to increased workload and a faster pace of work. I propose that technology norms shaped by leaders and coworkers can strengthen the relationship between mobile technology use and the experience of control. Consequently, the negative impact on job and life satisfaction is strengthened.

Mobile technology facilitates temporal and spatial flexibility at work. However, the trade-off for this flexibility is often the expectation that workers will be contactable outside of regular working hours. It is these social norms of availability which lead to the extension of hours, spillover of work into the home and the negative impact on work-life balance (Day et al., 2012). According to border

theory (Ashforth et al., 2000), the boundaries between work and home can be weakened by social norms. Weak borders between the domains can lead to spillover and work-life conflict (Ashforth et al., 2000). As highlighted earlier, leaders are a powerful source of these norms. When leaders actively role-model the importance of remaining available and contactable outside of regular hours, they encourage their followers to do the same. This, in turn, blurs the lines between work and home, increasing the likelihood of work-life conflict. It can be difficult for many professionals to ignore a late-night email from their supervisor when an expectation has been set that they should be contactable and available for work regardless of the hour. The technology behaviours and expectations of peers will also have an impact. Coworkers will be motivated to copy the after-hours digital engagement of their peers, but this means sacrificing family and personal time as a result. Therefore, the relationship between mobile technology usage and work-life conflict is stronger in environments where leaders and coworkers encourage workers to be responsive and available after hours.

Just one study has tested the moderating influence of social norms on mobile technology-related work-life conflict. Derks et al. (2015) find that supervisors' expectations of follower connectivity strengthen the relationship between smartphone usage and work-life interference. Yet, contrary to their hypothesis, norms set by colleagues have no significant impact. Derks et al. reason that this unexpected result may have been influenced by the power differences between supervisors and peers in their research organisation.

In addition to work-life conflict, norms of availability and responsiveness, when cultivated by one's leader and peers, can also play a pivotal role in strengthening the experience of work intensification. Studies suggest that high levels of technology usage can be associated with perceptions of a faster pace of work, overload and stress (Ayyagari et al., 2011; Barley et al., 2011; Chesley, 2010). I propose that norms set by leaders and peers which encourage workers to be constantly online, available and responsive to colleagues will further strengthen this relationship. Leaders can add to the sense of work overload and intense pace by creating an expectation that workers need to respond quickly and remain "on call" for their communications. Similarly, colleagues who are closely connected to peers, and perhaps dependent on them to complete certain tasks, may expect quick responses to their requests for assistance. This can lead to a more intensive work experience both during and after the normal working day, which lowers job and life satisfaction in the process. While this proposition has not been tested in the literature, several related studies provide some supporting evidence. For example, technology norms of responsiveness and availability have been associated with "telepressure" and burnout (Barber & Santuzzi, 2015), and stress and negative wellbeing (Day et al., 2012).

Research participants in TechCo and FinCo also experienced the negative consequences associated with norms of availability and responsiveness. Expectations of availability meant that participants would often check their inboxes after hours. As a result, they were effectively "on call", which diverted their time and psychological focus away from their families and friends, increasing the experience of work-life conflict. Furthermore, the constant social pressure to respond quickly to colleagues both during and after normal hours contributed to a more intensive working environment by increasing the pace of work and leaving participants feeling overloaded. Therefore, these norms further strengthened the already damaging impact of the control side of the paradox on participants' wellbeing.

In summary, norms of availability and responsiveness, when role-modelled and encouraged by leaders and coworkers, act as a demand which can strengthen the control dimension of the mobile technology paradox. Control, a higher-order construct comprised of work-life conflict and work intensity, will be stronger in environments where employees are encouraged to be available and highly responsive to their supervisor and coworkers. In strengthening the positive relationship between mobile technology usage and control, these norms will further add to the negative impact on job and life satisfaction. In other words, workers who experience these technology norms are more likely to be exposed to the control effects of mobile technology usage, thereby augmenting reductions to job and life satisfaction. Therefore, the following hypothesis will be tested:

> *H10 (a) and (b): Supervisor/coworker technology norms which encourage online availability and responsiveness strengthen the negative association between mobile technology usage and (a) job satisfaction and (b) life satisfaction when mediated by perceptions of control.*

In this chapter, I have outlined a conceptual model which aims to explore the autonomy-control paradox of mobile technology. Building on the available literature, supporting theoretical frameworks and drawing on the insights from my qualitative research, this model will illustrate how the autonomy-control paradox is experienced in practice, its implications for employee wellbeing, and the social factors which shape this. In the next chapter, I will outline my proposed methodological approach to testing the conceptual model.

Table 4.1
List of Hypotheses

H#	Hypothesis
H1	Mobile technology usage is positively associated with perceptions of autonomy.
H2	Mobile technology usage is positively associated with perceptions of control.

H3 (a), (b)	Mobile technology usage is positively associated with (a) job satisfaction and (b) life satisfaction when mediated by perceptions of autonomy.
H4 (a), (b)	Mobile technology usage is negatively associated with (a) job satisfaction and (b) life satisfaction when mediated by perceptions of control.
H5 (a), (b):	Paradox mindset strengthens the positive association between mobile technology usage and (a) job satisfaction and (b) life satisfaction when mediated by perceptions of autonomy.
H6 (a), (b):	Paradox mindset weakens the negative association between mobile technology usage and (a) job satisfaction and (b) life satisfaction when mediated by perceptions of control.
H7 (a), (b):	LMX/TMX strengthens the positive association between mobile technology usage and (a) job satisfaction and (b) life satisfaction when mediated by perceptions of autonomy.
H8 (a), (b):	LMX/TMX weakens the negative association between mobile technology usage and (a) job satisfaction and (b) life satisfaction when mediated by perceptions of control.
H9 (a), (b):	Supervisor/coworker technology norms which encourage online availability and responsiveness weaken the positive association between mobile technology usage and (a) job satisfaction and (b) life satisfaction when mediated by perceptions of autonomy.
H10 (a), (b):	Supervisor/coworker technology norms which encourage online availability and responsiveness strengthen the negative association between mobile technology usage and (a) job satisfaction and (b) life satisfaction when mediated by perceptions of control.

5. Quantitative Methods

In this chapter, I will outline the methods used to design the questionnaire used to collect data to test the conceptual model and the hypotheses presented in the last chapter. Following this design stage, the questionnaire was pre-tested with a group of 23 people, and some improvements were made. My approach to participant recruitment will also be outlined.

5.1. Survey Method

An online questionnaire method was chosen to gather data to test the conceptual model outlined in the last chapter. Online surveys began to emerge in the 1990s and have grown rapidly in popularity since then (Couper, 2008; Cowles, 2018). They are now the fastest-growing form of survey method (Dillman et al., 2014). Online surveys have several advantages over other methods of data collection for quantitative research. They are relatively low-cost and easy to administer (Couper, 2008). This method of surveying is also less intrusive, as the questionnaire can be completed at a time and pace suitable for the respondent, and their privacy and anonymity are protected (De Leeuw, 2012). Interviewer bias is also eliminated as the questionnaire is self-administered (Graham, 2008). The attractive design of web surveys can also encourage completion (Bryman, 2012), and participants are less inclined to give socially desirable answers in web-based surveys, as evidence suggests (Cowles, 2018). Finally, online surveys allow quick response times and the ability to transfer data to statistical software packages (Bryman, 2012).

Despite the advantages of online surveys, they also have some limitations when compared to methods such as face-to-face interviews or telephone questionnaires. For example, the researcher is not available to give the respondent instructions, answer questions or clarify meaning. It may be more difficult to motivate respondents to complete the questionnaire given that the researcher does not have a “captive audience” as they would when using telephone or interview methods (Graham, 2008). Finally, it is possible that questions can be missed or answered incorrectly (Durand & Chantler, 2014).

After considering different questionnaire methods, I chose a web-based survey as the most appropriate way to collect data for this study. My decision was based primarily on the significant resources and cost involved in administering a non-web-based survey. I was also encouraged by the fact that online surveys are commonly used in my research organisations and, therefore, respondents would be quite familiar with this method. I also felt reassured that some of the limitations of the online method could be addressed by ensuring that the survey was well designed and used measurement scales with strong reliability and validity, and by drawing on the active sponsorship of executives within the research organisations to encourage participation. These factors will be discussed in more detail in subsequent sections.

5.2. Overview of the Survey Instrument

The questionnaire was developed in the Qualtrics platform and is shown in Appendix 1. Qualtrics is a commercially available software survey platform, launched in 2002. The Qualtrics platform allows users to design and distribute questionnaires and report on results.

An information sheet accompanied the online survey and appeared when participants clicked on the questionnaire link. The information sheet outlined:

- Purpose of the research
- Voluntary nature of participation
- Time required to complete the survey
- Statement on confidentiality
- Contact details for queries or concerns

The questionnaire opened by asking respondents whether they use mobile technologies for work-related purposes. If the respondent chose "no", they were thanked for their participation and the survey concluded. The first part of the questionnaire included several ordinal questions (Q6 to Q11), which measured the frequency of mobile technology usage across device types (smartphone, laptop and tablet) and in several time periods (during normal work hours, before and after normal work hours, on weekends and during annual leave). Following this, the questionnaire also asked respondents to record their duration of technology usage, across the same time periods.

In the third part, participants were asked several attitudinal questions, using five-point Likert scales (strongly disagree to strongly agree) relating to the mobile technology practices and expectations of their supervisor (Q19) and colleagues (Q20). A question regarding participants' control over technology (Q21) was also included here.

Part four of the questionnaire contained several scales measuring various job characteristics, such as autonomy (Q23), performance (Q24), work intensification (Q25) and work-life conflict (Q26). Scales to measure Leadership–Member Exchange (Q27 to Q33) and Team–Member Exchange (Q34) and the degree of team self-management (Q35) were also included.

Questions designed to measure wellbeing were contained in the fifth part. These included job satisfaction (Q36) and life satisfaction (Q37). Scales measuring job involvement (Q38) and burnout (Q39) were also included here as other variables of interest. This section ended with a scale measuring paradox mindset (Q40).

An open-ended question (Q41) was included to allow participants to provide any additional information regarding their use of mobile technology at work, and the positive or negative impact it may have. Open-ended questions can be a useful way of finishing a questionnaire, by eliciting

relevant information which has not already been furnished by participants due to the limitations of scale-based questions (Graham, 2008).

A series of demographic questions were included in the final section of the questionnaire. These used nominal measures to record gender, age, marital status, educational qualifications, number of children in household, employment type and job level.

5.3. Questionnaire Design

Visual design, layout and flow are important considerations in self-administered surveys (Dillman et al., 2014). Several design elements were incorporated into the questionnaire to ensure that it was clear, easy to use, and encouraged participation and completion. The Qualtrics platform is pre-populated with a University of Technology Sydney (UTS) template, which displays the university logo. Universities are typically regarded as legitimate and authoritative organisations (Dillman et al., 2014). Therefore, the inclusion of the UTS logo added legitimacy to the questionnaire and helped improve completion rates. Furthermore, I chose the "modern" version of the Qualtrics template, which I felt would resonate well with participants from my research organisations who were known to be quite "digital savvy".

Layout of the questionnaire was also an important consideration. Dillman et al. (2014) and Durand and Chantler (2014) advise that related questions should be grouped together into logical categories. Therefore, all questions relating to mobile technology usage appeared together in one section, while questions about work characteristics, such as autonomy or work-life conflict, were also grouped together. Questions were arranged in a logical order for the respondent (Dillman et al., 2014). Multiple questions were placed on each page. This allowed me to group similar questions together and limit the number of pages which respondents were required to click through (Dillman et al., 2014). I placed the demographics section at the end of the questionnaire as respondents can feel uncomfortable if these questions appear at the beginning (Dillman et al., 2014).

To assist with the flow of the questionnaire, introductory comments and instructions were used for many of the questions. These were intended to provide clarity but also motivate the respondents to move through the questionnaire. Important words were underlined for emphasis (Durand & Chantler, 2014). Forward and back arrows were included for ease of navigation and to allow participants to review responses and make changes to answers if they wished. Evidence suggests that the inclusion of completion bars in questionnaires may be counterproductive; therefore, these were not used (Villar et al., 2013). Participants also had the ability to exit the survey and complete it at another time if they chose.

5.4. Measures

Measurement scales for the questionnaire were selected from literature relevant to this study. I took particular notice of prior research on mobile technology and chose measurement scales from

this literature wherever possible. Following guidance from Durand and Chantler (2014), Dillman et al. (2014) and Cowles (2018), I reviewed all the scales to ensure that they used simple and non-loaded language and avoided double-barrelled questions or built-in assumptions. Some minor editing of the scales was necessary to align the questions with the language used elsewhere in the questionnaire. Most of the scales are already well established in the social sciences, and their reliability and validity have been tested on many occasions. The measurement scales used in the questionnaire are now outlined in this section.

5.4.1. Mobile Technology Usage

As I outlined in Chapter 4, for the purposes of this study, mobile technology usage is conceptualised as the extent of using mobile technology devices (smartphones, tablets and laptops) for work-related purposes. Following the approach of Richardson and Thompson (2012) and Ward and Steptoe-Warren (2014), I used two measures of mobile technology usage in this study. Frequency and duration measures were included to record a comprehensive picture of technology usage. First, respondents were asked "how often" they use mobile technology devices in a "typical day", across five different time periods: "during normal work hours"; "in the morning before you commence normal working hours, e.g., at home or commuting"; "in the evening after you finish your normal work hours, e.g., at home or commuting"; " on a weekend day (e.g., Saturday or Sunday or a public holiday)"; and on an "annual leave day". Answers ranged from "never" to "always". This is similar to the approach used by Boswell and Olson-Buchanan (2007), with minor changes made to the language used. Second, participants were asked to record the amount of time they spend using mobile technology across the same five time periods in a "typical day". A similar approach was used by Ward and Steptoe-Warren (2014). It may be challenging for participants to recall the exact amount of time they spend using these devices. Therefore, to make it easier for participants, they were able to choose from a range of hourly intervals during the day, or half-hourly intervals in the evenings, weekends or holidays, when usage is likely to be lower.

Mobile technology usage is likely to vary across different devices, which may, in turn, influence the outcomes flowing from usage. For example, Richardson and Thompson (2012) find that the frequency of handheld device usage was significantly higher than laptop usage, but the duration was lower. This aligns with the findings from my own interviews, where participants highlighted that smartphones were primarily used as communication devices and laptops for more detailed and longer work. Richardson and Thompson (2012) find that device duration was driven by laptops and contributed more to the perception of job control than smartphone usage, which was driven by frequency. Participants in this study were asked to record the frequency and duration of usage across three devices: smartphones; laptops and tablets.

Measuring the frequency and duration of mobile technology usage across different device types and time periods allowed me to provide a comprehensive and contemporary picture of mobile technology usage and how it shapes the autonomy-control paradox.

5.4.2. Autonomy

Morgeson and Humphrey (2006) define autonomy as “the extent to which a job allows freedom, independence, and discretion to schedule work, make decisions, and choose the methods used to perform tasks” (p. 1323). Morgeson and Humphrey have designed a comprehensive measure of job characteristics, which they called the Work Design Questionnaire (WDQ). Their nine-item measure of autonomy includes three dimensions: freedom in work scheduling, decision making and work methods. For reasons of parsimony, I chose one statement from each of these three parts:

My job allows me to make my own decisions about how to schedule my work.
My job allows me to make a lot of decisions on my own.
My job gives me considerable opportunity for independence and freedom in how I do the work.

Using mobile technology gives users the flexibility to work at different times and in different places. This flexibility is not captured by Morgeson and Humphrey’s (2006) measure. Therefore, following guidance from Kossek et al. (2006), I combined the autonomy measure with four statements which measured work time and workplace flexibility. These statements were adapted from Kossek et al. (2006) by replacing the words “To what extent does your job permit” with “My job permits”. This allowed stronger alignment with the statements from Morgeson and Humphrey (2006).

My job permits me to decide on my own about WHERE the work is done.
My job permits me to decide about WHEN the work is done.
I have the freedom to work wherever is best for me—either at home or at work.
I do not have control over when I work (reverse).

5.4.3. Job Performance

In this study, I utilised Coker's (2011) definition of job performance as “behaviours enacted by an employee that are designed to meet organizational objectives” (p. 239). To measure job performance, I used a six-point scale provided by Kuvaas (2006). This scale combined statements regarding work effort and work quality to measure the job performance construct. Kuvaas adapted this scale from an earlier measure designed by Brockner et al. (1992).

I almost always perform better than an acceptable level.
I often perform better than can be expected from me.
I often put in extra effort in my work.

I intentionally expend a great deal of effort in carrying out my job.
I try to work as hard as possible.
The quality of my work is top-notch.

5.4.4. Work Intensification

Research on work intensification is quite underdeveloped and, therefore, only a limited number of measurement scales are available for this construct. To measure work intensification, I used a Work Intensity scale provided by Boekhorst (2017). This scale was based on previous measures developed by Hewlett and Luce (2006) and Burke et al. (2010), which contain 15 items and capture the essence of work intensity. Statements describe the fast pace, high volume and physical and emotional impact associated with work intensification, and they featured prominently in my interviews with participants in the qualitative phase. The five-item version of this scale, developed by Boekhorst (2017), was used for reasons of parsimony.

Fast-paced work under tight deadlines
More work than I can complete
Large scope of responsibility that amounts to more than one job
Work demands a lot from me emotionally
The work is so intense that it is mentally tiring

5.4.5. Work-Life Conflict

This construct represents “a form of interrole conflict in which the role pressures from the work and family domains are mutually incompatible in some respect.” (Greenhaus & Beutell, 1985, p. 77). Work-life conflict was assessed by using a four-point scale from Gutek et al. (1991). This was based on a prior Work Interference with Family (WIF) scale developed by Kopelman et al. (1983). The scale is one of the most commonly used measures of work-life conflict (Field, 2002) and has been used in earlier studies of mobile technology (Diaz et al., 2012; Fenner & Renn, 2010). It includes the following statements:

After work, I come home too tired to do some of the things I'd like to do.
On the job I have so much work to do that it takes away from my personal interests.
My family/friends dislike how often I am preoccupied with my work while I am at home.
My work takes up time that I'd like to spend with family/friends.

5.4.6. Leader–Member Exchange

According to Gerstner and Day (1997, p. 829), LMX is a measure of the “dyadic relationship between a leader and member”. The LMX-7 is a seven-item scale developed by Scandura and Graen (1984) and Graen and Uhl-Bien (1995) to measure LMX. Since 1999, the LMX-7 is one of the two major scales which have dominated LMX studies (Joseph & Newman, 2021). An

alternative measure, the 11-item LMX-MDM scale developed by Liden and Maslyn (1998) also features prominently in the literature. However, the LMX 7 is the most used measure of LMX (Joseph & Newman, 2021). The LMX 7 was used in this study due to its shorter form.

The LMX-7 scale is comprised of the following items:

Do you know where you stand with your leader? Do you usually know how satisfied your leader is with what you do?
How well does your leader understand your job problems and needs?
How well does your leader recognize your potential?
Regardless of how much formal authority he/she has built into his/her position, what are the chances that your leader would use his/her power to help you solve problems in your work?
Again, regardless of the amount of formal authority your leader has, what are the chances that he/she would "bail you out," at his/her expense?
I have enough confidence in my leader that I would defend and justify his/her decision if he/she were not present to do so?
How would you characterize your working relationship with your leader?

5.4.7. Team–Member Exchange

Team–Member Exchange, or TMX, is similar to LMX. However, where LMX measures the quality of the relationship with one's supervisor, TMX is focused on relationship quality with the team as a whole. Seers (1989) defines TMX as "the exchange quality of the relationship between an individual worker and his or her coworkers as a team" (p. 131). High TMX relationships are characterised by trust, respect, support and appreciation (Chen, 2018).

To measure TMX, I used a ten-point scale developed by Seers et al. (1995). This scale has been used in the majority of TMX studies (Banks et al., 2013) and includes the following statements:

Other group members clearly recognize my potential.
Other group members usually let me know when I have done something that makes their job easier (or harder).
In busy situations, other group members often volunteer to help me out.
When other group members are busy, I often volunteer to help them out.
I often let other team members know when they have done something that makes my job easier (or harder).
Other group members are willing to finish work that was assigned to me.
Other group members clearly understand my job-related problems and needs.
I often make suggestions about better work methods to other team members.
I am willing to finish work that has been given to other group members.

I am flexible about switching job responsibilities to make things easier for team members.

5.4.8. Mobile Technology Norms

Liefbroer and Billari (2009) define social norms as "an expectation about acceptable behaviour that is shared by a group of people" (p. 290). Following the approach of Barber and Santuzzi (2015), I focus on both descriptive norms ("what most people do") and prescriptive norms ("what is expected"). The statements outlined below were used to measure the technology expectations and practices of supervisors and coworkers. These statements have been adapted from Derks et al. (2015) and Day et al. (2012). Supervisors' norms were measured separately from coworkers' norms.

Technology expectations

My supervisor (coworkers) expects me to respond to work-related messages immediately.
My supervisor (coworkers) expects me to respond to work-related messages during my free time outside of work.
When I don't answer my email during my free time, my supervisor (coworkers) clearly shows that he/she does not appreciate it.
I feel that I have to respond to messages from my supervisor (coworkers) immediately during my free time outside of work.

Technology behaviours

My supervisor (coworkers) emails regularly in the evenings.
I often receive emails from my supervisor (coworkers) during the weekend.
When I send an email to my supervisor (coworkers) during the weekend, they react the same day.
My supervisor (coworkers) responds to work-related messages immediately.

5.4.9. Job Satisfaction

Locke (1976) refers to job satisfaction as "a pleasurable or positive emotional state resulting from the appraisal of one's job or job experiences" (p. 1300). Numerous approaches to measuring job satisfaction have been developed by researchers in recent decades, and they can be categorised into two groups (Fields, 2002). The first approach is to measure overall satisfaction with a job. This approach has been used in the Michigan Organizational Assessment Questionnaire (MOAQ), developed by Cammann et al. (1979), and in scales developed by Brayfield and Rothe (1951) and Judge et al. (1974), amongst others. The second approach is to measure satisfaction with individual facets of a job, such as pay, supervision, security, career growth and so forth. The Minnesota Satisfaction Questionnaire (MSQ), developed by Weiss et al. (1967), and the Job Diagnostic Survey (Hackman & Oldham, 1974) use this approach.

Despite some historical debate, recent findings suggest that the construct validity of both methods is similar (Bowling & Zelazny, 2022). I chose to use a measure of overall job satisfaction for reasons of parsimony. Using this approach, job satisfaction was measured in the questionnaire using a scale developed by Brayfield and Rothe (1951), which is commonly used in research on job satisfaction (Judge & Klinger, 2008). The original scale contained 18 items. However, following Agho et al. (1992), six items were chosen to measure job satisfaction as follows:

I find real enjoyment in my job.
I like my job better than the average person.
I am seldom bored with my job.
I would not consider taking another kind of job.
Most days I am enthusiastic about my job.
I feel fairly well satisfied with my job.

5.4.10. Life Satisfaction

Veenhoven (1996) describes life satisfaction as “the degree to which an individual judges the overall quality of his life-as-a-whole favourably” (p. 10). It is a commonly used measure of wellbeing in empirical research. In this study, life satisfaction is measured using the Satisfaction with Life Scale (SWLS), designed by Diener and Fujita (1995). In their review of the life satisfaction literature, Erdogan et al. (2012), highlight that the SWLS is the primary measure of life satisfaction used in quantitative research and has demonstrated long-term validity. The SWLS includes five items as follows:

In most ways my life is close to my ideal.
The conditions of my life are excellent.
I am satisfied with my life.
So far I have gotten the important things I want in life.
If I could live my life over, I would change almost nothing.

5.4.11. Burnout

Burnout has been defined by Maslach (1982) as “a syndrome of emotional exhaustion, depersonalization, and reduced personal accomplishment that can occur among individuals who do ‘people work’ of some kind” (p. 3). Using a similar approach to Derks and Bakker (2014), Ter Hoeven et al. (2016) and Park et al. (2020) in other technology studies, burnout is measured in my questionnaire using five items from the exhaustion subscale of the Maslach Burnout Inventory-General Survey (Schaufeli et al., 1996). The Maslach Burnout Inventory is the most widely used measurement of burnout in research studies (Fields, 2002). Originally developed for healthcare

and education professionals, the MBI “General Survey” was later created for use with other occupations. The exhaustion subscale contains the following items:

I feel emotionally drained from my work.
I feel used up at the end of the workday.
I feel burned out from my work.
I feel frustrated by my job.
I feel like I’m working too hard on my job.

5.4.12. Paradox Mindset

Miron-Spektor et al. (2019) developed the concept of Paradox Mindset based on earlier cognitive approaches. Paradox mindset is defined as “the extent to which one is accepting of and energized by tensions.” (Miron-Spektor et al., 2019, p. 26). They suggest that those with a paradox mindset are not threatened by the tensions inherent in an organisation. Instead, they embrace and effectively manage these tensions, creating better outcomes. Paradox mindset was assessed in this research using the nine-item scale designed by Miron Spektor et al. (2019). It contained the following statements:

When I consider conflicting perspectives, I gain a better understanding of an issue.
I am comfortable dealing with conflicting demands at the same time.
Accepting contradictions is essential for my success.
Tension between ideas energizes me.
I enjoy it when I manage to pursue contradictory goals.
I often experience myself as simultaneously embracing conflicting demands.
I am comfortable working on tasks that contradict each other.
I feel uplifted when I realize that two opposites can be true.
I feel energized when I manage to address contradictory issues.

5.4.13. Job Involvement

Job involvement may be defined as a “psychological identification with one's work” as well as “the degree to which the job situation is central to the person and his identity” (Lawler & Hall, 1970, pp. 310–311). I measured job involvement using a six-item scale from Sjoberg and Sverke (2000). These items were adapted from a larger job involvement scale developed by Kanungo (1982), which is one of the most commonly used measures of this construct (Brown, 1996). The scale contained the following items:

The most important things that happen to me involve my work.

I live, eat and breathe my job.
Most of my interests are centered around my job.
I have very strong ties with my present job, which would be very difficult to break.
Most of my personal life goals are job-oriented.
I consider my job to be very central to my existence.

5.4.14. Degree of Team Self-Management

This construct describes the extent to which one believes that one's team is responsible for making decisions about its own work. It is conceptually close to the notion of team empowerment. Scales to measure team self-management are not commonly available (Stewart et al., 2016). For the purposes of this study, I used a three-item scale designed by Campion et al. (1993) as part of their larger questionnaire to measure job characteristics. The items were as follows:

The members of my team are responsible for determining the methods, procedures, and schedules with which the work gets done.
My team rather than my supervisor decides who does what tasks within the team.
Most work-related decisions are made by the members of my team rather than by my supervisor.

For consistency with the language used elsewhere in the survey, the term "manager" was replaced by "supervisor".

5.4.15. Control Over Technology

Control over technology may be understood as the extent to which one perceives that they are in control of how they use work-related technology. Day et al. (2012) developed a framework to explore ICT demands and resources. They included three items to measure "lack of control over ICT" as one of those ICT demands. Two items from this scale were reversed and used in this study to measure perceived control over technology. The items are:

I have control over how I use technology at work.
I choose the types of technology I use in my job.

A further item developed by Olson-Buchanan and Boswell (2006) as a measure of boundary creation around ICT use was also included:

I limit the amount of time or when I use communication technologies for work purposes during non-work hours (for example, only until 7 p.m.).

In addition to the items listed above, three further statements, describing other aspects of perceived control over technology, were developed based on my discussions with participants in the qualitative phase of my research. These statements are:

I decide when to use mobile technology for work purposes.
Having a work phone and personal phone allows me to keep my work and my personal life separate.
After normal work hours, I put my mobile devices away so that I'm not bothered by work.

5.4.16. Demographic and Organisational Variables

At the end of the questionnaire, participants were asked to share some demographic and organisational information about themselves. These items include:

- Gender
- Age
- Marital status
- # of children in household
- Highest level of educational qualifications
- Job level in organisation
- Membership of an Agile Team
- Employment type
- # of days working from home
- # of hours worked in typical week

This information was used as control variables when testing the structural model (Becker, 2005).

5.5. Common Method Bias

Podsakoff (2003) and Mackenzie and Podsakoff (2012) highlight the significant problem of Common Method Bias in quantitative studies. Common method variance is defined by Richardson et al. (2009) as "systematic error variance shared among variables measured with and introduced as a function of the same method and/or source" (p. 763). Therefore, when data collection uses common methods, the estimated impact of one variable on another may be biased as a result. If common method variance results in a significant difference between the actual and observed relationship between variables, then method bias is present (Richardson et al., 2009).

Mackenzie and Podsakoff (2012) outline several problems associated with common method bias. Common methods can introduce bias into construct validity and reliability, which diminishes the usefulness of the research instrument. Furthermore, this form of bias can artificially increase or decrease the observed relationships between variables, or simply report one that does not really exist (Mackenzie & Podsakoff, 2012; Podsakoff, 2003). Therefore, the presence of common method bias can cast a shadow over the credibility of conclusions drawn from a research study (Podsakoff, 2003). In fact, Mackenzie and Podsakoff (2012) draw our attention to the extent of this problem in research studies. They highlight Cote and Buckley's (1987) meta-analysis, which

indicates that method variance can exist in a range of 22% to 41% of constructs. Further research by Cote and Buckley (1988) indicates that the observed relationships between variables is exaggerated by as much as 41% as a consequence of common method bias.

Podsakoff (2003) categorises four sources of common method bias in research. First, bias can result when a common data source or rater is used. For example, bias may arise when respondents demonstrate social desirability effects, or a tendency for acquiescence, lack the ability or motivation to answer the questions posed, or feel compelled to participate (Mackenzie 2012; Podsakoff, 2003). The second source of bias can be found in item characteristics. Artificial covariance can result from item ambiguity, the positive or negative wording of items, or when questions rely on retrospective recall (Mackenzie, 2012). Item context can also be a source of common method bias. For example, the relative location of different items in a questionnaire or the length of scales may influence how a participant responds to them. Finally, measurement context and whether predictor and criterion variables were measured at the same time, location or using the same means can also introduce bias.

While it is not possible to eliminate all method bias from a survey instrument, I employed several strategies to reduce the risk, as far as practicable, in this research. For the most part, this involved drawing on good questionnaire design techniques. Questions included in the survey have largely been sourced from pre-existing scales, which have been tested for validity and reliability in numerous previous studies. This suggested that the scales had been well designed. However, I reviewed all scales used in this survey to ensure that the language was unambiguous and simple, that no double-barrelled questions were included, and that any repetitiveness was minimised.

A pilot study was conducted to pre-test the questionnaire. This will be outlined in further detail in section 5.6. The pilot study was a useful opportunity to test whether respondents could understand the questions, experienced any issues with retrospective recall, and had any concerns regarding the length of the survey.

During the data collection phase, I was careful to recruit research participants who used mobile technology for work purposes and, therefore, had the capability to answer the survey questions. The relevance of the research was reinforced in the survey preamble and sponsor communications by highlighting the importance of the topic. Given that the subject matter of my research is very topical in the context of technology-enabled hybrid work in the post-COVID era, I felt that this would also strengthen the relevance of the research and, therefore, participants' motivation to complete the questionnaire. I was also careful to stress the confidential and anonymous nature of participation. Reinforcing confidentiality not only encourages respondent participation but also aims to minimise the impact of social desirability and acquiescence.

5.6. Pilot Survey

Pilot studies are a crucial element in research design and can enhance the quality of the research output (Ikart, 2019; Malmqvist et al., 2019). While a question may seem perfectly logical to the researcher, it may prove quite difficult to answer for a participant (Babble, 2020). Alternatively, participants may answer the questions inconsistently or interpret questions in a way not intended by the researcher. Pre-testing a questionnaire with a pilot group can assist the researcher to identify and remediate problems before the survey is finalised and goes into the field (Dillman et al. 2014; Willis, 2016). Therefore, they represent an important opportunity to improve the validity and reliability of a questionnaire.

Scholars have noted several key benefits in undertaking a pilot study. The primary advantage is to improve the comprehension and usability of a questionnaire. For example, a pilot may highlight any misunderstandings with questions (Graham, 2008). Pre-testing the questionnaire also informs the researcher on whether the questionnaire is easy to navigate, or whether certain questions are missed or skipped (Dillman et al., 2014). Furthermore, researchers can obtain an indication of the likely response rate when the survey is fully launched (Dillman et al., 2014). Problems with question coding, or analysis, can also be revealed by pre-testing the survey instrument (Czaja, 1998).

Considering these important benefits, I felt that it was vital to undertake a pre-test of my questionnaire as a “dress rehearsal” before it was used in the quantitative phase of this research (Groves et al., 2009). In this section, I outline the methodology used and outcomes achieved from pre-testing the questionnaire outlined in this chapter. First, I provide a short summary of the range of pre-testing methods available to the researcher as these have informed my chosen approach.

5.6.1. Pre-testing Methods

Questionnaire pre-testing methods have evolved significantly over the past 20 years (Rothgeb et al., 2007). The most used methods include expert reviews, cognitive interviews and respondent debriefing. *Experts* may have specific technical knowledge about the subject matter which is being studied. Alternatively, their expertise may be in questionnaire design and layout. Experts can provide useful feedback regarding the language used in questions, the structure and ordering of questions, response options, and the rules for navigating how to complete the questionnaire (Groves et al., 2009).They can also identify major problems such as double-barrelled questions or biased questions (Geisen & Murphy, 2019). Importantly, while experts can identify problems with a questionnaire, they can also provide solutions (Collins, 2003). Protocols, such as the Questionnaire Appraisal System (QAS), have been developed to allow experts to conduct reviews in a highly structured manner (Geisen & Murphy, 2019). As a pre-testing method, the key advantage of expert reviews lies in the fact that they are relatively fast and inexpensive (Collins, 2003; Ikart, 2019).

Cognitive interviews emerged in the 1980s and are now one of the most widely used methods of pre-testing questionnaires (Geisen & Murphy, 2019). In a cognitive interview the researcher asks the respondent how they answered questions in the survey. Techniques such as *Think Alouds* and *Probes* are designed to reveal the thought processes participants use to arrive at an answer (Presser et al., 2004). Using the first technique, participants are asked to literally *think aloud* and outline the thoughts occurring to them while they answer the survey questions. This allows the interviewer to understand how the respondent interpreted the question and formulated their answer (Geisen & Murphy, 2019). This method is participant-driven, which can add to the burden for them. Using the second technique, the researcher *probes* the respondent on how they answered particular questions. For example, the researcher may ask the respondent to paraphrase a particular survey question, or describe what the question means to them, or how they felt about answering a particular question. The probe method is interviewer-driven and, therefore, can reduce the burden on the participant (Collins, 2003). Cognitive interviews are regarded as the "gold standard" of pre-testing techniques by researchers. However, they are labour intensive and, therefore, a very expensive method (Dillman et al., 2014).

Respondent debriefing is another popular method of questionnaire pre-testing. This method is designed to evaluate how well the respondent understood the survey questions (Geisen & Murphy, 2019). Respondents can be asked questions while they are in the process of completing a questionnaire, or afterwards when it is finished (Nanda et al., 2013). For example, respondents can be asked whether they found any of the survey questions unclear, difficult to answer or embarrassing (Collins, 2003). Feedback can also be provided on whether they experienced difficulties in recalling information. Respondents can be asked to provide their opinions on the design of the survey and their overall experience in completing it (Collins, 2003). These questions can be posed by an interviewer or can be incorporated into an online survey (Geisen & Murphy, 2019). Respondent debriefings are relatively inexpensive when compared to other methods (Collins, 2003).

In recent years, several new methods of pre-testing have emerged. For example, *useability testing* evaluates how users engage with a survey by monitoring them as they log in, answer questions and navigate their way through it (Geisen & Murphy, 2019). *Response latency* measures how long it takes a respondent to answer a particular question (Presser et al., 2004). *Eye tracking* uses cameras to record which parts of a question a respondent looked at, for how long, and in which order (Dillman et al., 2014). The rise in the popularity of web-based surveys has meant that *online pre-testing* has emerged as a new method. This uses probe questions, similar in style to a cognitive interview, but which are embedded into the online survey. This method can also monitor how respondents navigate through the survey, by recording keystrokes and mouse movements (Geisen & Murphy, 2019).

5.6.2. Methodology Used for the Pre-testing Phase

In order to pre-test the draft questionnaire, a short pilot was undertaken. The objectives of the pilot were to:

1) "Road test" the questionnaire with a small group of participants to identify any potential issues with the survey instrument.

2) Seek participant feedback on the clarity, useability and layout and design of the questionnaire and consider any suggestions for improvement.

3) Based on the feedback provided, make changes to the survey to enhance the quality of the instrument.

Twenty-three people were invited and agreed to participate in the pilot. However, one person subsequently withdrew, so the final group included 22 participants. Participants were recruited from my personal network and included professionals in Sales, HR, Finance, Consulting and Academic roles, who use mobile technology for work purposes. Additionally, a small number of PhD students with experience in research techniques were also invited to pre-test the questionnaire.

Two methods were used to pre-test the questionnaire: (1) Participant online debriefing, and (2) cognitive interviews.

5.6.3. Participant Online Debriefing

I contacted participants to explain the purpose of this research and invited them to take part in the pilot. They were advised that the aim of the pilot was to pre-test the questionnaire and, therefore, they would be asked some questions at the end, regarding the clarity and functionality of the survey. After obtaining their agreement, I sent a follow-up email outlining some additional details and attaching the questionnaire link.

The pilot questionnaire included several questions at the end which invited feedback on the instrument. Participants were asked to provide responses to the following questions:

1. Did you complete the questionnaire on a laptop/PC, mobile phone or tablet?

2. Were any of the questions unclear or confusing?

3. Did the layout, flow and "look and feel" of the questionnaire make sense?

4. Do you have any suggestions to improve the questionnaire?

I chose the online debriefing method for several reasons. First, this method allowed me to test the questionnaire in the same "mode" that would be used when it was launched to my sample group (Dillman, Smyth, Christian, 2014). Therefore, the experience of the pre-test participants would replicate that of the sample participants, with the addition of some qualitative questions at the end

of the questionnaire. These four questions allowed participants to provide some useful feedback immediately after they had completed the questionnaire. Online debriefing is a relatively straightforward method that is inexpensive to administer and, importantly, places a low burden on participants. Finally, this method is quick. All participants completed the questionnaire on their laptop or mobile phone within one week of receiving it.

5.6.4. Cognitive Interviews

To supplement the findings obtained from the participant online debriefings, I also undertook some cognitive interviews as a second pre-testing method. As cognitive interviews can place an additional burden on participants, and are quite labour intensive for the researcher, I chose to limit this method to a small number of the pre-test group. Five of the participants were invited and agreed to participate in a cognitive interview in which I observed them completing the questionnaire and asked some probe questions during an MS Teams call. An interview protocol was used to guide the discussion. At the start of the interview, I again explained the purpose of this research, provided assurances on confidentiality, and obtained participants' consent to record the interviews. Participants were then asked to open the survey, display it on the MS Teams screen, and commence completing it. They were advised that I would pause them at intervals to ask some questions.

I asked between 10 and 12 questions in each interview. After the participants had read the introductory preamble to the questionnaire, I asked them whether it was clear and whether it posed any concerns for them. Several "probe" questions were asked throughout the interviews. These were intended to check that participants' understanding of the question was aligned with the intended one. An example of a probe question was: "I see that you answered 'agree' to the statement 'I often put extra effort into my work'. Can you tell me why you answered that way?". In another example, after a respondent had completed the question regarding life satisfaction, I asked: "What thoughts were going through your mind while you were answering that question about life satisfaction?". I also wanted to ensure that the survey questions were relatively easy to answer, while still providing the appropriate level of detail. Therefore, immediately after participants had completed the questions regarding their duration of technology use, I asked: "How did you calculate your responses to those questions?" It is important that the demographic questions at the end of the questionnaire were clear for participants and that the various response categories were appropriate. Therefore, when a participant was completing the question on "gender", they were asked: "Do these feel like the correct categories to you?" Two participants read each of the questions and their answers aloud (without my prompting). One of these also provided a detailed explanation of each answer.

Throughout the interviews, I closely observed how the participants were completing the questionnaire on the screen. I was interested to see whether completing the questionnaire was a straightforward experience for participants or whether they encountered any problems.

Therefore, I monitored whether they appeared to struggle with particular questions, skipped questions or left them incomplete, and how they scrolled up and down and navigated between pages. By observing the participants in this way, I uncovered one problem with a question in the demographics section regarding the 'number of children in household'. This will be discussed in the next section.

5.6.5. Outcomes of the Pre-test

Both the online debriefing and cognitive interview methods proved to be useful in unearthing potential problems with the survey, which required some further review and, in some cases, remediation. Issues and suggestions raised by the participants were carefully reviewed. I considered whether addressing an issue raised would genuinely improve the robustness of the instrument. Table 5.1 below outlines the changes that were made to the questionnaire based on feedback from participants.

Table 5.1
Changes Made to the Questionnaire Based on Pre-Test Participant Feedback

Question/section	Problem identified by participants	Remediation action taken
Introductory section	Contact details of researcher may not be retained by participants after reading the introductory section.	Repeat researcher contact details on "Thank you" screen at the end of questionnaire.
Work intensification statements	Response options run in the opposite direction to other scales. Two interviewees noted this and later changed their responses as a result.	The direction of response options was aligned with other questions.
Number of children in household question	A response is required for each age range "box", even if it is zero. Three participants noted problems with this and found it somewhat confusing.	Instructions were added to assist with clarity: "Please enter a number for each category. Enter '0' if not applicable".
General comments	One respondent noted that they were unsure how some of the questions related to mobile technology use. Another said that the questionnaire covers topics other than mobile technology use and this should be clearer in the preamble.	To provide additional clarity a small change was made to the preamble: "My PhD research is focused on how people use mobile technology (mobile phones, laptops and tablets) for work purposes and what impact it may have *on experiences at work.* The information you provide in this questionnaire will be used to help

		understand the consequences of how people use mobile technology in the workplace".
General comments	One respondent noted: "To be more inclusive, be aware of other pronouns beyond he/she also on final questions and be mindful of broader community groups".	"He/she" was replaced by "They" in the supervisors' technology behaviours and LMX scales.
Work intensification statement ("emotionally draining").	Comma should be replaced by a full stop.	This grammar error was corrected.

Some of these changes were relatively simple but still added to the quality of the questionnaire. The replacement of a comma with a full stop is a case in point. However, others were more significant. For example, I observed in the cognitive interviews that two of the participants struggled to complete the question which asked about the number of children in the household. The question required participants to enter the number of children in each age category, even if the answer was zero. In both cases the participants left two boxes blank and then could not proceed to the next page. While an error message appeared on the screen, it did leave the participants somewhat confused about what to do next. One of the online debrief participants contacted me by email to say that he could not figure out how to complete this question and proceed with the questionnaire. As a result of this feedback, I included the following statement to assist respondents: "Please enter a number for each category. Enter '0' if not applicable". This example illustrates the importance of pre-testing a questionnaire. It is possible that many respondents would have "figured out" how to answer the question and proceed. Yet if left unchanged, the question would have at least irritated some and perhaps led to others not completing the questionnaire.

After carefully considering the feedback by all participants, I decided in some cases that no change was necessary. For example, during a cognitive interview, a participant suggested that the qualifying question "Do you use mobile technology at work?" should be preceded by another question asking, "Do you use mobile technology for *any purpose*?". Given the ubiquitous presence of mobile devices in our lives, I felt that the inclusion of this question would simply add to the survey length without providing any incremental value. Two participants recommended that a "progress bar" should be included. However, extant research (Liu & Wronski, 2018) suggests that progress bars can actually reduce the response rate. Therefore, this suggestion was not

accepted. After answering the question on the duration of technology use on weekends, one interviewee noted that the time interval response options were shorter (half-hour intervals) than those provided for weekdays (hour intervals), and, therefore, her answers required more effort to calculate. She suggested that the time intervals should be the same for both weekdays and weekends. After considering this suggestion, I concluded that although the shorter intervals added some additional burden for respondents, they would provide more accurate data, as the duration of technology use on weekends would be considerably shorter.

The cognitive interviews proved to be a very effective way of confirming that the survey questions were being interpreted correctly by participants. In almost all cases, the answers that participants provided to probe questions indicated that they understood the survey question and that their interpretation was as intended. For example, in the exchange below, I asked "Ray" to comment on his answer to one of the statements in the work intensification scale. His explanation of why his work is sometimes demanding showed that he understood what the statement actually meant.

> **Rob Carroll**
>
> Please just pause there if that's okay. So for that statement "Work demands a lot from me emotionally", you answered, "somewhat describes my job". Why did you give that answer?
>
> **"Ray"**
>
> Because there are sometimes some roles that I have to fulfil which demand a lot. So it's probably "somewhat". Sometimes it's incredibly intense. And other times it's not at all.

On many occasions, using probe questions, I asked participants to describe in their own words a question that they had just completed in the questionnaire. For example, in telling me what a statement about autonomy meant to him, "Joel" showed me that he understood what the question was intended to capture.

> **Rob Carroll**
>
> On that one, actually, Joel, "My job allows me to make a lot of decisions on my own", what does that question mean to you? How did you interpret it?
>
> **"Joel"**
>
> So I guess I interpreted mainly from the point of view of being the primary decision maker.

As I mentioned earlier, without my prompting, two participants read their questions aloud and provided ongoing commentary on their answers. This unfolded in a similar way to when a *Think Aloud* technique is used in a cognitive interview. Listening to this dialogue again gave me confidence that the questions were being interpreted correctly by the participant. By way of

example, when “Craig” was reading and answering the question on whether his supervisor expects him to respond immediately to their emails, he provided the following commentary:

> **“Craig”**
>
> My supervisor…… (paused while thinking) … it depends on the extent of the issue, but generally I don't think they expect me to respond immediately unless it's quite a serious issue. They're pretty respectful of our time.

Feedback provided by participants in the online debriefing was also positive. In response to the question “Were any of the questions unclear or confusing?”, responses were overwhelmingly “no” or “not really”. Participants provided positive feedback in relation to the layout and design of the questionnaire. Comments such as “Yes, it was reasonably well structured and flowed well. Not too difficult!” and “layout and flow made sense” were provided.

Three of the pilot participants completed the survey on a mobile phone, while the others used a laptop. The “look and feel” of the Qualtrics survey design is somewhat different whether it is viewed on a laptop or mobile phone. The principal difference is that a laptop displays information in a landscape format while a portrait format is typically used when reading on a mobile phone. Consequently, the laptop survey design presents statements in a matrix table with the response options running from left to right. The space limitation in the mobile phone design meant that each statement was presented in turn, with the response options appearing immediately below the statement. I was curious to see whether completing the surveys on different devices would influence how participants engaged with the survey. However, after reviewing the responses and feedback of participants, and observing cognitive interview participants complete the survey on a mobile phone and laptop, I detected no significant differences in their experiences. I asked “Craig”, a cognitive interview participant, what his experience was like completing the questionnaire on his mobile phone and he answered: “It was good. It automatically resized everything. I thought it was a really good experience.”

5.6.6. Summary of the Pre-test Phase

In summary, the pre-testing phase using online debriefing and cognitive interview methods contributed to the further refinement of the questionnaire. Respondents provided some useful suggestions, which strengthened the quality of the questionnaire. For the most part, though, the pre-test confirmed that the questionnaire was appropriately designed, the questions were understandable and reliable, the layout was easy to navigate and it was a suitable instrument to gather data to test my hypotheses. Completing the pre-testing phase allowed me to progress to the next stage of my research, and confidently launch the questionnaire into the field.

5.7. Participant Recruitment

Questionnaire respondents were recruited from TechCo where I previously interviewed sixteen employees during the qualitative phase of this research. TechCo is one of Australia’s leading

technology companies providing a range of IT and communications services and employing more than 10,000 people. Its parent company has operations in Asia, North America and Africa. Workers in TechCo use mobile technology extensively to do their jobs and, therefore, it was an appropriate research site to gather data to test my conceptual model.

I contacted a number of TechCo executives to discuss my research and asked them to consider encouraging their teams to participate in the study by completing the survey. I explained the purpose of the research, the design of the questionnaire and the voluntary and confidential nature of participation. Several of the executives agreed to allow their teams to complete the questionnaire. These executives led teams across Sales, IT/ Digital, Engineering, Service Delivery and Marketing.

Several of the executives agreed to distribute the online survey link to their teams requesting their voluntary and confidential participation in the research. Using credible sponsors has been highlighted by scholars as a useful means of improving response rates (Cowles, 2018). To encourage participation, the TechCo executives agreed to send the questionnaire link to their teams and invite them to complete it, while noting that participation is voluntary and confidential. The survey was left open for three weeks to maximise participation. The executives sent reminders during the three-week period, which increased the participation rate.

A smaller sample of participants were also recruited from a second organisation, which I named “InsurCo”. This is the Australian subsidiary of one of the world’s largest Insurance groups. I was introduced to two of InsurCo’s HR Directors who were interested in the research topic and allowed their teams to participate in the research. Once again, the questionnaire link was distributed by these senior leaders to their teams and reminders were sent over a three-week period. Response rates for both TechCo and InsurCo are summarised in Table 5.2

Table 5.2
Summary of Data Collection And Response Rates

Research organisation	# participants invited	# surveys returned	Response %
TechCo Sales	156	110	71%
TechCo Business Unit	197	60	30%
TechCo IT/Digital	60	21	35%
Techco Marketing	24	10	42%
TechCo Total	439	201	46%
InsurCo HR	76	32	42%
Total	515	233	45%

The overall response rate across both organisations was 45%. The TechCo sales division had the highest response rate at 71%. This result can be attributed to the fact that the executive leading this division took a particularly strong interest in the research and strongly advocated for it with his team. The TechCo Business Unit, which comprised primarily operations and engineering employees, had the lowest response rate at 30%. The overall response rate of 45% was higher than the average rate of 38% across 1,607 organisational studies reported by Baruch and Holtom (2008). A total of 233 participants completed the survey.

In summary, the methods outlined in this chapter were applied to produce a thoughtfully designed survey which could be distributed to research participants in two organisations. Care was taken to ensure that the layout of the questionnaire was logical and easy to navigate and that its design was attractive, which encouraged participation and completion. Measures were chosen based on their suitability for the research and their reliability and validity were established in prior studies. Enhancements were made to the survey tool based on the findings of a pre-test. In the next chapter, I will begin to examine the data collected by the questionnaire and what it reveals about the mobile technology practices of my respondents.

6. Descriptive Statistics and Measurement Model Assessment

The quantitative data collected for this research study is examined in two chapters. In this chapter, I first provide an overview of the demographic profile of the survey participants. Using the survey data, I then present a picture of the participants' mobile technology usage. Employing Structural Equation Modeling (SEM) with Partial Least Squares (PLS) as the primary analytical tool, the next section provides a précis of the technique before delving into the empirical evaluation. Based on the conceptual model presented in Chapter 4, a measurement model was created and assessed using PLS. The quality of the measurement model is assessed, first at the lower-order level and then at the higher-order. The results of this chapter provide a strong foundation for the exploration of the structural model and the testing of hypotheses, which is the focus of Chapter 7.

6.1. Demographic and Organisational Profile of Survey Participants

Table 6.1 provides an overview of the demographic and organisational characteristics of the 233 survey participants. 70% of the participants were male, closely reflecting the gender distribution at TechCo, a technology organisation with a typically higher representation of male employees. However, it is noteworthy that 75% of the InsurCo HR participants were female, which is aligned with the gendered nature of the human resources profession (Ulrich et al., 2013).

The majority of participants (67%) were in the 35–54 years age category. Most of the participants were married, and 54% had children under the age of 18 living at home. Participants were highly educated, with 92% having gained tertiary qualifications while 18% had post-graduate qualifications. 70% of participants were employed in non-managerial roles. Finally, participants were overwhelmingly (94%) employed in a full-time capacity by their organisations.

Table 6.1
Demographic Profile of Survey Participants

	Frequency	%
Research organisation		
TechCo Sales	110	47.2
TechCo Business Unit	60	25.8
TechCo IT/Digital	21	9.0
TechCo Marketing	10	4.3
InsurCo HR	32	13.7
Total	**233**	**100.0**
Gender		
Male	164	70.4
Female	61	26.2
Non-binary	1	0.4
Prefer not to say	7	3.0
Age		
18–24	5	2.1

25–34	24	10.3
35–44	59	25.3
45–54	96	41.2
55–64	41	17.6
65–74	8	3.4
Marital status		
Married	181	77.7
Never married	30	12.9
Widowed	1	0.4
Divorced	11	4.7
Separated	10	4.3
Children under 18		
Yes	125	53.6
No	108	46.4
Highest education qualifications		
Primary education	1	0.4
Secondary education	17	7.3
Certificate	22	9.4
Diploma or advanced diploma	37	15.9
Bachelor's degree	93	39.9
Graduate certificate or diploma	21	9.0
Postgraduate degree	42	18.0
Level in organisation		
Individual contributor with no direct reports	163	70.0
Manager	43	18.5
Director or above	27	11.6
Employment type		
Full-time employee	219	94.0
Part-time employee	8	3.4
Full-time independent contractor	5	2.1
Part-time independent contractor	1	0.4

6.2. A Profile of Mobile Technology Usage

Table 6.2 provides a summary of descriptive statistics for all constructs.

Table 6.2
Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation	25th %ile	50th %ile	75th %ile
MTU_FRQ	233	1.130	4.530	2.771	0.682	2.333	2.733	3.200
MTU_DUR	233	1.130	4.930	2.483	0.604	2.067	2.333	2.800
SUP_NORM	233	1.000	5.000	2.348	0.820	1.625	2.250	2.875
COL_NORM	233	1.000	5.000	2.239	0.815	1.625	2.125	2.750
AUT	233	1.290	5.000	3.751	0.753	3.286	3.857	4.286
PER	233	2.000	5.000	4.146	0.618	3.667	4.167	4.667
WORK_INTS	233	1.200	5.000	3.245	0.887	2.600	3.400	3.800
CONF	233	1.000	5.000	3.001	0.992	2.250	3.000	3.750
LMX	233	1.710	5.000	4.020	0.737	3.571	4.143	4.714
TMX	233	1.700	5.000	3.861	0.633	3.500	3.900	4.300
JOB_SAT	233	1.000	5.000	3.725	0.809	3.333	3.833	4.167
LIFE_SAT	233	1.000	5.000	3.665	0.885	3.200	3.800	4.200
WORK_INV	233	1.000	5.000	2.420	0.935	1.667	2.333	3.083
BURN	233	1.000	5.000	2.851	0.805	2.400	2.800	3.200
PARA_MIND	233	1.670	5.000	3.559	0.622	3.111	3.556	4.000
GEN	233	1.000	5.000	1.391	0.781	1.000	1.000	2.000
AGE	233	1.000	6.000	3.721	1.048	3.000	4.000	4.000
MAR	233	1.000	5.000	1.451	1.029	1.000	1.000	1.000
KIDS_U18	233	1.000	2.000	1.464	0.500	1.000	1.000	2.000
EDU_QUAL	233	1.000	7.000	4.867	1.437	4.000	5.000	6.000
ORG_LEV	233	1.000	3.000	1.416	0.691	1.000	1.000	2.000
AGL_TEAM	233	1.000	2.000	1.794	0.405	2.000	2.000	2.000
EMPT	233	1.000	4.000	1.090	0.389	1.000	1.000	1.000
WFH	233	0.000	5.000	2.386	1.272	2.000	2.000	3.000
HOURS_WK	233	5.000	75.000	45.746	8.637	40.000	45.000	50.000

MTU-FRQ = Frequency of mobile technology usage, MTU_DUR = duration of mobile technology usage, Sup_Norm = Supervisor technology norms, COL_Norm = Coworker technology norms, AUT = Autonomy, PER = Job performance, CONF = Work-life conflict, TMX = Team–member exchange, LMX = Leader–member exchange, WORK_INTS = Work life intensity, JOB_SAT = Job satisfaction, LIFE_SAT = Life satisfaction, PARA_MIND = Paradox mindset., BURN = Burnout, WORK_INV = Work involvement, GEN = Gender, AGE = Age, MAR = Marital status, KIDS_18 = Number of children under 18 living at home, EDU_QUAL = Highest educational qualifications, ORG_LEV = Organisational level, AGL_TEAM = In Agile team, EMPT = Employment status, WFH = Number of days working from home, HOURS_WK = Average weekly hours.

Survey respondents were asked how they used mobile technology for work-related purposes as well as questions about device ownership. Participants recorded both the frequency and duration of mobile technology usage across different time periods, including during normal work hours; in the morning before normal work hours; in the evening after normal work hours; on weekend days/public holidays; and on annual leave. Furthermore, participants were asked to record their usage across three different device types: mobile phones; laptops and tablets. Recording information in this way allowed me to build a comprehensive profile of mobile technology usage.

Participants were asked about the type of mobile devices they used for work purposes and whether the devices were supplied by their employer or were privately owned. Table 6.3 in Appendix 2 shows that 99% of participants used laptops for work purposes and, not surprisingly, these were overwhelmingly supplied by the employer. The impact of COVID-19 saw a surge in the worldwide sale of laptops as workers were confined to working from home for longer periods.

IDC (2021), a global IT analyst firm, reported that worldwide laptop shipments for the top five manufacturers increased by 13% in 2019/2020 Mobile phones were also extensively used by the study participants. However, 31% of participants supplied their own personal mobile phone for work, in contrast with the mostly employer-supplied laptops. This is a curious phenomenon as mobile phones are used so extensively in the office to be regarded as a tool of trade, yet almost one third of participants supplied their own device. This may reflect the ease with which even personal devices can be connected to corporate email accounts. It may also say something about the cultural norms to stay connected at work, even if the employer is not prepared to supply a separate work device to facilitate this. While tablets were not nearly as popular as other devices, they were nonetheless used by 37% of participants, and 21% had received one from their employer. Tablet devices were overwhelmingly the domain of the TechCo sales division, 23% of whom had been given these devices by the organisation, often to demonstrate the use of this technology to customers as TechCo sold these devices into the enterprise market.

6.2.1. Mobile Technology Usage During Normal Hours

As indicated earlier, respondents were asked to record both the frequency and duration of their mobile technology usage during and outside normal work hours, across the three device types and for several time periods. The frequency of device usage during normal hours was captured on a 5-point scale from “never” to “very often”. Table 6.4 in Appendix 2 displays the results. Not surprisingly, laptops were the most frequently used devices at work. In fact, 94% of respondents said that they used laptops “very often” throughout a normal working day. In interviews during the qualitative phase of this research, TechCo employees described their heavy reliance on laptops to perform their roles and stay connected with colleagues and supervisors. The introduction of MS Teams and the changed working practices resulting from COVID-19 meant they often spent much of their day, whether at home or in the office, on video calls using their laptops. Mobile phones also featured extensively, with 65% of participants stating they used them “very often” during the normal working day. By contrast, tablets appeared to be more peripheral devices. A minority of participants used tablets, and activity typically fell into the “rarely” or “sometimes” categories.

The other measure of mobile technology usage recorded in the survey was *duration*: how long a device was used in a typical workday. Table 6.5 in Appendix 2 summarises the results. Participants used their laptops for long periods throughout the day. In fact, 72% of participants used the laptop for more than six hours during the normal workday. While laptops were used for the longest periods of all three devices, the duration of mobile phone activity was quite surprising. 22% of participants used their mobile phones for periods of up to three hours per day. Again, we can see that tablet use is limited, with most activity lasting for a maximum of 1 hour.

6.2.2. Mobile Technology Usage Outside of Normal Hours

Prior research has outlined how mobile technology can extend the working day and, indeed, the working week (Boswell & Olson-Buchanan, 2007; Cavazotte et al., 2014; Fenner & Renn, 2010; Mazmanian et al., 2013). The portability and ease-of-use of these devices, coupled with organisational norms of availability and responsiveness and, of course, the remote working practices introduced during the pandemic, allow employees to easily connect through their devices and remain working at the end of the day, into the weekend and sometimes on annual leave. This research captured the degree of "work extensification" (Currie & Eveline, 2010) by asking participants to record the frequency and duration of mobile device usage outside of their normal working hours in the morning, evenings, on the weekend and during annual leave.

As Table 6.6 (Appendix 2) shows, using mobile devices outside of normal hours was a regular occurrence for my survey respondents. 67% of participants said they used mobile phones "often" or "very often" in the morning before the start of the normal working day, while 61% did so in the evening. While the frequency of laptop use was lower, it was still considerable. 51% of respondents continued to work on their laptops in the evenings after their normal working day had ended. The duration of device usage before and after normal working hours is naturally lower than during the working day. Table 6.7 highlights that 60% of respondents used their mobile phones for up to 1 hour at night. However, a significant portion of respondents used their laptops (22%) or mobile phones (19%) for more than 1.5 hours per night. At the extreme end, 4% of respondents reported working for more than 3 hours on their laptops in a typical evening.

Evidence that mobile devices play a role in extending the working week can be found in Table 6.6 and Table 6.7 (Appendix 2). Almost 40% of respondents frequently used their mobile phones to work on the weekend and a further 32% did so "sometimes". Even more confronting was the fact that 29% of participants regularly worked on their mobile phones while on annual leave, and an additional 28% did so "sometimes". For most, the duration of use on weekends and annual leave was up to 1 hour. However, there was some evidence of more intensive use. 11% of participants used their mobiles to work for more than 2 hours on a weekend day, and 9% did so on a typical annual leave day.

Some variation in the extent of out-of-hours connectivity was evident for particular cohorts of respondents. Respondents' level of seniority had some bearing on their connectivity practices. For example, those in the most senior roles (Director or above) had an average frequency score for evening mobile use of 4.29 (on a 5-point scale where 5 = always) compared with 3.76 for non-manager respondents ($p = .003$). Their frequency of mobile device usage was also higher in the mornings, and they were also more likely to use all devices on weekends and annual leave. Senior leader not only used their devices more often outside of normal hours but also used them for longer periods of time. For example, senior leaders used mobile devices for an average of 1 to 1.5 hours on weekend days compared to 30 mins to 1 hour for all respondents ($p = <.001$). They

also spent more time on these devices in the mornings and evenings and on annual leave days when compared with more junior colleagues.

Gender was another factor which shaped the extent of mobile technology usage outside of normal working hours for particular devices and in certain time periods. Male respondents recorded higher levels of mobile phone use compared with females. They were more likely to use these devices on weekends and annual leave. Men had an average frequency score of mobile phone use on weekend days of 3.2 compared to 2.72 for women ($p = .016$). Typically, men used their mobile phones on weekend days for 30 to 60 minutes, but women usually kept their usage to less than half an hour. It should be noted that no significant differences existed between men and women for laptop or mobile phone usage in the morning or evenings.

In summary, the results outlined in this chapter show that the workers in this study, much like those in other organisations, had a high reliance on mobile technology to perform their roles. The overwhelming majority worked on an employer-supplied laptop, and these devices were used very frequently throughout the working day. In fact, for most participants, the typical time spent on a laptop was in excess of 6 hours per day, which suggests almost continuous levels of connectivity. Mobile phones were clearly a secondary device, although 65% of participants used them very frequently throughout the working day, and for some, that usage lasted for 3 or more hours. Tablet devices, by contrast, were more of a niche technology used by just over one third of participants, with typical activity of around 1 hour per day.

Using technology to connect to work outside of regular hours was the norm for most participants in this study. 87% of them “sometimes”, “often”, or “very often” used their mobile phones to do some work in the morning before the normal workday even started. 85% logged onto their work phones or laptops in the evenings. Weekend work was a regular occurrence for almost 70% of participants, and 57% “sometimes”, “often” or “very often” used their phones to work while on annual leave.

The technology usage data recorded in this survey supports earlier research which has shown a high level of mobile connectivity outside of normal working hours. A 2011 study undertaken by Josh Fear reveals that 86% of participants performed work on their mobile phones outside of normal hours in the past week. Research conducted by Ofcom in 2014 highlights that almost two thirds of participants engaged in work-related communications outside of work. Pocock and Skinner’s (2013) research shows that 34% of participants checked email at night. This is considerably lower than the 85% of my respondents who used their mobile phones for work in the evenings. 57% of the participants in my study frequently used their mobile phones for work while on annual leave. This compares to 44% of the participants in Towers et al.’s (2005) study and 31% of participants in Williams et al.’s (2014) research. In Towers et al.’s study, 72% of participants used work devices on the weekend. Mobile connectivity on weekends was similar in my study with 85% of participants using laptops and 69% working on mobile phones at least

"sometimes" on Saturdays or Sundays. While precise levels of usage may vary across these studies, collectively they highlight the elevated levels of "work extensification", which is clearly enabled by mobile technology and is increasingly becoming the "norm" for many workers.

6.3. Structural Equation Modelling

Structural Equation Modelling (SEM) was used to analyse the data collected by the questionnaire. SEM is a multivariate technique which allows relationships between multiple variables to be examined simultaneously (Hair et al., 2018). Therefore, SEM is a very useful technique employed by researchers to assess a theoretical model (Thakkar, 2020). This technique enables researchers to inspect the measurement properties of variables as well as the structural relationships between variables specified in a conceptual model (Collier, 2020).

Collier (2020) outlines several advantages of SEM when compared with other traditional multivariate techniques, such as regression: (1) SEM can map relationships between independent and several dependent variables concurrently; (2) the technique has the ability to account for measurement error; and (3) SEM allows researchers to simultaneously test numerous relationships. An additional advantage of SEM is that it provides a graphical interface for researchers, allowing the relationships between variables to be visualised, mapped and assessed (Thakkar, 2020).

Hair et al. (2018) outline six stages in the application of structural equation modelling. First, the individual constructs must be defined. This typically involves operationalising a construct by choosing a scale used in prior research. Next, the measurement model is developed and specified using a path model. In the third stage, a research study is designed and deployed to collect empirical data which is ultimately assessed using SEM. Stage 4 involves assessing the validity of the measurement model using several "goodness of fit" measures. Next, the structural model is specified by mapping the structural relationships between the independent and dependent variables. Finally, in Stage 6, the structural model and the hypothesised relationships between constructs are assessed (Hair et al., 2018).

A SEM model includes two core elements: (1) the measurement model and (2) the structural model. The *measurement model* is concerned with how the latent constructs used in the research are measured. In particular, it assesses the relationship between the latent construct and its individual indicators (Hair et al., 2011). This allows the researcher to examine the reliability and validity of the latent constructs. As Hair et al. (2011) point out, there is little value in exploring the structural relationships between variables if their reliability or validity is in question. For reflective variables, construct reliability and validity are examined by calculating measures such as Cronbach's Alpha, Composite Reliability and Average Variance Extracted (AVE). However, formative measurement models are assessed differently by reviewing convergent validity, examining collinearity and assessing the significance and relevance of individual indicators (Hair

et al., 2017). In the *structural model,* the focus switches to examining how the constructs are related to one another (Hair et al. 2017). The structural relationships between dependent and independent variables are presented as a path model and assessed for strength and direction (Hair et al., 2011). SEM allows the researcher to simultaneously test multiple dependent relationships between constructs using regression analysis and, therefore, examine the hypotheses outlined in a conceptual model (Thakkar, 2020).

Two forms of SEM have emerged. Covariance-based SEM (CB-SEM) is regarded as the traditional form of structural education modelling and is widely used in quantitative research. CB-SEM requires several criteria to be met, including the normality of data and minimum sample sizes (Hair et al., 2011). Partial Least Squares or PLS-SEM has emerged as a popular alternative to CB-SEM and is often used in research projects where CB-SEM criteria cannot be fulfilled (Vinzi et al., 2010). However, PLS has several other advantages including the ability to support research projects with complex conceptual models, smaller sample sizes and projects employing a blend of reflective and formative variables (Hair et al., 2011; Hair et al., 2017). However, a limitation of PLS-SEM, unlike the covariance-based method, is its lack of a well-established goodness-of-fit measure (Hair et al., 2017).

I chose PLS-SEM as the primary method to analyse the quantitative data collected for this research project and to test the hypotheses proposed in my conceptual model. My motivation for this decision was based on two factors. First and foremost, PLS-SEM is comfortable with a blend of reflective and formative variables. As I outlined earlier, my questionnaire recorded data regarding participants' technology practices, such as their frequency of using mobile devices during certain time periods and the duration of time spent on these devices. The variables which measured the frequency and duration of mobile technology usage are formative in nature. The survey also contained many other constructs, such as job performance, work-life conflict and job satisfaction, which are reflective in nature. Second, the conceptual model proposed in this research project is complex. It includes several different measures of mobile technology usage as independent variables and proposes hypotheses for direct effects, mediating effects and moderated mediating effects. PLS-SEM can accommodate such a complex model using a combination of formative and reflective variables. Several software packages have been created to support the application of PLS-SEM. One of the most popular packages is SmartPLS, and this was used to analyse the data for this study. SmartPLS has several advantages, including a highly intuitive graphical interface and advanced reporting functionality (Wong, 2013).

6.4. The Measurement Model

As I mentioned earlier, the measurement model is one of two sub-models in PLS-SEM. The measurement model phase focuses on assessing the quality of the constructs used. The remainder of this chapter is dedicated to examining the measurement model, which is based on the conceptual design outlined in Chapter 4. This is a critical first step before considering the

structural relationships in this model and testing the various hypotheses that I have proposed. In applying PLS-SEM to my research data, I closely followed the systematic procedures recommended by Hair et al. (2017). This commenced with specifying the structural model.

6.4.1. Specifying the Structural Model

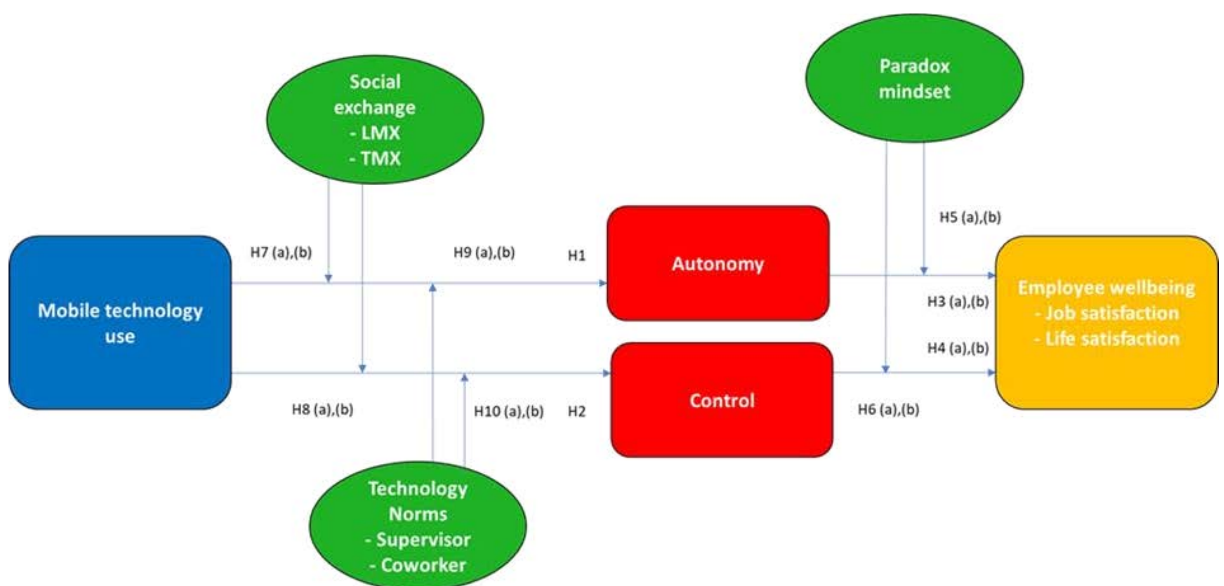
The core objective of this research project is to develop and test a conceptual model which explores the autonomy-control paradox of work-related mobile technology usage and the implications for the wellbeing of workers. In Chapter 4, I outlined the conceptual model at the heart of this research and summarised it in Figure 4.1. The conceptual model specified in Figure 4.1/6.1 is designed to address three research questions:

RQ1: How is mobile technology usage associated with the paradoxical outcomes of autonomy and control?

RQ2: How does the autonomy-control paradox impact employee wellbeing?

RQ3: How do social factors shape the impact of the autonomy-control paradox on employee wellbeing?

Figure 6.1
Revised Conceptual Model



In this model, Autonomy is a higher-order construct with three sub-dimensions: flexibility, job control and job performance. On the opposing side of the paradox is Control, also a higher-order construct, with two sub-dimensions: work intensification and work-life conflict. Taken together these constructs represent the paradox of mobile technology. On the one hand, mobile devices

provide a degree of freedom for workers; on the other, they restrict it. In Chapter 4 of this thesis, I presented the revised conceptual model following the qualitative phase of this research. This model comprises several hypotheses including: (1) direct effects – that mobile technology use is associated with higher levels of autonomy and control; (2) mediated effects – that mobile technology is associated with both higher and lower levels of job and life satisfaction; and (3) moderated mediation effects – that these mediated effects are moderated by LMX, TMX and the technology norms cultivated by supervisors and co-workers.

6.4.2. Specifying the Measurement Model

Now that the structural model has been specified, the next stage recommended by Hair et al. (2017) in applying PLS-SEM is to specify the measurement model. In Chapter 5, I outlined the quantitative methods used in this study, including the questionnaire designed to collect data to test the conceptual model. Mobile technology usage was conceptualised as the extent of using mobile technology devices (smartphones, tablets and laptops) for work-related purposes. In line with prior research, mobile technology usage was measured by asking questionnaire participants to record the frequency of their usage on a 5-point scale from “never” to “very often”. Usage frequency was captured for several time periods, both during and outside normal working hours, and across three devices: laptops, mobile phones and tablets. To measure the other key constructs of interest, such as job performance, work intensification or job satisfaction, scales were selected from prior studies which demonstrated strong reliability and validity. In a small number of cases, adjustments were made to the scales for better alignment with the research objectives of this study. For example, to measure autonomy, statements were combined from the Work Design Questionnaire (Morgeson & Humphrey, 2006) with some statements from Kossek et al. (2006). Data was collected from 233 participants using the questionnaire and initially analysed in SPSS and then input into SmartPLS. Importantly, the sample-to-item ratio for PLS SEM was not exceeded in this study.

Following the guidance of Becker et al (2013), I used weighting Mode A for formative variables as this is the preferred approach for smaller samples and moderate to small R^2 values. At this stage, the measurement model was prepared in the lower-order format. Therefore, the sub-dimensions of autonomy—autonomy and job performance—and the sub-dimensions of control—work intensification and work-life conflict—are included. Furthermore, mobile technology usage is outlined in its component parts, that is, mobile, laptop and tablet usage. Specifying a lower-order model in this way is a necessary step before creating the higher-order measurement model.

The model contains two types of constructs: (1) reflective and (2) formative. According to Bedford and Speklé (2018), these construct types can be distinguished from one another in several ways. First is the direction of causality. In the case of reflective constructs, the indicators reflect the underlying construct. Therefore, causality runs from the construct to the individual indicators. The opposite is true for formative constructs, where causality runs from the indicators to the construct.

In other words, the indicators "form" the construct. The second distinguishing characteristic is the interchangeability of indicators. Individual indicators in reflective constructs are interchangeable with one another. As each indicator "reflects" the underlying construct, items can be removed without changing the fundamental meaning of the construct. However, formative indicators are not normally interchangeable as together they form the construct. Another way in which reflective and formative variables may be distinguished relates to covariance. Covariance is expected from reflective indicators "because they share a common cause (i.e., the underlying construct)" (Bedford & Speklé, 2018, p. 36). However, formative indicators are not expected to covary (Bedford & Speklé, 2018).

The dependent and moderating constructs used in this study, such as work-life conflict, job satisfaction and LMX, have a long history in psychology and organisational behaviour studies as being treated as reflective in nature, and this same approach was used in this study. By contrast, the mobile technology usage variables were considered to be more likely formative in nature. The indicators forming the construct "frequency of mobile technology use", while similar, are certainly not the same. For example, working on a mobile phone is not the same activity or experience as working on a laptop. Similarly, using any of three devices (mobile, laptop, tablet) on an annual leave day is not the same experience as, say, working late on a normal weekday evening. Therefore, these device indicators would not be considered as interchangeable. Furthermore, the direction of causality runs from the three device indicators to form the underlying construct of mobile technology usage. Indicators for the three device types across all five time periods—during normal work hours; in the morning before normal work hours; in the evening after normal work hours; on weekend days/public holidays; on annual leave—formed the underlying construct "frequency of mobile technology usage"

6.4.3. Evaluating the Measurement Model

The procedures involved in evaluating reflective and formative constructs are different (Hair et al., 2011; Hair et al., 2017). For reflective constructs, evaluation is conducted by focusing on their reliability and validity. However, this approach is not suitable for formative variables. Instead, I will outline the approach recommended by Hair et al. (2011) and Hair et al (2017).

6.4.3.1 Assessing Reflective Constructs—Construct Reliability and Validity

Measuring construct reliability and validity are essential tests when conducting quantitative research using reflective constructs (Hair et al., 2018). Put simply, these tests examine whether the data collected adequately captures the primary constructs of interest. Blunch (2017) defines reliability as follows: "The reliability of an instrument is its ability to give nearly identical results in repeated measurements under identical conditions. In other words, reliability is about reproducibility" (p. 2).

The most popular method of measuring the reliability of construct indicators is Cronbach's Alpha, a coefficient ranging from 0 to 1. According to Nunnally and Berstein (1994), a score greater than

0.7 represents an acceptable level of reliability. As a result of some limitations of Cronbach's Alpha, an additional measure, Composite Reliability, is now commonly used in quantitative analysis (Hair et al., 2017).

By contrast, construct validity examines the extent to which the construct is measuring what it is supposed to measure. For example, when measuring the validity of a job satisfaction scale, we are posing the question: Does this job satisfaction scale actually measure how satisfied a worker is with her job? Carlson et al. (2010) suggest that we should not consider validity in a binary way, that is, whether a construct is valid or not. Instead, construct validity is a spectrum along which we can see varying degrees of precision in measuring the essence of the construct. Two types of validity are of particular interest. Convergent Validity measures the degree to which each of the construct indicators is measuring the same concept (Collier, 2020). It is tested by calculating the outer loading of construct indicators and calculating the Average Variance Extracted (AVE) (Hair et al., 2017).

Discriminant Validity measures the distinctiveness of a construct, or in other words, the extent to which it is different from other constructs. This form of validity can be assessed in several ways. First, the outer loadings and cross-loadings can be compared. Second, the Fornell and Larcker (1981) approach compares the square root of the AVE values with latent variable correlations. Third, Henseler et al. (2015) provided the Heterotrait-Monotrait ratio (HTMT), which they define as "the average of the heterotrait-heteromethod correlations (i.e. the correlations of indicators across constructs measuring different phenomena), relative to the average of the monotrait-heteromethod correlations (i.e. the correlations of indicators within the same construct" (p. 6).

6.4.3.2 Assessing Formative Constructs

As I mentioned earlier, when assessing formative constructs, a different approach is taken to that used in reflective construct evaluation. This is because the individual formative indicators are not expected to correlate highly in the same way as reflective indicators. Therefore, the tests of convergent validity and discriminant validity used for reflective indicators are simply not relevant to formative ones (Hair et al., 2017.). Instead, Hair et al. (2017) recommend an alternative procedure comprised of three steps. In Step 1, convergent validity is assessed by testing "whether the formatively measured construct is highly correlated with a reflective measure of the same construct" (Hair et al., 2017, p. 140). Next, formative indicators are checked for evidence of collinearity, which can be detrimental. Collinearity is assessed by measuring Tolerance (TOL) and the Variance Inflation Factor (VIF). In the final step, the significance and relevance of formative indicators are examined by reviewing their outer weights and loadings (Hair et al., 2017).

6.4.3.3 Assessing the Measurement Model for Frequency of Mobile Technology Usage

This measurement model included both reflective and formative indicators and was assessed using the procedures set out by Hair et al. (2017). As I mentioned earlier, both lower-order and

higher-order models were created. First, I will evaluate the lower-order version of the model before moving to the higher-order format.

6.4.3.3.1 Evaluating the Lower-order Model—Reflective Constructs

To assess the measurement model, we must evaluate the reflective and formative constructs separately, using different methods. I evaluated the reflective constructs by assessing their internal consistency reliability, convergent validity and discriminant validity. The questionnaire data was uploaded to SmartPLS to create the frequency of mobile technology usage construct. SmartPLS uses a PLS algorithm to evaluate the reliability and validity of reflective constructs. After running the algorithm, SmartPLS produced the results presented in Table 6.8.

Table 6.8
Construct Reliability—Frequency of Mobile Technology Usage (Lower-Order Model)

Construct	Cronbach's alpha	Composite reliability	Average Variance Extracted (AVE)
AUT	0.844	0.855	0.520
COL_NORM	0.872	0.898	0.532
CONF	0.871	0.889	0.720
JOB_SAT	0.890	0.917	0.658
LIFE_SAT	0.919	0.923	0.757
LMX	0.909	0.923	0.647
PARA_MIND	0.871	0.881	0.490
PER	0.881	0.888	0.627
SUP_NORM	0.831	0.864	0.472
TMX	0.880	0.899	0.478
WORK_INTS	0.856	0.860	0.636

AUT = Autonomy, PER = Job performance, CONF = Work-life conflict, WORK_INTS = Work life intensity, COL_Norm = Coworker technology norms, Sup_Norm = Supervisor technology norms, TMX = Team–member exchange, LMX = Leader–member exchange, JOB_SAT = Job satisfaction, LIFE_SAT = Life satisfaction, PARA_MIND = Paradox mindset.

I highlighted earlier that reliability is traditionally evaluated by assessing the Cronbach Alpha, a measure which should be greater than 0.7 (Hair et al., 2017). The Cronbach Alpha scores for all reflective constructs are presented in Table 6.8 and ranged from 0.844 to 0.919. Cronbach's Alpha has several shortcomings and, therefore, an additional evaluation method, Composite Reliability, is now regularly used. Like Cronbach Alpha, Composite Reliability scores range from 0 to 1 and scores over 0.7 are an indication of reliability. The SmartPLS algorithm produced the composite reliability scores outlined in Table 6.8. These scores ranged from 0.855 to 0.923. As both the Cronbach Alpha and Composite reliability scores were greater than 0.7, the reliability of reflective constructs in the measurement model was established.

Convergent validity is measured by calculating the AVE for each of the reflective constructs in the measurement model. According to Fornell and Larcker (1981), when the AVE for a construct is equal to or greater than 0.5, this is an indicator that the individual items are converging to measure

the underlying construct and, therefore, construct validity is established. Table 6.8 shows that three of the constructs, SUP_NORM, TMX and PARA_MIND, had an AVE value of less than 0.5. Therefore, outer loadings for each of the constructs were assessed (see Table 6.9).

Table 6.9
Outer Loadings—Frequency of Mobile Technology Usage

Constructs	Outer loadings	Indicator statement
AUT1 <- AUT	0.761	
AUT2 <- AUT	0.752	
AUT3 <- AUT	0.822	
AUT4 <- AUT	0.736	
AUT5 <- AUT	0.674	
AUT6 <- AUT	0.715	
AUT7 <- AUT	0.558	
COL_NORM1 <- COL_NORM	0.704	
COL_NORM2 <- COL_NORM	0.865	
COL_NORM3 <- COL_NORM	0.812	
COL_NORM4 <- COL_NORM	0.800	
COL_NORM5 <- COL_NORM	0.758	
COL_NORM6 <- COL_NORM	0.720	
COL_NORM7 <- COL_NORM	0.679	
CONF1 <- CONF	0.770	
CONF2 <- CONF	0.873	
CONF3 <- CONF	0.874	
CONF4 <- CONF	0.872	
JOB_SAT1 <- JOB_SAT	0.897	
JOB_SAT2 <- JOB_SAT	0.878	
JOB_SAT3 <- JOB_SAT	0.564	
JOB_SAT4 <- JOB_SAT	0.692	
JOB_SAT5 <- JOB_SAT	0.887	
JOB_SAT6 <- JOB_SAT	0.887	
LIFE_SAT1 <- LIFE_SAT	0.871	
LIFE_SAT2 <- LIFE_SAT	0.895	
LIFE_SAT3 <- LIFE_SAT	0.918	
LIFE_SAT4 <- LIFE_SAT	0.881	
LIFE_SAT5 <- LIFE_SAT	0.777	
LMX1 <- LMX	0.802	
LMX2 <- LMX	0.851	
LMX3 <- LMX	0.844	
LMX4 <- LMX	0.804	
LMX5 <- LMX	0.684	
LMX6 <- LMX	0.783	
LMX7 <- LMX	0.851	

PARA_MIND1 <- PARA_MIND	0.588	“When I consider conflicting perspectives, I gain a better understanding of an issue.”
PARA_MIND2 <- PARA_MIND	0.707	
PARA_MIND3 <- PARA_MIND	0.678	
PARA_MIND4 <- PARA_MIND	0.784	
PARA_MIND5 <- PARA_MIND	0.813	
PARA_MIND6 <- PARA_MIND	0.702	
PARA_MIND7 <- PARA_MIND	0.656	
PARA_MIND8 <- PARA_MIND	0.715	
PARA_MIND9 <- PARA_MIND	0.624	
PER1 <- PER	0.788	
PER2 <- PER	0.793	
PER3 <- PER	0.817	
PER4 <- PER	0.814	
PER5 <- PER	0.784	
PER6 <- PER	0.751	
SUP_NORM1 <- SUP_NORM	0.720	
SUP_NORM2 <- SUP_NORM	0.816	
SUP_NORM3 <- SUP_NORM	0.732	
SUP_NORM4 <- SUP_NORM	0.784	
SUP_NORM5 <- SUP_NORM	0.663	
SUP_NORM6 <- SUP_NORM	0.692	
SUP_NORM7 <- SUP_NORM	0.679	
SUP_NORM8 <- SUP_NORM	0.255	“My colleagues respond to work-related messages immediately”
TMX1 <- TMX	0.711	
TMX2 <- TMX	0.686	
TMX3 <- TMX	0.733	
TMX4 <- TMX	0.768	
TMX5 <- TMX	0.669	
TMX6 <- TMX	0.704	
TMX7 <- TMX	0.671	
TMX8 <- TMX	0.572	“I often make suggestions about better work methods to other team members”
TMX9 <- TMX	0.707	
TMX10 <- TMX	0.674	
WORK_INTS1 <- WORK_INTS	0.728	
WORK_INTS2 <- WORK_INTS	0.797	
WORK_INTS3 <- WORK_INTS	0.804	
WORK_INTS4 <- WORK_INTS	0.789	
WORK_INTS5 <- WORK_INTS	0.863	

AUT = Autonomy, PER = Job performance, CONF = Work-life conflict, WORK_INTS = Work life intensity, COL_Norm = Coworker technology norms, Sup_Norm = Supervisor technology norms, TMX = Team–member exchange, LMX = Leader–member exchange, JOB_SAT = Job satisfaction, LIFE_SAT = Life satisfaction, PARA_MIND = Paradox mindset.

Hair et al. (2017) suggest that indicators with lower outer loadings (between 0.4 and 0.7) should be considered for removal if this improves composite reliability or AVE above the threshold. Table

6.9 highlights that three of the construct indicators had low outer loadings. Therefore, SUP_NORM 8, TMX8 and PARA_MIND1 were deleted. Following the deletion of these items, the SmartPLS algorithm was run again to assess the construct reliability and convergent validity of the revised measurement model. The results are outlined in Table 6.10.

By deleting the three indicators, the AVE for the SUP_NORM, TMX and PARA_MIND constructs increased above 0.5 with some minor changes to the reliability measures (refer Table 6.10). As the Cronbach Alpha, Composite Reliability and AVE scores were above the threshold for all constructs, the construct reliability and convergent validity for the revised measurement model were established.

Table 6.10
Construct Reliability and Convergent Validity for the Revised Frequency of Mobile Technology Usage Measurement Model (Lower-order Model)

Construct	Cronbach's alpha	Composite reliability	Average variance extracted (AVE)
AUT	0.844	0.855	0.520
COL_NORM	0.872	0.898	0.532
CONF	0.871	0.889	0.720
JOB_SAT	0.890	0.917	0.658
LIFE_SAT	0.919	0.924	0.756
LMX	0.909	0.923	0.647
PARA_MIND	0.870	0.884	0.520
PER	0.881	0.888	0.627
SUP_NORM	0.852	0.861	0.531
TMX	0.878	0.900	0.502
WORK_INTS	0.856	0.861	0.636

AUT = Autonomy, PER = Job performance, CONF = Work-life conflict, WORK_INTS = Work life intensity, COL_Norm = Coworker technology norms, Sup_Norm = Supervisor technology norms, TMX = Team–member exchange, LMX = Leader–member exchange, JOB_SAT = Job satisfaction, LIFE_SAT = Life satisfaction, PARA_MIND = Paradox mindset.

Discriminant validity is a measure of a construct's level of distinctiveness from other constructs (Hair et al., 2017). This was assessed by several methods. First, I compared the *cross-loadings* for each of the indicators. By comparing the columns and rows in Table 6.11, we can see that each of the loadings is greater than its cross-loadings, which is an indication of discriminant validity.

The second approach was the *Fornell-Larcker criterion* method. This approach compares the square root of the AVE measures with construct correlations (Hair et al., 2017). Table 6.12 shows that the square root of each AVE is higher than the correlations with other constructs, which is another indication of discriminant validity.

The final test of discriminant validity is to assess the HTMT. This is a "ratio of the between-trait correlations to the within-trait correlations" (Hair et al., 2017, p118). As can be seen from Table

6.13, HTMT values are below the threshold of 0.85, which is a further indicator of discriminant validity.

Table 6.11

Discriminant Validity (Cross-Loadings)—Frequency of Mobile Technology Usage (Lower-Order Model)

	AUT	COL_NORM	CONF	JOB_SAT	LIFE_SAT	LMX	PARA_MIND	PER	SUP_NORM	TMX	WORK_INTS
AUT1	0.762	-0.159	-0.126	0.220	0.180	0.354	0.178	0.119	-0.094	0.217	0.000
AUT2	0.752	-0.153	-0.061	0.258	0.129	0.369	0.152	0.269	-0.124	0.305	-0.020
AUT3	**0.822**	-0.301	-0.162	0.291	0.194	0.306	0.136	0.253	-0.191	0.306	-0.057
AUT4	0.735	-0.111	-0.099	0.227	0.108	0.194	0.133	0.150	-0.075	0.297	0.094
AUT5	0.675	-0.087	-0.065	0.163	0.137	0.268	0.111	0.167	-0.091	0.238	0.048
AUT6	0.715	-0.067	-0.106	0.248	0.135	0.271	0.136	0.082	-0.104	0.316	0.085
AUT7	0.559	-0.147	-0.212	0.161	0.101	0.207	0.079	0.085	-0.132	0.201	-0.041
COL_NORM1	-0.125	0.710	0.301	0.029	0.032	-0.110	0.133	0.105	0.464	-0.110	0.235
COL_NORM2	-0.191	**0.863**	0.399	0.065	0.055	-0.196	0.239	0.232	0.627	-0.101	0.382
COL_NORM3	-0.337	0.807	0.361	-0.119	-0.084	-0.316	0.042	0.047	0.489	-0.294	0.344
COL_NORM4	-0.132	0.799	0.355	0.079	0.017	-0.182	0.233	0.200	0.599	-0.088	0.340
COL_NORM5	-0.106	0.758	0.356	-0.003	-0.050	-0.159	0.118	0.024	0.441	-0.061	0.305
COL_NORM6	-0.114	0.718	0.358	-0.004	-0.075	-0.160	0.067	-0.005	0.427	-0.055	0.320
COL_NORM7	-0.072	0.684	0.257	0.055	-0.050	-0.148	0.215	0.144	0.495	0.068	0.286
COL_NORM8	-0.016	0.399	0.036	0.047	0.044	0.014	0.113	0.051	0.268	0.090	0.067
CONF1	-0.155	0.247	0.771	-0.204	-0.119	-0.201	0.016	0.037	0.292	-0.140	0.558
CONF2	-0.083	0.350	**0.874**	-0.104	-0.186	-0.149	0.016	0.140	0.370	-0.010	0.620
CONF3	-0.193	0.451	0.873	-0.020	-0.145	-0.152	0.082	0.187	0.413	0.015	0.563
CONF4	-0.115	0.423	0.872	-0.114	-0.133	-0.113	0.088	0.069	0.373	-0.018	0.530
JOB_SAT1	0.306	-0.001	-0.119	**0.896**	0.384	0.384	0.288	0.404	0.037	0.380	-0.003
JOB_SAT2	0.332	0.017	-0.134	0.878	0.429	0.382	0.306	0.376	0.021	0.356	-0.064
JOB_SAT3	0.072	0.176	0.200	0.563	0.208	0.143	0.048	0.176	0.218	0.190	0.115
JOB_SAT4	0.225	-0.046	-0.168	0.696	0.352	0.300	0.129	0.216	0.016	0.235	-0.107
JOB_SAT5	0.257	0.015	-0.144	0.887	0.433	0.282	0.302	0.328	0.047	0.365	-0.066
JOB_SAT6	0.298	-0.049	-0.153	0.887	0.437	0.376	0.244	0.228	0.012	0.419	-0.094
LIFE_SAT1	0.187	-0.062	-0.175	0.485	0.871	0.198	0.178	0.193	0.061	0.170	-0.045

LIFE_SAT2	0.245	-0.081	-0.224	0.394	0.894	0.182	0.202	0.182	0.019	0.180	-0.084
LIFE_SAT3	0.215	-0.061	-0.181	0.461	**0.917**	0.133	0.214	0.208	0.093	0.162	-0.067
LIFE_SAT4	0.183	0.014	-0.091	0.385	0.882	0.113	0.262	0.188	0.093	0.177	0.050
LIFE_SAT5	0.035	0.067	-0.096	0.322	0.778	0.109	0.224	0.167	0.163	0.182	-0.011
LMX1	0.364	-0.134	-0.126	0.313	0.127	0.802	0.106	0.253	-0.182	0.313	-0.116
LMX2	0.264	-0.178	-0.121	0.294	0.136	**0.851**	0.152	0.208	-0.212	0.314	-0.119
LMX3	0.319	-0.208	-0.145	0.414	0.154	0.844	0.123	0.311	-0.214	0.398	-0.099
LMX4	0.275	-0.169	-0.177	0.302	0.174	0.804	0.093	0.127	-0.164	0.336	-0.149
LMX5	0.307	-0.243	-0.157	0.269	0.112	0.683	0.056	0.076	-0.177	0.293	-0.092
LMX6	0.270	-0.167	-0.086	0.218	0.074	0.783	0.215	0.164	-0.160	0.366	-0.013
LMX7	0.393	-0.249	-0.168	0.337	0.146	0.851	0.187	0.300	-0.229	0.347	-0.118
PARA_MIND2	0.190	0.058	0.068	0.256	0.224	0.209	0.681	0.289	0.047	0.286	0.133
PARA_MIND3	0.175	0.176	0.110	0.161	0.166	0.099	0.689	0.158	0.147	0.117	0.166
PARA_MIND4	0.102	0.173	-0.029	0.276	0.191	0.069	0.800	0.214	0.195	0.144	0.092
PARA_MIND5	0.065	0.180	0.038	0.256	0.215	0.105	**0.829**	0.211	0.213	0.137	0.083
PARA_MIND6	0.204	0.143	0.137	0.175	0.205	0.130	0.715	0.281	0.127	0.133	0.230
PARA_MIND7	0.134	0.217	0.075	0.107	0.130	0.177	0.686	0.259	0.131	0.116	0.135
PARA_MIND8	0.113	0.116	-0.026	0.215	0.154	0.100	0.727	0.234	0.119	0.200	0.057
PARA_MIND9	0.112	0.102	0.015	0.037	0.081	0.045	0.620	0.197	0.073	0.128	0.077
PER1	0.317	0.095	0.047	0.276	0.204	0.308	0.292	0.788	0.066	0.294	0.164
PER2	0.127	0.081	0.102	0.222	0.125	0.210	0.259	0.793	0.015	0.169	0.084
PER3	0.230	0.089	0.117	0.360	0.190	0.258	0.263	**0.817**	0.088	0.239	0.152
PER4	0.112	0.182	0.130	0.313	0.147	0.166	0.223	0.814	0.158	0.169	0.270
PER5	0.127	0.176	0.166	0.333	0.191	0.174	0.234	0.784	0.181	0.182	0.258
PER6	0.174	0.027	0.065	0.200	0.163	0.153	0.249	0.751	0.024	0.159	0.151
SUP_NORM1	-0.115	0.534	0.305	0.038	0.026	-0.166	0.121	0.086	0.719	-0.084	0.295
SUP_NORM2	-0.169	0.596	0.369	0.058	0.051	-0.285	0.221	0.132	**0.820**	-0.071	0.374
SUP_NORM3	-0.288	0.470	0.259	-0.039	0.040	-0.393	0.062	0.032	0.737	-0.230	0.271
SUP_NORM4	-0.159	0.571	0.380	0.062	0.059	-0.277	0.105	0.047	0.786	-0.188	0.405
SUP_NORM5	-0.048	0.377	0.281	0.024	0.127	-0.019	0.178	0.123	0.662	0.000	0.371

SUP_NORM6	-0.052	0.353	0.290	0.097	0.143	-0.042	0.162	0.079	0.693	0.052	0.272
SUP_NORM7	0.029	0.451	0.295	0.086	0.086	0.011	0.101	0.112	0.671	0.053	0.321
TMX1	0.364	-0.114	-0.025	0.435	0.176	0.355	0.178	0.341	-0.063	0.727	0.108
TMX10	0.195	-0.039	0.032	0.218	0.078	0.325	0.245	0.105	-0.066	0.674	0.155
TMX2	0.213	-0.122	-0.061	0.267	0.223	0.377	0.164	0.126	-0.086	0.703	0.005
TMX3	0.283	-0.171	-0.169	0.325	0.275	0.282	0.095	0.107	-0.137	0.754	-0.066
TMX4	0.328	-0.032	0.045	0.288	0.098	0.277	0.204	0.186	-0.072	**0.758**	0.140
TMX5	0.235	-0.137	0.009	0.152	0.074	0.216	0.175	0.250	-0.044	0.667	0.045
TMX6	0.259	-0.093	-0.059	0.278	0.158	0.248	0.087	0.074	-0.074	0.715	0.032
TMX7	0.204	-0.091	-0.043	0.334	0.218	0.275	0.048	0.187	-0.070	0.676	0.005
TMX9	0.196	0.016	0.024	0.211	-0.033	0.327	0.236	0.105	-0.029	0.696	0.142
WORK_INTS1	0.177	0.294	0.399	0.122	0.063	-0.006	0.193	0.305	0.297	0.235	0.727
WORK_INTS2	-0.025	0.253	0.543	-0.089	-0.037	-0.104	0.007	0.040	0.332	0.113	0.796
WORK_INTS3	0.006	0.252	0.520	-0.080	-0.052	-0.055	0.123	0.267	0.327	0.082	**0.804**
WORK_INTS4	-0.013	0.425	0.528	-0.002	0.011	-0.135	0.198	0.241	0.425	-0.016	0.790

AUT = Autonomy, PER = Job performance, CONF = Work-life conflict, WORK_INTS = Work life intensity, COL_Norm = Coworker technology norms, Sup_Norm = Supervisor technology norms, TMX = Team–member exchange, LMX = Leader–member exchange, JOB_SAT = Job satisfaction, LIFE_SAT = Life satisfaction, PARA_MIND = Paradox mindset.

Table 6.12

Discriminant Validity (Fornell–Larcker Criterion)—Frequency of Mobile Technology Usage (Lower-Order Model)

	AUT	COL_NORM	CONF	JOB_SAT	LIFE_SAT	LMX	PARA_MIND	PER	SUP_NORM	TMX	WORK_INTS
AUT	0.721										
COL_NORM	-0.208	0.729									
CONF	-0.160	0.445	0.848								
JOB_SAT	0.315	0.018	-0.119	0.811							
LIFE_SAT	0.198	-0.025	-0.172	0.469	0.870						
LMX	0.397	-0.240	-0.176	0.389	0.166	0.804					
PARA_MIND	0.186	0.197	0.064	0.288	0.252	0.166	0.721				
PER	0.231	0.144	0.134	0.366	0.216	0.270	0.319	0.792			
SUP_NORM	-0.162	0.666	0.432	0.064	0.101	-0.241	0.188	0.120	0.729		
TMX	0.375	-0.126	-0.035	0.409	0.201	0.420	0.227	0.259	-0.099	0.708	
WORK_INTS	0.018	0.414	0.665	-0.050	-0.032	-0.129	0.167	0.234	0.458	0.095	0.797

AUT = Autonomy, PER = Job performance, CONF = Work-life conflict, WORK_INTS = Work life intensity, COL_Norm = Coworker technology norms, Sup_Norm = Supervisor technology norms, TMX = Team–member exchange, LMX = Leader–member exchange, JOB_SAT = Job satisfaction, LIFE_SAT = Life satisfaction, PARA_MIND = Paradox mindset.

Table 6.13

Discriminant Validity (Heterotrait-Monotrait Ratio (HTMT)—Frequency of Mobile Technology Usage (Lower-Order Model)

	AUT	COL_NORM	CONF	JOB_SAT	LIFE_SAT	LMX	PARA_MIND	PER	SUP_NORM	TMX	WORK_INTS
AUT											
COL_NORM	0.232										
CONF	0.195	0.467									
JOB_SAT	0.352	0.113	0.227								
LIFE_SAT	0.226	0.095	0.196	0.517							
LMX	0.439	0.256	0.201	0.423	0.183						
PARA_MIND	0.224	0.242	0.121	0.282	0.260	0.183					
PER	0.258	0.170	0.145	0.396	0.238	0.282	0.363				
SUP_NORM	0.210	0.754	0.490	0.118	0.133	0.280	0.214	0.146			
TMX	0.413	0.177	0.115	0.437	0.233	0.472	0.257	0.262	0.173		
WORK_INTS	0.136	0.447	0.770	0.162	0.089	0.147	0.215	0.279	0.526	0.171	

AUT = Autonomy, PER = Job performance, CONF = Work-life conflict, WORK_INTS = Work life intensity, COL_Norm = Coworker technology norms, Sup_Norm = Supervisor technology norms, TMX = Team–member exchange, LMX = Leader–member exchange, JOB_SAT = Job satisfaction, LIFE_SAT = Life satisfaction, PARA_MIND = Paradox mindset.

6.4.3.3.2 Evaluating the Lower-order Model—Formative Constructs

Thus far, I have established the construct reliability and validity of the reflective constructs in the measurement model using several tests. However, these tests cannot be applied to the formative constructs (i.e., frequency of mobile technology usage). Instead, Hair et al. (2017) recommend a three-step approach to evaluating formative constructs. In Step 1, the formative measure is correlated with a reflective measure of the same construct to assess convergent validity. Step 2 involves checking the formative indicators for the presence of collinearity. Finally in Step 3, the outer weights and loadings are examined. It is worth recalling that the measurement model has several formative variables measuring the frequency of mobile phone, laptop and tablet usage during normal work hours, in the morning, evening, weekend and during annual leave. These are single-item concrete variables (Rossiter, 2002), and, therefore, their assessment by using this three-step process was not meaningful. Instead, I will outline in the next section how these items were combined to form a higher-order construct, which will then be assessed by the three-step process.

6.4.3.3.3 Evaluating the Higher-order Model

The conceptual model designed for this study required analysing constructs in both lower-order and higher-order forms. Thus far, I have analysed the measurement model at the lower-order level. In describing the design of the conceptual model in Chapter 4, I explained that the autonomy side of the mobile technology paradox was comprised of the experience of job autonomy and job performance when using mobile devices. Therefore, in the conceptual model, the reflective constructs of job autonomy and job performance were combined to form a higher-order construct of autonomy. The control side of the paradox in the conceptual model was comprised of work-life conflict and work intensification. Again, in the measurement model, these reflective constructs were combined to form a higher-order construct of control. Both higher-order constructs were specified as Reflective, Formative. Using the Disjoint Two Stage approach (Becker et al., 2012; Ringle et al., 2012; Wetzels et al., 2009), the higher-order constructs were modelled using the latent variable scores of the lower-order constructs.

The lower-order model included several individual measures of mobile technology usage which recorded the frequency of usage for the three individual device types across the different time periods. In the higher-order model, these measures were combined to form the higher-order construct of Frequency of mobile technology usage. This higher-order construct was specified as Formative, Formative. Once again, this construct was modelled using the latent variable scores of the lower-order mobile technology constructs.

6.4.3.3.4 Evaluating the Higher-order Model—Reflective Constructs

The reflective constructs in the higher-order model were assessed in the same way as those in the lower-order model. Table 6.14 outlines the Cronbach Alpha, Composite Reliability and AVE for the reflective constructs.

Table 6.14
Construct Reliability and Convergent Validity—Frequency of Mobile Technology Usage (Higher-Order Model)

Construct	Cronbach's alpha	Composite reliability	Average variance extracted (AVE)
COL_NORM	0.872	0.894	0.532
JOB_SAT	0.890	0.930	0.657
LIFE_SAT	0.919	0.930	0.757
LMX	0.909	0.927	0.647
PARA_MIND	0.870	0.884	0.520
SUP_NORM	0.852	0.861	0.531
TMX	0.878	0.904	0.501
COL_NORM	0.872	0.894	0.532

COL_Norm = Coworker technology norms, Sup_Norm = Supervisor technology norms, TMX = Team–member exchange, LMX = Leader–member exchange, JOB_SAT = Job satisfaction, LIFE_SAT = Life satisfaction, PARA_MIND = Paradox mindset.

The Cronbach Alpha, Composite Reliability and AVE scores were above the recommended thresholds and therefore construct reliability and convergent validity were established.

As with the lower-order model, the discriminant validity of the reflective constructs was assessed by examining the outer loadings, Fornell-Larcker criterion and HTMT ratios. These are displayed in Tables 6.15, 6.16 and 6.17. As can be seen from these tables, the results were in line with the thresholds for these tests and, therefore, convergent validity was established.

Table 6.15
Discriminant Validity (Cross-Loadings)—Frequency of Mobile Technology Usage (Higher-Order Model)

	COL_NORM	JOB_SAT	LIFE_SAT	LMX	PARA_MIND	SUP_NORM	TMX
COL_NORM1	0.703	0.018	0.026	-0.109	0.133	0.463	-0.112
COL_NORM2	**0.855**	0.050	0.045	-0.195	0.239	0.625	-0.102
COL_NORM3	0.802	-0.124	-0.094	-0.316	0.042	0.486	-0.296
COL_NORM4	0.792	0.071	0.014	-0.181	0.234	0.599	-0.089
COL_NORM5	0.770	-0.019	-0.057	-0.159	0.118	0.442	-0.062
COL_NORM6	0.733	-0.020	-0.080	-0.160	0.067	0.429	-0.056
COL_NORM7	0.686	0.045	-0.055	-0.148	0.215	0.496	0.068
COL_NORM8	0.396	0.044	0.041	0.014	0.113	0.269	0.090
JOB_SAT1	-0.002	0.903	0.388	0.385	0.287	0.039	0.380
JOB_SAT2	0.016	0.887	0.434	0.382	0.305	0.023	0.357
JOB_SAT3	0.177	0.509	0.208	0.142	0.047	0.220	0.192
JOB_SAT4	-0.049	0.700	0.355	0.300	0.129	0.016	0.235
JOB_SAT5	0.013	0.890	0.432	0.283	0.302	0.047	0.366
JOB_SAT6	-0.049	**0.892**	0.439	0.376	0.244	0.014	0.420
LIFE_SAT1	-0.063	0.487	0.879	0.197	0.178	0.062	0.171
LIFE_SAT2	-0.084	0.401	0.909	0.182	0.202	0.020	0.181
LIFE_SAT3	-0.063	0.463	**0.925**	0.133	0.214	0.094	0.164
LIFE_SAT4	0.012	0.387	0.873	0.113	0.262	0.094	0.177
LIFE_SAT5	0.064	0.322	0.754	0.109	0.224	0.164	0.183
LMX1	-0.133	0.324	0.130	0.805	0.106	-0.179	0.315
LMX2	-0.179	0.304	0.135	0.853	0.152	-0.208	0.314
LMX3	-0.209	0.420	0.160	0.846	0.123	-0.211	0.398
LMX4	-0.167	0.304	0.176	0.800	0.093	-0.159	0.333
LMX5	-0.241	0.271	0.116	0.677	0.056	-0.173	0.292
LMX6	-0.166	0.224	0.074	0.782	0.215	-0.155	0.365
LMX7	-0.249	0.348	0.148	0.852	0.187	-0.224	0.347

PARA_MIND2	0.057	0.259	0.222	0.211	0.680	0.048	0.288
PARA_MIND3	0.177	0.166	0.166	0.100	0.690	0.148	0.114
PARA_MIND4	0.171	0.283	0.185	0.070	0.800	0.194	0.143
PARA_MIND5	0.177	0.263	0.209	0.105	**0.829**	0.213	0.136
PARA_MIND6	0.141	0.177	0.202	0.129	0.714	0.127	0.132
PARA_MIND7	0.215	0.113	0.127	0.177	0.686	0.132	0.116
PARA_MIND8	0.113	0.223	0.151	0.100	0.729	0.118	0.201
PARA_MIND9	0.101	0.041	0.081	0.046	0.621	0.073	0.128
SUP_NORM1	0.528	0.020	0.022	-0.166	0.121	0.717	-0.082
SUP_NORM2	0.591	0.043	0.041	-0.285	0.221	**0.815**	-0.071
SUP_NORM3	0.465	-0.045	0.033	-0.392	0.062	0.728	-0.230
SUP_NORM4	0.567	0.051	0.050	-0.277	0.105	0.784	-0.188
SUP_NORM5	0.382	0.016	0.128	-0.020	0.178	0.667	-0.002
SUP_NORM6	0.357	0.087	0.142	-0.043	0.162	0.698	0.051
SUP_NORM7	0.450	0.074	0.081	0.010	0.101	0.679	0.053
TMX1	-0.111	0.435	0.180	0.357	0.178	-0.062	0.733
TMX2	-0.122	0.265	0.223	0.377	0.164	-0.083	0.704
TMX3	-0.170	0.328	0.273	0.281	0.095	-0.135	0.752
TMX4	-0.031	0.288	0.095	0.278	0.204	-0.069	**0.756**
TMX5	-0.136	0.155	0.069	0.217	0.175	-0.041	0.673
TMX6	-0.092	0.281	0.157	0.247	0.087	-0.073	0.709
TMX7	-0.092	0.329	0.219	0.275	0.047	-0.069	0.678
TMX9	0.018	0.215	-0.036	0.327	0.236	-0.027	0.689
TMX10	-0.037	0.224	0.074	0.325	0.245	-0.064	0.667

COL_Norm = Coworker technology norms, Sup_Norm = Supervisor technology norms, TMX = Team–member exchange, LMX = Leader–member exchange, JOB_SAT = Job satisfaction, LIFE_SAT = Life satisfaction, PARA_MIND = Paradox mindset.

Table 6.16

Discriminant Validity (Fornell–Larcker Criterion)—Frequency of Mobile Technology Usage (Higher-Order Model)

	COL_NORM	JOB_SAT	LIFE_SAT	LMX	PARA_MIND	SUP_NORM	TMX
COL_NORM	0.729						
JOB_SAT	0.002	0.810					
LIFE_SAT	-0.036	0.475	0.870				
LMX	-0.239	0.398	0.169	0.804			
PARA_MIND	0.194	0.295	0.247	0.167	0.721		
SUP_NORM	0.663	0.050	0.095	-0.236	0.189	0.729	
TMX	-0.126	0.412	0.200	0.420	0.226	-0.096	0.708

COL_Norm = Coworker technology norms, Sup_Norm = Supervisor technology norms, TMX = Team–member exchange, LMX = Leader–member exchange, JOB_SAT = Job satisfaction, LIFE_SAT = Life satisfaction, PARA_MIND = Paradox mindset.

Table 6.17

Discriminant Validity (Heterotrait-Monotrait Ratio (HTMT)—Frequency of Mobile Technology Usage (Higher-Order Model)

	COL_NORM	JOB_SAT	LIFE_SAT	LMX	PARA_MIND	SUP_NORM	TMX
COL_NORM							
JOB_SAT	0.113						
LIFE_SAT	0.095	0.517					
LMX	0.256	0.423	0.183				
PARA_MIND	0.242	0.282	0.260	0.183			
SUP_NORM	0.754	0.118	0.133	0.280	0.214		
TMX	0.177	0.437	0.233	0.472	0.257	0.173	

COL_Norm = Coworker technology norms, Sup_Norm = Supervisor technology norms, TMX = Team–member exchange, LMX = Leader–member exchange, JOB_SAT = Job satisfaction, LIFE_SAT = Life satisfaction, PARA_MIND = Paradox mindset

6.4.3.3.5 Evaluating the Higher-order Model—Formative Constructs

Hair et al. (2017) recommend a three-step procedure to assess formative constructs. First, they suggest that the formative measure is correlated with a reflective measure of the same construct to assess convergent validity. The questionnaire used in this study did not contain a reflective measure of mobile technology usage and, therefore, steps 2 and 3 were relied upon to evaluate the quality of the formative constructs. In step 2, collinearity of the formative constructs was assessed by calculating the variance inflation factor (VIF). As can be seen from Table 6.18, the VIF values for four tablet device indicators (recording tablet use in the morning, evening, weekend and during annual leave) which form part of mobile technology usage are higher than 5. However, these items were retained because tablet usage was regarded as essential for the conceptual definition of the construct

Table 6.18
VIF Values for Formative Indicators—Frequency of Mobile Technology Usage (Higher-Order Model)

Formative Indicators	VIF
PER	1.056
WORK_INTS	1.791
FRQ_ANN_LAP	2.636
FRQ_ANN_MOB	3.844
FRQ_ANN_TAB	8.047
FRQ_EVE_LAP	2.675
FRQ_EVE_MOB	4.500
FRQ_EVE_TAB	7.772
FRQ_MORN_LAP	2.247
FRQ_MORN_MOB	3.652
FRQ_MORN_TAB	6.607
FRQ_WKND_LAP	3.678
FRQ_WKND_MOB	4.753
FRQ_WKND_TAB	9.036
FRQ_WORK_LAP	1.134
FRQ_WORK_MOB	1.965
FRQ_WORK_TAB	3.781
PER	1.056
WORK_INTS	1.791

AUT = Autonomy, PER = Job performance, CONF = Work-life conflict, WORK_INTS = Work life intensity, FRQ_WORK_LAP = Frequency of laptop usage during normal work hours, FRQ_WORK_MOB = Frequency of mobile phone usage during normal work hours, FRQ_WORK_TAB = Frequency of tablet usage during normal work hours,

Next, in Step 3, the outer weights (Table 6.19) and outer loadings (Table 6.20) of the formative indicators were tested using the bootstrapping procedure (5,000 samples). The outer weight for FRQ_WORK_LAP -> MTU, the laptop usage indicator, was non-significant (p =.266). Therefore, following the procedures set out by Hair et al. (2017), the outer loadings were tested.

Table 6.19
Outer Weights for Formative Indicators—Frequency of Mobile Technology Usage (Higher-Order Model)

Formative Indicators	Outer Weights	Standard deviation	T statistics	P values
AUT -> Autonomy	0.651	0.069	9.486	0.000
CONF -> Control	0.553	0.032	17.515	0.000
PER -> Autonomy	0.624	0.070	8.891	0.000
WORK_INTS -> Control	0.543	0.032	17.035	0.000
FRQ_ANN_LAP -> MTU	0.094	0.019	4.952	0.000
FRQ_ANN_MOB -> MTU	0.153	0.015	10.012	0.000
FRQ_ANN_TAB -> MTU	0.078	0.018	4.387	0.000
FRQ_EVE_LAP -> MTU	0.126	0.020	6.399	0.000
FRQ_EVE_MOB -> MTU	0.130	0.017	7.732	0.000
FRQ_EVE_TAB -> MTU	0.064	0.021	3.038	0.001
FRQ_MORN_LAP -> MTU	0.107	0.019	5.669	0.000
FRQ_MORN_MOB -> MTU	0.115	0.017	6.835	0.000
FRQ_MORN_TAB -> MTU	0.077	0.023	3.376	0.000
FRQ_WKND_LAP -> MTU	0.110	0.018	6.217	0.000
FRQ_WKND_MOB -> MTU	0.142	0.015	9.303	0.000
FRQ_WKND_TAB -> MTU	0.069	0.019	3.687	0.000
FRQ_WORK_LAP -> MTU	0.015	0.024	0.625	0.266
FRQ_WORK_MOB -> MTU	0.107	0.018	5.791	0.000

AUT = Autonomy, PER = Job performance, CONF = Work-life conflict, WORK_INTS = Work life intensity, FRQ_WORK_LAP = Frequency of laptop usage during normal work hours, FRQ_WORK_MOB = Frequency of mobile phone usage during normal work hours, FRQ_WORK_TAB = Frequency of tablet usage during normal work hours, FRQ_WORK = Frequency of mobile technology usage during normal work hours.

The outer loading for the laptop usage indicator, FRQ_WORK_LAP -> MTU, was 0.195 and significant ($p = 0.014$). According to Hair et al. (2017), when the outer loadings for formative indicators are < 0.5 and significant, the item should be considered for deletion. I decided to retain the laptop measure as this item is essential in defining the boundaries of the mobile technology construct.

Table 6.20
Outer Loadings for Formative Indicators—Frequency of Mobile Technology Usage (Higher-Order Model)

Formative Indicators	Outer Loadings	Standard deviation	T statistics	P values
AUT -> Autonomy	0.795	0.054	14.647	0.000
CONF -> Control	0.914	0.015	59.410	0.000
PER -> Autonomy	0.774	0.062	12.423	0.000
WORK_INTS -> Control	0.911	0.015	59.452	0.000
FRQ_ANN_LAP -> MTU	0.636	0.049	12.909	0.000
FRQ_ANN_MOB -> MTU	0.792	0.028	28.102	0.000
FRQ_ANN_TAB -> MTU	0.579	0.081	7.131	0.000
FRQ_EVE_LAP -> MTU	0.628	0.057	10.991	0.000
FRQ_EVE_MOB -> MTU	0.800	0.037	21.572	0.000

FRQ_EVE_TAB -> MTU	0.606	0.079	7.636	0.000
FRQ_MORN_LAP -> MTU	0.621	0.053	11.618	0.000
FRQ_MORN_MOB -> MTU	0.736	0.037	19.705	0.000
FRQ_MORN_TAB -> MTU	0.602	0.077	7.833	0.000
FRQ_WKND_LAP -> MTU	0.700	0.047	14.808	0.000
FRQ_WKND_MOB -> MTU	0.814	0.029	28.339	0.000
FRQ_WKND_TAB -> MTU	0.587	0.081	7.262	0.000
FRQ_WORK_LAP -> MTU	0.195	0.088	2.203	0.014
FRQ_WORK_MOB -> MTU	0.639	0.043	15.020	0.000
FRQ_WORK_TAB -> MTU	0.567	0.077	7.346	0.000

AUT = Autonomy, PER = Job performance, CONF = Work-life conflict, WORK_INTS = Work life intensity, FRQ_WORK_LAP = Frequency of laptop usage during normal work hours, FRQ_WORK_MOB = Frequency of mobile phone usage during normal work hours, FRQ_WORK_TAB = Frequency of tablet usage during normal work hours, FRQ_WORK = Frequency of mobile technology usage during normal work hours.

In summary, the measurement model was assessed both in the lower-order and higher-order formats using the procedures outlined by Hair et al. (2017). After some adjustments, all reflective constructs exhibited acceptable reliability, convergent validity and discriminant validity. Similarly, the formative indicators in the measurement model demonstrated satisfactory levels of quality.

In this chapter, I have explored the quantitative data collected by the questionnaire and used this to profile the ways in which my research participants used mobile technology throughout their working day and beyond. The quantitative data has been used to create a measurement model based on the conceptual design presented in Chapter 4. The quality of this measurement model was assessed at lower-order and higher-order levels. Chapter 7 presents the second part of the quantitative analysis, where I explore the structural relationships between constructs and evaluate the robustness of the hypotheses underlying the conceptual framework.

7. Structural Model Assessment

This chapter continues my examination of the quantitative results, using the Partial Least Squares (PLS) method. Having established the quality of the measurement models in Chapter 6, I now explore the structural relationships. My overarching objective here is to see how well the conceptual model design stands up to scrutiny. Each of the hypotheses outlined in the conceptual design stage will be tested using SmartPLS. This includes examining direct, mediated and moderated mediated relationships. Correlation analysis will also provide some initial insights regarding the interplay between the key constructs.

Many of the questionnaire respondents provided some commentary on their experiences using mobile devices and the impact it has on their work and family lives. These firsthand perspectives shed some additional light on participants' lived experiences with the technology and are reviewed in the context of prior findings from the interview phase and the questionnaire data.

7.1. Correlation Analysis

Before I test the structural models and assess the veracity of the proposed hypotheses, a useful first step is to conduct some correlational analysis of the independent, dependent, mediating and moderating variables. Table 7.1 outlines the results of the correlation analysis undertaken in SPSS. As Table 7.1 shows, mobile technology usage had a positive and significant relationship with performance (0.250**), work intensity (0.328**) and work-life conflict (0.225*). However, the relationship with autonomy, while positive, was non-significant (0.100). Taken together, these results provide some preliminary partial support for hypotheses H1 and H2, which propose that mobile technology usage is related to the paradoxical outcomes of autonomy and control.

Table 7.1 also shows that mobile technology usage was positively related to job satisfaction (0.294**) and life satisfaction (0.195*). Furthermore, job satisfaction was positively correlated with autonomy (0.297**) and performance (0.347**) but negatively correlated with work-life conflict (-0.048*). Table 7.1 also highlights that life satisfaction was positively related to autonomy, performance and work-life conflict. While work intensity was negatively related to job and life satisfaction, these relationships were non-significant. These initial findings support extant research which has examined the impact of various job characteristics on employee wellbeing. A substantial body of literature shows that job "resources" such as flexibility and autonomy can strengthen both job and life satisfaction (Day & Jriege, 2002; De Cuyper et al., 2009; Gajendran & Harrison, 2007; Rau, 2006; Scandura & Lankau, 1997). Furthermore, intensive work and work which erodes the boundaries between professional and personal lives can damage employee wellbeing. For example, Kossek and Ozeki's (1998) meta-analysis of 32 studies reveals that work-family conflict led to lower job and life satisfaction. Similarly, studies of work overload and intensity show the detrimental impacts on both job and life satisfaction (Boekhorst et al., 2017; Fein et al., 2017; Yildirim & Aycan, 2008). The correlation results presented in Table 7.1 provide some

preliminary support for the hypotheses that the autonomy and control outcomes associated with technology can mediate its relationship with employee wellbeing. However, these mediating relationships will be fully tested using PLS-SEM in the next section.

The correlation analysis also sheds some light on the possible influence of the moderating variables in the structural model. Supervisor technology norms which emphasise availability and responsiveness had a negative relationship with autonomy (-0.120*) but a positive one with work intensification (0.445**) and work-life conflict (0.405**). These are consistent with hypotheses H9 and H10. However, the positive relationship between these technology norms and performance (0.146*) was not as predicted. Colleague technology norms followed the same pattern. The moderating influence of leader and team social exchange is also evident from the correlation results. LMX was found to be positively related to autonomy (0.376**) and performance (0.242**) but negatively related to both work intensity (-0.127*) and work-life conflict (-0.180**). These results are aligned with extant research findings which show that close and positive working relationships between a leader and their subordinate can result in positive outcomes such as higher levels of autonomy and performance (Liden et al., 2000; Martin et al., 2016; Sepdiningtyas & Santoso, 2017; Sparr & Sonnentag, 2008). Furthermore, in high LMX relationships, the support exhibited by leaders can assist in reducing work-life conflict (Thompson & Prottas, 2006; Warner & Hausdorf, 2009). Turning to TMX, Table 7.1 reveals a positive association with autonomy (0.355**) and performance (0.227**). These findings support prior studies which reveal that constructive working relationships within teams can produce positive outcomes in terms of higher levels of empowerment (Chen & Klimoski, 2003; Liden et al., 2000; Schermuly & Meyer, 2016) and performance (Banks et al., 2014; Liden et al., 2000; Olya & Ki, 2018). The correlational analysis in Table 7.1 also presents a negative relationship between TMX and work-life conflict. However, the correlation was weak and non-significant. Unlike LMX, TMX was positively related to work intensification, but the relationship was weak and non-significant.

Another moderator of interest in this study is the paradox mindset (Miron-Spektor et al., 2018). We can see in Table 7.1 that this construct is positively related to job satisfaction (0.231**) and life satisfaction (0.247**). Paradox mindset is a very new construct and, therefore, limited empirical data is available. However, this study is aligned with the findings of Miron Spektor et al. (2018), who found that workers who displayed higher levels of the paradox mindset were more satisfied with their jobs.

I was also interested in understanding whether the demographic profile of participants influenced the levels of autonomy, performance, work-life conflict or work intensity (the four constructs of the mobile technology paradox) experienced by them. Table 7.1 indicates that age had a positive and significant relationship with autonomy and work intensity. Furthermore, organisational level was positively and significantly correlated with performance, work intensity and work-life conflict. Correlation analysis was not appropriate to determine whether these constructs varied by gender

or research cohorts. Therefore, an ANOVA analysis of means was undertaken. This revealed that there was no significant variation in the levels of these four constructs as reported by men or women. Extant research regarding the impact of gender on work-life conflict has produced conflicting results. A meta-analysis conducted by Byron (2005) has indicated that men experience slightly higher levels of work-life conflict, although a later study undertaken by Shockley, Shen, DeNunzio and Arvan (2017) presented an opposing picture. However, no gender pattern was evident in my data. Some variation of these constructs was recorded across five cohorts of research participants who completed the survey. Notably, the largest group, TechCo Sales, reported the highest level of autonomy at 3.91 ($p = <.001$).

Table 7.1

Correlation Matrix for Key Constructs

Correlations

	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
1. Gender	1.391	0.781	--																					
2. Age	3.721	1.048	-0.103	--																				
3. Marital status	1.451	1.029	.263**	0.061	--																			
4. Kids under 18 years	1.464	0.500	.120*	0.034	.305**	--																		
5. Educational qualifications	4.867	1.437	-0.042	0.004	-0.073	-.202**	--																	
6. Organisational level	1.416	0.691	-.127*	0.102	-.120*	0.013	0.082	--																
7. Agile team	1.794	0.405	0.051	0.037	0.017	0.005	-.136*	0.077	--															
8. Employment type	1.090	0.389	.125*	-.171**	-0.037	0.050	-0.009	-0.060	.118*	--														
9. Works from home	2.386	1.272	0.077	-0.051	0.104	-0.052	0.002	-.145*	-0.004	0.034	--													
10. Weekly hours	45.746	8.637	-0.096	.207**	-0.091	0.020	0.094	.353**	.173**	-.167**	-0.068	--												
11. MTU frequency	2.771	0.682	-0.098	.289**	-.196**	-.126*	0.105	.253**	.189**	-0.106	-0.103	.339**	--											
12. Autonomy	3.751	0.753	-0.029	.111*	-0.049	0.049	0.080	0.021	-0.040	0.060	.247**	-0.006	0.100	--										
13. Performance	4.146	0.618	-0.014	0.068	-.178**	-0.064	0.012	.174**	0.032	-0.007	-0.024	.250**	.272**	.205**	--									
14. Work intensity	3.245	0.887	-.124*	.186**	-0.060	-0.035	0.061	.265**	0.102	-0.102	-0.033	.426**	.328**	0.026	.231**	--								
15. Work life conflict	3.001	0.992	-.110*	0.064	-0.038	0.021	0.102	.198**	0.068	-0.009	-0.093	.368**	.225**	-.167**	.130*	.667**	--							
16. Leader Member Exchange (LMX)	4.020	0.737	-0.038	-0.046	-0.017	0.030	-0.056	-0.020	0.071	0.035	0.055	0.014	0.066	.376**	.242**	-.127*	-.180**	--						
17. Team Member Exchange (TMX)	3.861	0.633	0.024	.143*	-0.030	0.027	0.025	0.054	0.010	-0.012	0.056	0.071	.175**	.355**	.227**	0.098	-0.045	.416**	--					
18. Supervisor's technology norms	2.348	0.820	-.165**	.125*	-.126*	0.011	0.081	.261**	0.092	-0.065	-.127*	.341**	.381**	-.120*	.146*	.445**	.405**	-.176**	-0.077	--				
19. Coworker technology norms	2.239	0.815	-0.091	.124*	0.018	0.022	0.007	.287**	.158**	-0.046	-0.102	.284**	.460**	-.167**	.134*	.385**	.410**	-.211**	-0.095	.660**	--			
20. Job satisfaction	3.725	0.809	-0.024	.158**	-.110*	0.071	0.040	.153**	0.022	0.004	-.139*	.198**	.294**	.297**	.347**	-0.048	-.111*	.379**	.374**	0.096	0.038	--		
21. Life satisfaction	3.665	0.885	-0.027	0.071	-.270**	-0.073	.146*	0.101	0.023	0.018	-0.058	0.067	.195**	.189**	.213**	-0.036	-.174**	.168**	.199**	.128*	-0.016	.463**	--	
22. Paradox mindset	3.559	0.622	-.112*	.121*	-0.098	-0.033	.185**	.319**	0.003	-0.086	0.019	.230**	.299**	.176**	.304**	.154**	0.061	.164**	.231**	.178**	.203**	.231**	.247**	--

Gender is coded 1 = male, 2 = female, 3 = non-binary, 4 = other, 5 = prefer not to say. Age is coded 1 = 18–24, 2 = 25–34, 3 = 35–44, 4 = 45–54, 5 = 55–64, 6 = 65–74, 7 = 75+. Marital status is coded 1 = married, 2 = never married, 3 = widowed, 4 = divorced, 5 = separated.

Children under 18 is coded 1 = yes, 2 = no. Educational qualifications is coded 1 = primary education, 2 = secondary education, 3 = certificate, 4 = diploma or advanced diploma, 5 = bachelor degree, 6 = graduate certificate of diploma, 7 = postgraduate degree.

Organisational level is coded 1 = individual contributor with no direct reports, 2 = manager, 3 = director or above. Agile team is coded 1 = yes, 2= no. Employment type is coded 1 = full-time employee, 2 = part-time employee, 3 = full-time independent contractor, 4 = part-time independent contractor.

Works from home is coded 0 = 0 days, 1 = 1 day, 2 = 2 days, 3 = 3 days, 4 = 4 days, 5 = 5 days.

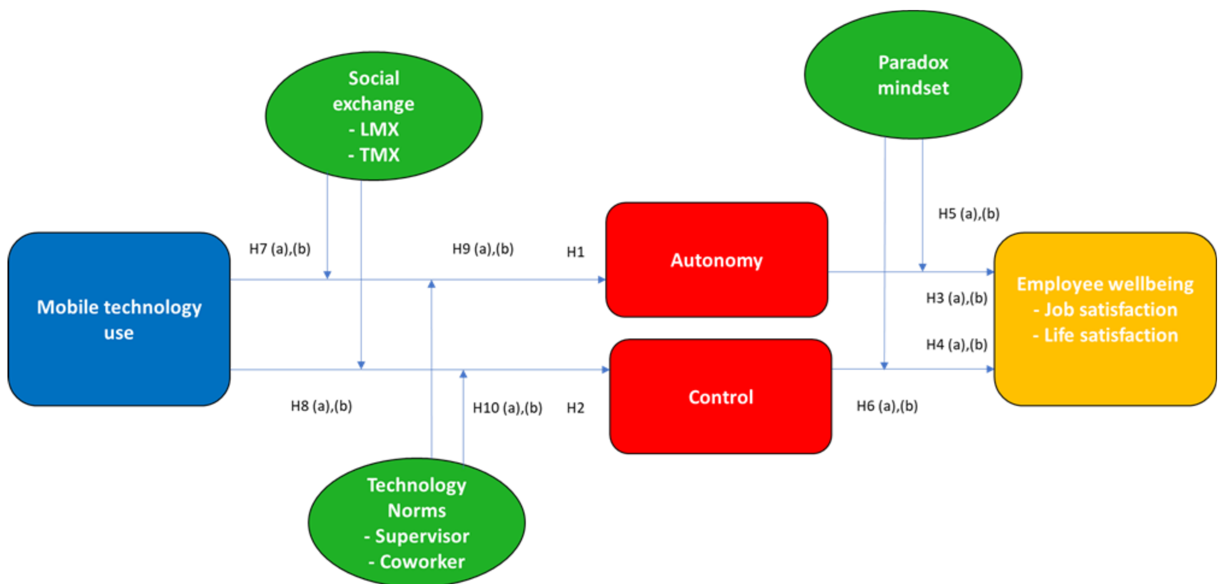
* Correlation is significant at the 0.05 level (1-tailed).

** Correlation is significant at the 0.01 level (1-tailed).

7.2. Outlining the Structural Model

Evaluating the structural model is the second major step in conducting PLS-SEM. In this stage, I focus on assessing the strength, direction and significance of relationships between the constructs set out in the conceptual model (Figure 7.1). Specifically, I examine the extent to which mobile technology usage is associated with the paradoxical outcomes of autonomy and control and how these relationships impact the wellbeing of employees, measured through their perceptions of job and life satisfaction. Next, I investigate the influence of a paradox mindset on the strength of the wellbeing outcomes flowing from the autonomy-control paradox. Finally, I examine whether the relationships between mobile technology use and autonomy and control are moderated by the quality of workplace relationships (LMX and TMX) and supervisor and colleague technology norms and what impact this has on user wellbeing.

Figure 7.1
Conceptual Model



7.3. Structural Model Assessment

To test the structural relationships, three variations of the structural model were created in SmartPLS. Table 7.2 outlines the results of structural testing in SmartPLS for these three variations. The direct relationships between mobile technology usage and autonomy and control are tested in Model 1a. This model also shows the indirect relationship between mobile technology usage and job satisfaction when mediated by autonomy and control. The indirect relationship between mobile technology and life satisfaction when mediated by autonomy and control is also included. These direct and mediating relationships are also outlined in Model 1b. Additionally, this model tests the moderating influence of the paradox mindset on the mediated relationships between mobile technology use and job/life satisfaction through autonomy and control. Model 1c

also models the direct and indirect relationships. Additionally, it includes the four other moderators of indirect relationships: supervisor technology norms, colleague technology norms, LMX and TMX. Figures 7.1, 7.2 and 7.3 display the same information in graphical format.

Table 7.2

Structural Relationship Results

Hypothesis	Hypothesised paths	Bootstapping estimates (p values)		
		Model 1a	**Model 1b**	**Model 1c**
	Direct relationships			
H1	MTU-> Autonomy	0.220 (0.001)***	0.220 (0.001)***	0.176 (0.018)**
H2	MTU-> Control	0.269 (<.001)***	0.269 (<.001)***	0.056 (0.241)
H5 (a)	PARA_MIND x Autonomy -> JOB_SAT		0.116 (0.032)**	
H5 (b)	PARA_MIND x Autonomy -> LIFE_SAT		0.053 (0.221)	
H6 (a)	PARA_MIND x Control -> JOB_SAT		0.028 (0.320)	
H6 (b)	PARA_MIND x Control -> LIFE_SAT		-0.037 (0.250)	
H7 (a), (b)	LMX x MTU -> Autonomy			-0.012 (0.434)
H7 (a), (b)	TMX x MTU -> Autonomy			0.072 (0.100)
H8 (a), (b)	LMX x MTU -> Control			-0.017 (0.381)
H8 (a), (b)	TMX x MTU-> Control			-0.054 (0.200)
H9 (a), (b)	SUP_NORM x MTU -> Autonomy			0.158 (0.025)**
H9 (a), (b)	COL_NORM x MTU -> Autonomy			-0.050 (0.267)
H10 (a), (b)	SUP_NORM x MTU -> Control			-0.131 (0.043)**
H10 (a), (b)	COL_NORM x MTU -> Control			-0.004 (0.481)
	Mediated relationships			
H3 (a)	MTU -> Autonomy -> JOB_SAT	0.100 (0.002)***	0.067 (0.030)**	0.067 (0.030)**
H3 (b)	MTU -> Autonomy -> LIFE_SAT	0.068 (0.010)**	0.039 (0.054)*	0.039 (0.054)*
H4 (a)	MTU -> Control -> JOB_SAT	-0.070 (0.010)**	-0.014 (0.261)	-0.014 (0.261)
H4 (b)	MTU -> Control -> LIFE_SAT	-0.077 (0.008)***	-0.013 (0.259)	-0.013 (0.259)
	Moderated mediated relationships - Paradox Mindset	**Bootstrapping estimates (lower CI, upper CI)**		
H5 (a)	PARA_MIND x MTU -> Autonomy -> JOB_SAT		0.026 (0.002, 0.056)	
H5 (b)	PARA_MIND x MTU -> Autonomy -> LIFE_SAT		0.010 (-0.016, 0.039)	
H6 (a)	PARA_MIND x MTU -> Control -> JOB_SAT		0.006 (-0.021, 0.036)	
H6 (b)	PARA_MIND x MTU -> Control -> LIFE_SAT		-0.011 (-0.039, 0.013)	
	Moderated mediated relationships - LMX/TMX & Norms			
H7 (a)	LMX x MTU -> Autonomy -> JOB_SAT			-0.005 (-0.051, 0.041)
H7 (a)	TMX x MTU -> Autonomy -> JOB_SAT			0.028 (-0.005, 0.069)
H7 (b)	LMX x MTU -> Autonomy -> LIFE_SAT			-0.003 (-0.032, 0.023)
H7 (b)	TMX x MTU -> Autonomy -> LIFE_SAT			0.016 (-0.002, 0.047)
H8 (a)	LMX x MTU -> Control -> JOB_SAT			0.004 (-0.017, 0.032)
H8 (a)	TMX x MTU -> Control -> JOB_SAT			0.014 (-0.011, 0.044)
H8 (b)	LMX x MTU -> Control -> LIFE_SAT			0.004 (-0.016, 0.027)
H8 (b)	TMX x MTU -> Control -> LIFE_SAT			0.012 (-0.099, 0.043)
H9 (a)	SUP_NORM x MTU -> Autonomy -> JOB_SAT			0.060 (0.011, 0.116)
H9 (a)	COL_NORM x MTU -> Autonomy -> JOB_SAT			-0.019 (-0.071, 0.029)
H9 (b)	SUP_NORM x MTU -> Autonomy -> LIFE_SAT			0.035 (0.008, 0.075)
H9 (b)	COL_NORM x MTU -> Autonomy -> LIFE_SAT			-0.011 (-0.044, 0.017)
H10 (a)	SUP_NORM x MTU -> Control -> JOB_SAT			0.033 (0.005, 0.084)
H10 (a)	COL_NORM x MTU -> Control -> JOB_SAT			0.001 (-0.030, 0.037)
H10 (b)	SUP_NORM x MTU -> Control -> LIFE_SAT			0.030 (0.007, 0.068)
H10 (b)	COL_NORM x MTU -> Control -> LIFE_SAT			0.001 (-0.025, 0.037)

MTU= Frequency of mobile technology usage, COL_Norm = Coworker technology norms, Sup_Norm = Supervisor technology norms, TMX = Team–member exchange, LMX = Leader–member exchange, JOB_SAT = Job satisfaction, LIFE_SAT = Life satisfaction, PARA_MIND = Paradox mindset.

* p<0.10, **p<0.05, ***p<0.01

Note: Direct paths of moderators are included in the model but not shown in Table 7.2.

Figure 7.1
Structural Relationship Results – Model 1a

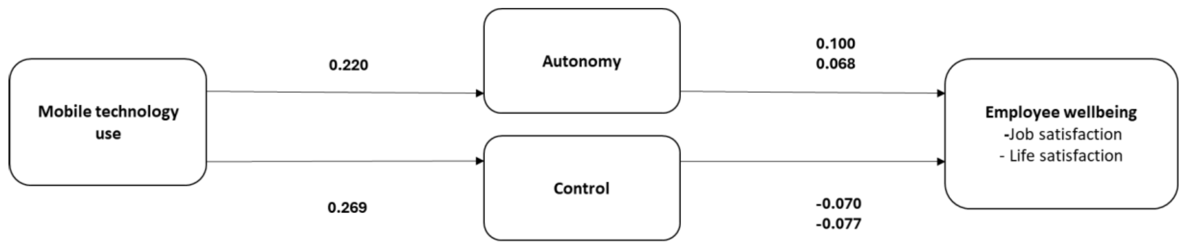


Figure 7.2
Structural Relationship Results – Model 1b

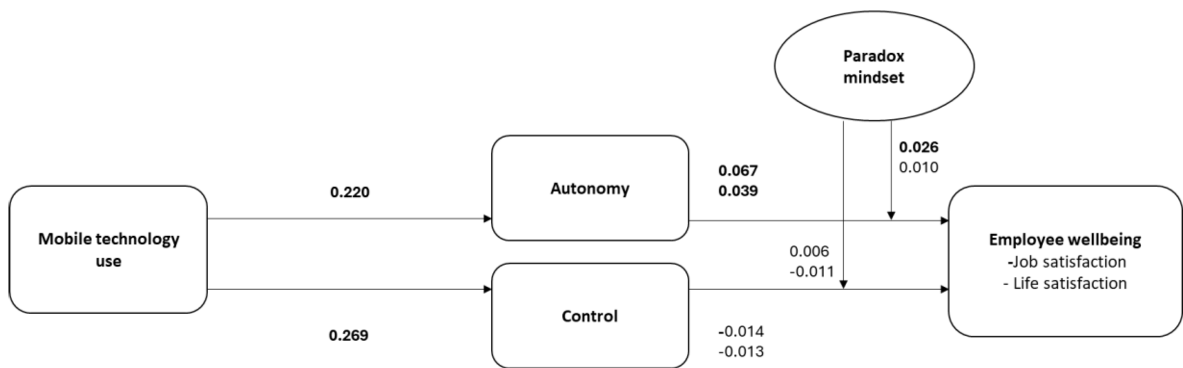
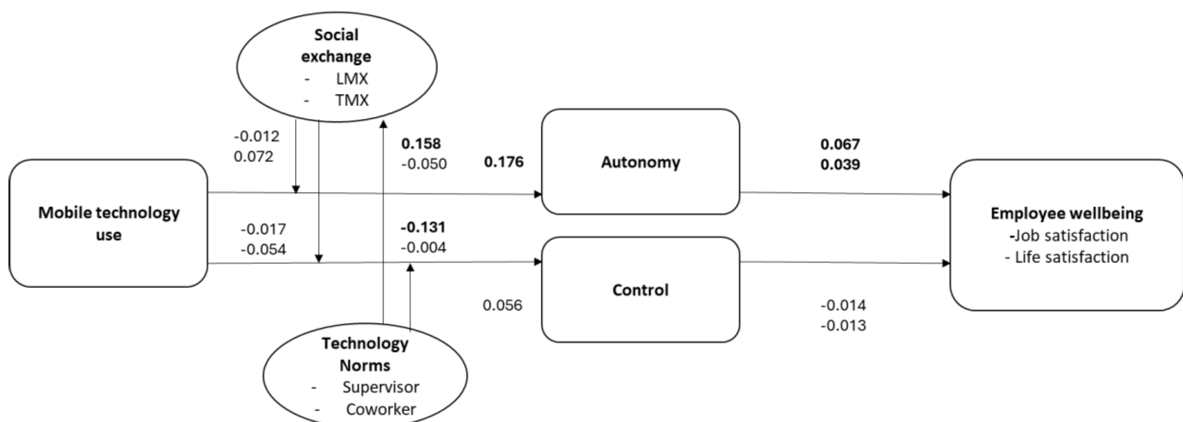


Figure 7.3
Structural Relationship Results – Model 1c



Note: Significant effects are highlighted in **Bold**.

7.4. Hypothesis Testing

7.4.1. Direct Effects—Mobile Technology and Autonomy and Control

All hypotheses were tested in SmartPLS using a bootstrapping procedure (5,000 samples). All demographic and organisational variables were included as control variables to exclude alternative causes (Becker, 2005). Hypothesis 1 states that mobile technology usage is positively associated with autonomy. Bootstrapping results in Table 7.2 show that mobile technology usage was positively and significantly related to perceptions of autonomy ($\beta = 0.220$, $p = <0.001$). Therefore, H1 is supported: as mobile technology use increases, so too does the level of autonomy.

H2 states that mobile technology use is positively associated with control. Bootstrapping results in Table 7.2 demonstrate that mobile technology use was positively and significantly related to control ($\beta = 0.269$, $p = <0.001$). Therefore, H2 is supported: as mobile technology use increases, the level of control experienced by users also increases.

Additional analysis was undertaken to determine if the direct effects (H1 and H2) were supported for mobile technology usage *during* normal working hours and *outside* normal working hours. Two additional models were created in SmartPLS. First, I tested the direct relationships between mobile technology usage during normal hours (“WORK”) and autonomy and control. The bootstrapping results are outlined in Appendix Table 10.1. Results show that WORK had a positive relationship with both autonomy ($\beta = 0.159$, $p = 0.016$) and control ($\beta = 0.172$, $p = 0.028$). Second, I tested the direct relationships for mobile technology usage outside normal hours (“OUT”). The bootstrapping results are outlined in Appendix Table 10.2. Once again, we can see that OUT had a positive relationship with autonomy ($\beta = 0.216$, $p = 0.001$) and with control ($\beta = 0.238$, $p = <.001$). These results indicate that the paradox of mobile technology, simultaneously empowering and controlling, is experienced by workers, whether they use devices during the normal course of work or after-hours, including evenings, weekends and holidays.

7.4.2. Mediated (Indirect) Effects—Mobile Technology and Employee Wellbeing

Next, I examine whether the positive relationships between mobile technology use and autonomy and control have implications for the wellbeing of workers. Hypothesis H3 (a) and (b) propose that mobile technology usage will be positively related to (a) job satisfaction and (b) life satisfaction when mediated by autonomy.

Bootstrapping results to test Hypothesis H3 (a) are shown in Table 7.2. These results reveal that mobile technology use had a positive relationship with job satisfaction when mediated by autonomy ($\beta = 0.100$, $p = 0.002$). The direct relationship between mobile technology use and job

satisfaction was also positive and significant (β = 0.244, p = <0.001)[1]. Therefore, results indicate the presence of partial mediation. Findings are, therefore, supporting Hypothesis H3 (a): using mobile technology during or outside of normal working hours has a positive association with job satisfaction in part because of the autonomy benefits.

This study also used life satisfaction as a measure of wellbeing. Table 7.2 demonstrates that mobile technology usage was positively and significantly related to life satisfaction when mediated by autonomy (β = 0.068, p = 0.010). The direct relationship between device usage and life satisfaction was also positive and significant (β = 0.178, p = 0.010). Therefore, the results indicate the presence of a partial mediation effect. This finding lends support to Hypothesis H3 (b): using mobile devices has a positive relationship with life satisfaction when mediated by autonomy.

The control dimension of the mobile technology paradox has negative implications for employee wellbeing. Hypotheses 4(a) and (b) predict that mobile technology usage are negatively related to (a) job satisfaction and (b) life satisfaction when mediated by control. Mediation results in Table 7.2 reveal that mobile technology use was significantly and negatively related to job satisfaction when mediated by control (β = -0.070, p = 0.010). As already highlighted, the direct relationship between device usage and job satisfaction is significant. Therefore, we can conclude that the mediating effect is a partial one. This result provides support for Hypothesis H4(a), indicating that the more workers use mobile technology, the more their job satisfaction diminishes as a consequence of device-enabled control.

The impact of using mobile technology devices on life satisfaction is also outlined in Table 7.2. We can see that mobile technology use was significantly and negatively related to life satisfaction through control (β = -0.077, p = 0.008). Given that the direct relationship between mobile technology usage and life satisfaction was significant (β = 0.178, p = 0.010), the results suggest the presence of partial mediation. Therefore, Hypothesis H4(b) is supported, that is, as mobile technology use increases, life satisfaction is reduced, partly due to the impact of greater levels of device-enabled control.

Further testing examined these mediating effects during normal working hours (WORK) and outside normal hours working hours (OUT). Appendix Table 10.1 shows that the positive relationship between WORK and both job satisfaction and life satisfaction was mediated by autonomy. Moreover, the negative relationship between WORK and job and life satisfaction was mediated by control. Appendix Table 10.2 reveals the same pattern for OUT. These results

[1] Direct effects are not shown in table.

highlight that mobile technology brings both positive and negative wellbeing effects, whether devices are used during regular working hours or at night, on the weekend or during vacations.

7.4.3. Moderated Mediated (Indirect) Effects—the Impact of the Paradox Mindset

My conceptual model also suggests that a paradox mindset plays a role in shaping the strength of the relationship between mobile technology usage and job and life satisfaction when mediated by the paradoxical outcomes of autonomy and control. Two exploratory hypotheses were proposed. H5(a) and (b) evaluate whether a paradox mindset strengthens the positive association between mobile technology usage and (a) job satisfaction and (b) life satisfaction when mediated by perceptions of autonomy. Additionally, H6 (a) and (b) evaluates whether paradox mindset weakens the negative association between mobile technology usage and (a) job satisfaction and (b) life satisfaction when mediated by perceptions of control.

Bootstrapping results to test these hypotheses are outlined in Table 7.2, Model 2b. Table 7.2 shows that a paradox mindset positively moderated the relationship between autonomy and job satisfaction ($\beta = 0.116$, $p = 0.032$). By examining the index of moderated mediation using lower and upper confidence intervals (Hayes, 2015), we can see that the conditional effect of a paradox mindset on the relationship between mobile technology usage and job satisfaction via autonomy was also positive and significant ($\beta = 0.026$, Lower CI = 0.002, Upper CI = 0.056). These results show that a paradox mindset strengthens the indirect positive effect of mobile technology on job satisfaction through autonomy. Therefore, Hypothesis H5(a) is supported.

We now turn to the impact of a paradox mindset on the mobile technology usage to life satisfaction path, once again for the autonomy dimension of the mobile technology paradox. Table 7.2 reveals that although a paradox mindset strengthened the relationship between autonomy and life satisfaction, the moderation effect was non-significant ($\beta = 0.053$, $p = 0.221$). The index of moderated mediation measuring the conditional effect of a paradox mindset on the relationship between mobile technology usage and life satisfaction via autonomy was also positive but non-significant ($\beta = 0.010$, Lower CI = -0.016, Upper CI = 0.039). Therefore, Hypothesis 5(b) is not supported.

Hypothesis 6(a) evaluates whether a paradox mindset can buffer the negative impact of mobile technology use on job satisfaction as a consequence of heightened levels of control. Here, I examine the capacity of a paradox mindset to act as a coping mechanism, minimising the negative wellbeing outcomes associated with intensive device usage. The bootstrapping results in Table 7.2 demonstrate that a paradox mindset had a positive but non-significant impact on the relationship between control and job satisfaction ($\beta = 0.028$, $p = 0.320$). Furthermore, the index of moderated mediation shows that the conditional effect of a paradox mindset on the mobile technology usage to job satisfaction path via control was also positive but non-significant ($\beta = 0.006$, Lower CI = -0.021, Upper CI = 0.036). Therefore, Hypothesis H6(a) is not supported. It

appears that a paradox mindset does not influence the relationship between mobile technology usage and job satisfaction through control.

Finally, in Hypothesis H6(b), I test whether a paradox mindset can buffer the negative impact of mobile technology use on life satisfaction. Referring to Table 7.2, we can see that a paradox mindset had a negative but non-significant impact on the relationship between control and life satisfaction (β = -0.037, p = 0.250). Furthermore, the index of moderated mediation measuring the conditional effect of a paradox mindset on the relationship between mobile technology usage and life satisfaction through control was negative but also non-significant (β = -0.011, Lower CI = -0.039, Upper CI = 0.013). Accordingly, Hypothesis H6(b) is not supported. It appears that a paradox mindset does not influence the relationship between mobile technology usage and life satisfaction.

7.4.4. Moderated Mediated (Indirect) Effects—the Impact of LMX, TMX and Technology Norms

In the next section of hypotheses testing, I examine whether the relationships between mobile technology and wellbeing outcomes are shaped by the broader social context of the workplace, specifically relationships with supervisors and colleagues (LMX and TMX) as well as technology norms. This line of exploration is situated within the sociomateriality research stream, which suggests that the material properties of technology interact with the social and cultural environment to influence behaviours and outcomes (Orlikowski,1992; Orlikowski & Scott, 2008).

7.4.4.1 The Impact of LMX and TMX

H7(a) and (b) propose that LMX/TMX strengthen the positive association between mobile technology usage and (a) job satisfaction and (b) life satisfaction when mediated by perceptions of autonomy. Bootstrapping results to test these hypotheses are outlined in Model 1c in Table 7.2. Results indicate that although the strength of the relationship between mobile technology usage and autonomy varied at different levels of LMX, the moderating effect was non-significant. Similarly, results show no significant moderating effect for TMX. Furthermore, the index of moderated mediation, which measures the conditional effect of LMX on the relationship between mobile technology usage and job satisfaction through autonomy, was non-significant. This was also true in the case of TMX. Consequently, Hypothesis H7(a) is not accepted. LMX and TMX do not appear to moderate the indirect relationship between mobile technology usage and job satisfaction via autonomy.

Next, I examine the impact on life satisfaction. As I have mentioned already, results in Table 7.2 indicate that the moderating influence of LMX on the relationship between mobile technology usage and autonomy was non-significant. Similarly, results show no significant moderating effect for TMX. Reviewing the indices of conditional mediation for both LMX and TMX reveals that these are also non-significant for the life satisfaction path. As the indirect relationship between mobile

technology usage and life satisfaction through autonomy was not significantly moderated by LMX or TMX, Hypothesis H7(b) is not accepted.

My conceptual model suggests that stronger relationships with supervisors and colleagues can also reduce the control side (work-life conflict and work intensity) of the mobile technology paradox and, therefore, buffer the negative impacts on job and life satisfaction. Therefore, H8(a) and (b) evaluate whether LMX/TMX weakens the negative association between mobile technology usage and (a) job satisfaction and (b) life satisfaction when mediated by perceptions of control. Examining the results outlined in Table 7.2, we can see that although the strength of the relationship between mobile technology usage and control fluctuated at different levels of LMX, the moderating effect was non-significant. Similarly, the results show no significant moderating effect for TMX. Moreover, the index of moderated mediation, which measures the conditional effect of LMX on the relationship between mobile technology usage and job satisfaction through control, was non-significant. The conditional mediation index for TMX was likewise non-significant. Therefore, Hypothesis H8(a) is not accepted. LMX and TMX do not appear to moderate the indirect relationship between mobile technology usage and job satisfaction via control.

Finally, for this section, I turn my attention to the potential impact of LMX and TMX on the mobile technology usage to life satisfaction path, once again for the control side. As I have highlighted previously, the moderating influence of LMX on the relationship between mobile technology usage and control was non-significant. Similarly, results show no significant moderating effect for TMX. Reviewing the indices of conditional mediation for both LMX and TMX, we can see that these were also non-significant. Therefore, Hypothesis H8(b) is not accepted. LMX and TMX do not appear to moderate the indirect relationship between mobile technology usage and life satisfaction via control.

7.4.4.2 The Impact of Supervisor and Coworkers' Technology Norms

I now turn to the second social influence on the mobile technology paradox, that of technology norms. H9(a) and (b) state that supervisor/coworker technology norms which encourage online availability and responsiveness weaken the positive association between mobile technology usage and (a) job satisfaction and (b) life satisfaction when mediated by perceptions of autonomy. Bootstrapping results to test these hypotheses are outlined in Model 1c in Table 7.2.

Table 7.2 shows that supervisor technology norms moderated the positive relationship between mobile technology usage and autonomy ($\beta = 0.158$, $p = 0.025$). However, the direction of the effect (positive) was contrary to my expectations. Surprisingly, it appears that supervisor technology norms strengthen the autonomy dimension rather than weakening it. The moderating effect of supervisor norms also shaped the indirect relationship between technology use and job satisfaction through autonomy, but not in the way I expected. Table 7.2 shows that the index of moderated mediation measuring the conditional effect of supervisors' norms on this indirect relationship was significant and positive ($\beta = 0.060$, Lower CI = 0.011, Upper CI = 0.116). These

results indicate that supervisors' technology norms actually increased the autonomy dimension and consequently strengthened job satisfaction. Therefore, the moderated mediated effect was the opposite to what I proposed and does not lend support to Hypothesis H9(a).

Next, I consider the impact of coworker technology norms on job satisfaction. Results in Table 7.2 reveal that the moderating effect of coworker norms on the mobile technology usage to autonomy path was non-significant. Furthermore, the index of moderated mediation, measuring the conditional effect of coworker norms on the relationship between mobile technology usage and job satisfaction via autonomy, was also non-significant. Considering the results for supervisor and coworker norms jointly, Hypothesis H9(a) is not accepted. Coworkers' norms do not significantly moderate the indirect relationship between technology usage and job satisfaction through autonomy, while the moderating effect of supervisors' norms is significant but positive and, therefore, in the opposite direction to what was proposed.

Next, I examine the moderating impact of technology norms on the life satisfaction outcome, once again for the autonomy dimension. Hypothesis 9(b) proposes that supervisor/coworker technology norms which encourage online availability and responsiveness weaken the positive association between mobile technology usage and life satisfaction when mediated by perceptions of autonomy. Referring again to Table 7.2, we can see that the directional influence of supervisor norms on the technology usage to life satisfaction path is the same as that of the job satisfaction path. As I have stated earlier, contrary to my predictions, supervisor technology norms had a significant and positive relationship with the autonomy dimension for technology usage ($\beta = 0.158$, $p = 0.025$). This suggests that supervisor norms actually increase autonomy rather than decrease it as I had hypothesised. Consequently, this shaped the indirect relationship between technology use and life satisfaction through autonomy in the opposite direction to what had been proposed. Table 7.2 shows that the index of moderated mediation measuring the conditional effect of supervisor norms on this indirect relationship was significant and positive ($\beta = 0.035$, Lower CI = 0.008, Upper CI = 0.075). Therefore, in increasing the autonomy dimension of the paradox, supervisor norms strengthen the positive relationship with life satisfaction. Consequently, as with job satisfaction, the moderated mediated effect is contrary to what was proposed and does not lend support to Hypothesis H9(b).

I now consider the impact of coworker technology norms on life satisfaction. The results outlined in Table 7.2 reveal that the moderating influence of coworker norms on the relationship between mobile technology usage and autonomy was non-significant. Moreover, the indices of moderated mediation, which measure the conditional effect of coworker norms on the relationship between mobile technology usage and life satisfaction through autonomy, were also non-significant. Considering the results for supervisor norms and coworker norms together, Hypothesis H9(b) is not accepted. Coworker norms do not significantly moderate the indirect relationship between technology usage and life satisfaction through autonomy. Moreover, while the effect of supervisor

norms is significant, the influence is positive and, therefore, in the opposite direction to what was hypothesised.

My conceptual model also proposed that these technology norms would strengthen the *control* side of the mobile technology paradox and reduce job and life satisfaction as a consequence. First, I examine the impact on job satisfaction. Results indicate, contrary to my predictions, that the moderating influence of supervisor technology norms on the mobile technology usage to control path was in fact negative ($\beta = -0.131$, $p = 0.043$). These norms seem to dilute control rather than strengthen it, as I had expected. Furthermore, the index of moderated mediation measuring the conditional effect of supervisor norms on the mobile technology usage to job satisfaction path via control was positive and significant ($\beta = 0.033$, Lower CI = 0.005, Upper CI = 0.084). This indicates that supervisor norms can also strengthen job satisfaction through the control dimension of the mobile technology usage paradox. Turning to coworker norms, results show no significant moderating or moderated mediating effect for job satisfaction. Consequently, Hypothesis H10(a) is not accepted. Coworker technology norms do not influence the mediated impact of mobile technology usage on job satisfaction via control, while the influence of supervisor norms runs in the opposite direction to what was hypothesised.

In the final section of this analysis, I examine the moderating impact of technology norms on the life satisfaction outcome, once again for the control dimension. Hypothesis H10(b) proposes that supervisor/coworker technology norms which encourage online availability and responsiveness strengthen the negative association between mobile technology usage and life satisfaction when mediated by perceptions of control. As I have stated earlier, contrary to my predictions, supervisor technology norms exerted a significant and negative impact on the relationship between mobile technology usage and the control dimension of the paradox ($\beta = -0.131$, $p = 0.043$). This suggests that supervisor norms actually reduce control rather than increase it, as I had hypothesised. As a consequence of this reduced control, we can see from Table 7.2 that the conditional effect of supervisor norms on the mobile technology usage to life satisfaction path was positive and significant ($\beta = 0.030$, Lower CI = 0.007, Upper CI = 0.068).

Finally, I consider the impact of coworker technology norms on life satisfaction. The results outlined in Table 7.2 reveal that the moderating influence of coworker norms on the relationship between mobile technology usage and control was non-significant. Moreover, the indices of moderated mediation, which measure the conditional effect of coworker norms on the relationship between mobile technology usage and life satisfaction through control, were also non-significant.

Considering the results for supervisor norms and coworker norms together, Hypothesis H10(b) is not accepted. Coworker technology norms do not influence the mediated impact of mobile technology usage on life satisfaction via control, and the influence of supervisor norms is positive and, therefore, not as hypothesised.

7.5. Questionnaire Comments Analysis

The questionnaire used in this study also included an open-ended question inviting participants to make comments about how they use mobile technology for work purposes and the positive or negative impact it has on their experiences at work or life in general. This question was labelled as “optional”, meaning participants could skip it if they chose and still complete and submit the survey. Forty of the participants (17%) chose to make comments. Following several readings of the comments, five major themes were observed.

7.5.1. The Critical Importance of Mobile Technology

Comments made by participants underscore the critical role that mobile devices play in their working lives. Words like “vital”, “critical” and “essential” were used to describe the technology. Participants highlighted the pivotal role that these devices and their applications, such as MS Teams, play in fostering seamless communication and collaboration in the workplace. For one participant, their mobile device was a critical resource when other technology failed. The participant stated: “My mobile phone is essential to my workday, sometimes it's the only thing that works when there is an issue with VPN or other laptop IT-related issues”. The indispensable nature of the technology was best summarised by one respondent who simply stated that it was “impossible to do the job without it”.

7.5.2. Technological and Other Frustrations

Despite the importance of mobile technology, or perhaps because of it, several respondents voiced frustrations with these devices. Participants spoke of the stress created when the technology failed. They also highlighted that the software controls to manage the technology added complexity, which diluted its benefits. However, the biggest frustration appeared to be with their organisation’s approach to the technology, which some of the respondents were critical of. Several voiced their discontent with their employer’s inability to keep pace with the technology. As one participant stated, “for a tech/IT company, we use old, antiquated and often unusable equipment”. Another was dismissive of the technical support available describing it as “substandard”. A significant concern was also raised about the potential of employer surveillance and erosion of privacy when using mobile devices.

> *Restrictions or the very cumbersome privacy rights you sign away for the privilege to use devices for work purposes [are] too great. I shouldn't have to agree to allow my employer to see my GPS location, or track all my personal apps and data on my personal device, or agree they can wipe all my personal info at any time.*

7.5.3. Enhancing Flexibility and Effectiveness

In elaborating on the importance of the technology, respondents often described the ways in which devices enhanced their effectiveness and flexibility. Mobile devices allowed participants to “respond whilst on the move” and to “multitask”. They also appreciated the ability to access

information quickly on their mobile devices and keep on top of issues after-hours. One respondent said: “I am in Sales, so I am irregularly checking the phone for customer-based issues after-hours—this is not required, but I feel it provides a better customer experience”. One of the strongest themes to emerge from the comments was the transformative role of mobile technology in facilitating remote working arrangements. A significant number of respondents appreciated the flexibility to work from home or from customer sites, which, they said, would be impossible without the technology. These themes of enhanced effectiveness and flexibility were intertwined when participants spoke of saving commuting time and using this benefit to enhance both their work and private lives. This improvement to work-life balance was particularly well described by one participant:

> *Work is something you do, not necessarily where you go … and if an individual can manage the devices effectively, mobile technology can provide the tools to prioritise and action the mix of work and home-life to deliver a win-win scenario.*

7.5.4. Boundary Management

As I have repeatedly highlighted in this study, the dark side of mobile technology often reveals itself in the blurring of boundaries between work and home. Notwithstanding the flexibility that the technology engenders, its ubiquitous nature means that users often find it difficult to disconnect from work. As one participant stated: “The ability to connect with technology 24/7 does present challenges switching off. And expectations that individuals are forever available”. Another participant noted that they managed the boundaries quite well, yet “to succeed in more senior roles this strong separation is less accepted/not possible”.

7.5.5. Enacting Personal Control Over Devices

Finally, I observed a salient theme concerning the ability of users to exercise agency over their devices. Several respondents articulated their strategies to enact a degree of control over the technology to accentuate its benefits and minimise drawbacks. These control strategies included keeping work and personal matters separated by using two devices, not listing a mobile number on internal directories, refusing to open a laptop on weekends, removing a work email account from a personal phone, and using device features to “disable work-related material outside of business”. In enacting these strategies, it was evident that some respondents took a proactive stance in attempting to balance the advantages and downsides of device usage.

The comments made by survey respondents echo the sentiments expressed by TechCo employees who participated in interviews during the qualitative phase of this research. In outlining those findings in Chapter 3, I discussed how devices strengthened the autonomy of TechCo employees by facilitating locational and temporal flexibility. Interviewees also described the ways in which this technology enhanced their performance by allowing them to connect at speed with colleagues and customers, share information and collaborate. Yet, these benefits often came at a cost, manifested as greater levels of control and experienced as higher workloads and disrupted

family lives. This simultaneous experience of both autonomy and control feature strongly in the interviews and the comments provided by respondents to the questionnaire. Notably, both data sets reveal the proactive steps that workers took to mitigate the adverse consequences of technology use on their personal lives. This interplay between increased flexibility and performance on the one hand, and work-life conflict and intensity on the other, forms the core of the autonomy-control paradox of mobile technology, a phenomenon which this chapter has attempted to analyse using quantitative methods.

This chapter concludes the analysis of the quantitative data to test the proposed conceptual model and hypotheses. A summary of the hypotheses findings is outlined in Table 7.3. The questionnaire data lends support to the central premise of this study, which proposed that mobile technology engenders the paradoxical outcomes of increased autonomy and increased control. Furthermore, both sides of this paradox were shown to have positive and negative implications for users' wellbeing, as hypothesised. Additionally, having a paradox mindset did, in some circumstances, amplify the positive wellbeing outcomes. Contrary to my predictions the quality of workplace relationships did not moderate the mobile technology paradox and the wellbeing outcomes. However, supervisor technology norms (but not coworker norms) did shape the paradox and wellbeing outcomes but, surprisingly, not in the way I had predicted. Finally, commentary provided by respondents in the questionnaire aligns with earlier interview findings, which reinforced the critical role that mobile devices play in enhancing role effectiveness and flexibility while simultaneously challenging boundaries and disrupting family life. The implications, contributions and limitations of these findings, as well as avenues for future research, are discussed in detail in the next and final chapter of this study.

Table 7.3
Summary of Hypotheses and Results

Hypothesis #	Hypothesis	Results
H1	Mobile technology usage is positively associated with perceptions of autonomy.	Supported
H2	Mobile technology usage is positively associated with perceptions of control.	Supported
H3 (a), (b)	Mobile technology usage is positively associated with (a) job satisfaction and (b) life satisfaction when mediated by perceptions of autonomy.	H3 (a) Supported H3 (b) Supported

H4 (a), (b)	Mobile technology usage is negatively associated with (a) job satisfaction and (b) life satisfaction when mediated by perceptions of control.	H4 (a) Supported H4 (b) Supported
H5 (a), (b):	A paradox mindset strengthens the positive association between mobile technology usage and (a) job satisfaction and (b) life satisfaction when mediated by perceptions of autonomy.	H5 (a) Supported H5 (b) Not supported
H6 (a), (b):	A paradox mindset weakens the negative association between mobile technology usage and (a) job satisfaction and (b) life satisfaction when mediated by perceptions of control.	H6 (a) Not supported H6 (b) Not supported
H7 (a), (b):	LMX/TMX strengthens the positive association between mobile technology usage and (a) job satisfaction and (b) life satisfaction when mediated by perceptions of autonomy.	H7 (a) Not supported H7 (b) Not supported
H8 (a), (b):	LMX/TMX weakens the negative association between mobile technology usage and (a) job satisfaction and (b) life satisfaction when mediated by perceptions of control.	H8 (a) Not supported H8 (b) Not supported
H9 (a), (b):	Supervisor/coworker technology norms which encourage online availability and responsiveness weaken the positive association between mobile technology usage and (a) job satisfaction and (b) life satisfaction when mediated by perceptions of autonomy.	H9 (a) Not supported (Direction of effect for supervisor norms was significant but in opposite direction to hypothesis) H9 (b) Not supported (Direction of effect for supervisor norms was

		significant but in opposite direction to hypothesis)
H10 (a), (b):	Supervisor/coworker technology norms which encourage online availability and responsiveness strengthen the negative association between mobile technology usage and (a) job satisfaction and (b) life satisfaction when mediated by perceptions of control.	H10 (a) Not supported (Direction of effect for supervisor norms was significant but in opposite direction to hypothesis) H10 (b) Not supported (Direction of effect for supervisor norms was significant but in opposite direction to hypothesis)

8. Discussion and Conclusion

Mobile technology plays a central role in the working lives of professionals and has reshaped much of their contemporary working practices. Devices such as smartphones, laptops and tablets offer the possibility of liberating professionals from the chains of the office, providing flexibility and control over their work. Yet the autonomy offered by these devices is mirrored by a dark side, which enables control over workers and is characterised by higher levels of work intensity and work-life conflict. The two sides of this autonomy-control paradox provide opposing implications for the wellbeing of users, both in the office and beyond.

My overarching objective in this study has been to develop and test a conceptual model which explores the autonomy-control paradox of work-related mobile technology usage and its implications for the wellbeing of workers. Using a mixed methods approach, which combined some exploratory interviews with PLS-SEM analysis of questionnaire data, I investigated three research questions. In prior chapters of this thesis, I discussed the literature and theories which informed this work, and the exploratory qualitative research which shaped the conceptual model and my methodological approach to data collection and analysis. In the last two chapters, my focus was firstly to examine the measurement model to ensure the quality of the constructs used, and then to test the structural model and assess the veracity of my proposed hypotheses. In this final chapter, I discuss the findings under each of the three research questions posed. I outline the contributions to theory and practice and propose opportunities for further research, which build on these findings. Finally, I discuss the limitations of this research project.

8.1. Answering the Research Questions

8.1.1. RQ1: How Is Mobile Technology Usage Associated With the Paradoxical Outcomes of Autonomy and Control?

The first research question sought to explain the relationship between mobile technology usage at work and the simultaneous, yet paradoxical, experiences of employee autonomy and control. Paradox is an enduring characteristic of organisational life (Lewis, 2000; Lewis & Smith, 2014). The autonomy-control paradox is categorised by Smith and Lewis (2011) as an "organizing paradox". That autonomy and control exist in a dependent relationship is not surprising. The works of sociologists and social philosophers, such as Anthony Giddens and Michel Foucault, explore the links between these phenomena. The co-existence and co-dependence of autonomy and control is aptly summarised by Foucault when he says: "Power is only exercised over free subjects" (Foucault, 1982, p. 221, as cited in Taylor, 2014).

Technology offers simultaneous and contradictory opportunities for both empowering and controlling workers (Elmes et al., 2005; Zuboff, 1988). Using the metaphor of Michel Foucault's panopticon, I have explored the autonomy-control paradox by studying Enterprise Resource Planning (ERP) systems, which have been shown to enrich jobs and provide greater flexibility

while increasing surveillance and intensifying performance assessment (Elmes et al., 2005; Sia et al., 2002; Teoh & Teo, 2010; Zuboff, 1988). Emerging research on mobile technology suggests that it, too, has a bright and dark side. Studies indicate that mobile devices afford workers locational and temporal flexibility (Dery et al., 2014; Leclercq-Vandelannoitte et al., 2014; Leung, 2011; Mazmanian et al., 2013), enhanced job control (Fujimoto et al., 2016; Mazmanian et al, 2013; Middleton, 2007) and stronger performance (Brown & Palvia, 2015; Chesley, 2010; Schlachter et al., 2017). These outcomes greatly enhance the autonomy of workers, but research also points to a darker, more controlling side. Studies have shown that using mobile technology has been linked with work-life conflict (Diaz et al., 2012; Fenner & Renn, 2010; Glavin & Schieman, 2012) and work overload and intensity (Ayyagari et al., 2011; Barley et al., 2011; Chesley, 2010), both of which exert a degree of control over workers.

To explore the autonomy-control paradox of mobile technology, a mixed methods approach was chosen with the dominant emphasis on the quantitative phase. An exploratory qualitative study was undertaken to refine the initial conceptual model by drawing on the life experiences of mobile technology users. Over the course of 22 interviews across two organisations, "TechCo" and "FinCo", research participants provided their insights on the role that mobile technology plays in their work and personal lives. The autonomy benefits of using mobile devices were very evident in these discussions. Flexibility was identified as a predominant theme in the interviews, with all participants mentioning it. They spoke enthusiastically about how the technology allowed them to work from home and other locations, and to vary working times to better suit their needs. In addition to locational and temporal flexibility, devices also afforded users a degree of job control by allowing them to "get on top of things", monitor work and intervene quickly. Furthermore, mobile technology enhanced the performance of research participants by enabling them to collaborate with colleagues, connect at speed and multitask across devices. The price of this enhanced autonomy came in the form of higher levels of control enacted over device users, both in their work and personal lives. Unsurprisingly, heavy users of mobile technology outside of work hours reported the intrusion of work into their personal lives, disrupting and reducing time which was traditionally set aside for family and friends. This was particularly lamented by the parents in the group. The controlling effects of technology were also felt in the workplace. Constant engagement with the technology across many different platforms led to a more intensive work environment, characterised by high workloads and quick turnaround.

Armed with the insights of how mobile technology can shape the simultaneous experience of autonomy and control, a conceptual model was designed and tested with questionnaire data collected from 233 participants from TechCo and an insurance company, "InsurCo". In the model, mobile technology usage was created as a higher-order construct measuring the frequency of mobile phone, laptop and tablet usage. Measures of job control and performance were combined to form the higher-order construct of autonomy. Similarly, measures of work-life conflict and work intensity were combined to form the higher-order construct of control. Following rigorous

measurement model testing in SmartPLS, structural relationships were then assessed to test the hypotheses.

The results show that mobile technology usage is positively and significantly related to perceptions of autonomy, supporting Hypothesis 1. In other words, the more workers use mobile devices to perform their jobs, the higher the level of autonomy they feel. This can be attributed to the fact that mobile technology improves their flexibility, job control and performance at work. The empowering impact of mobile technology was not confined to normal hours, however. Using this technology during the morning commute, at night and on weekends, has empowering benefits for workers. The flexibility to work for an hour in the evening to "catch up" for time spent, say, on family or personal matters during the day, is attractive to many professionals, particularly parents who experience diary conflicts with school pickups, sports training or medical appointments. Shifting their schedules in this way undoubtedly gives some harried parents a small boost to their sense of control in an otherwise frenetic world of competing work and family commitments. Logging in at the weekend also boosts autonomy when it allows users to clear their email inboxes or catch up on tasks that could not be completed during a busy working week. Naturally, it also strengthens performance simply by enabling workers to get more done.

Data was also tested to explore the control side of the paradox. The results reveal that mobile technology use is positively and significantly related to perceptions of control, supporting Hypothesis 2. Simply put, the more workers use their devices, the more control they experience. High levels of mobile technology usage lead to an intensive work experience, as users contend with swollen inboxes, simultaneous notifications across multiple platforms and expectations of quick response times. Control also comes in the form of work-life conflict. While working at night contributes to an employee's performance, family time is sacrificed, and their psychological focus is redirected back to the office. Mobile technology allows the boundaries between work and home to become even more permeable, allowing work to creep into the private sphere and disrupt family experiences.

The experience of using mobile technology for workers in this study was inherently contradictory. Devices grant freedom to workers in one form but remove it in another. This enablement, yet restriction of freedom, occurs simultaneously as the two poles of the paradox—autonomy and control—are not exclusive but interdependent. Mobile devices enhance the location and temporal freedom of workers. However, this flexibility dilutes boundaries, resulting in spillover and work-life conflict. Additionally, using these devices can boost job control and performance through improved communication with colleagues. Yet, this heightened connectivity often leads to increased workload and a faster pace of work. Therefore, these contradictory experiences of autonomy and control were interrelated. One side of the paradox enables the other. The price of flexibility is work-life conflict. The price of job control and performance is work overload. The price of autonomy is, in fact, control.

8.1.2. RQ2: How Does the Autonomy-Control Paradox Impact Employee Wellbeing?

Having established the existence of the mobile technology autonomy-control paradox, my next task was to consider how these paradoxical outcomes impacted employee wellbeing. Prior research has indicated that extensive use of mobile technology has damaging effects on employee wellbeing. Considerable focus has been placed on the impact of stress and burnout (Barber & Santuzzi, 2015; Nam, 2013; Park et al., 2020; Towers et al., 2005). However, scant attention has been given to how these devices could impact job satisfaction, an outcome of considerable interest to managers. Furthermore, I could not identify any prior studies which considered how work-related device usage influenced life satisfaction. This is important as the reach of mobile technology extends far beyond the office and into the home.

My qualitative results provide some preliminary insights on how mobile technology influenced the wellbeing of participants in this study. Much of the commentary provided by interviewees was quite negative. They described instances of burnout and exhaustion, using terms like “consuming”, “draining”, “exhausting”, and “fatigue”. Participants spoke of the relentless volume of emails, texts and other communications, which left them feeling fatigued and which spilled over into their personal time, often disrupting their family lives. Several of the participants had a particularly unhealthy relationship with their work devices, describing it as a form of “addiction”.

Underscoring the paradoxical nature of these mobile devices, participants also outlined positive experiences in addition to the negative ones. When I asked whether using these devices had consequences for their job and life satisfaction, they had much to say. Participants described how using these devices enhanced their performance, referring to them as a “tool”, “enabler” and “convenient”. Another factor strengthening their job satisfaction was the degree of flexibility in performing their roles, which these devices enabled. Specifically, they told me how these devices allowed them to time-shift their schedules, work from home and reduce commuting time. Yet, it was also clear that these devices had negative impacts on their job and life satisfaction. This was experienced in two ways. First, using these devices at extreme levels led to a very intensive work experience, which ultimately diminished autonomy and compromised job satisfaction. Second, using mobile technology outside of working hours disrupted their family lives.

Building on JD-R theory (Demerouti et al., 2001), the empirical findings, albeit limited, from the qualitative phase and some prior research, my conceptual model proposed that mobile technology usage would have both positive and negative impacts on job and life satisfaction. Specifically, I hypothesised that mobile technology would be positively related to these wellbeing outcomes when mediated by autonomy. However, mobile technology usage would also reduce job and life satisfaction when mediated by control. Mediation analysis was undertaken in SmartPLS to test the wellbeing hypotheses, both in the context of device usage during normal work hours and outside of normal work hours. The results supported all the hypotheses. It was interesting to note that in overall terms, mobile technology usage had a positive direct relationship

with job satisfaction. Therefore, despite the downsides of using these devices, my participants experienced them as enhancing their job satisfaction in overall terms. This can be attributed to the autonomy side of the paradox. Mobile technology devices represented a job "resource" for the workers in this study (Demerouti et al., 2001). Using these devices allowed participants to enhance their job control, flexibility and their performance at work. Participants experienced these benefits whether they were using mobile devices during the normal working day or whether they logged in during the evening or at weekends. We may question whether using a device at night to get your job done can be considered a positive experience which improves job satisfaction. However, in a world where working outside of normal hours is increasingly the norm, it is clear that for my participants at least, the flexibility to complete tasks at alternative times of their choosing and in the comfort of their own homes held some real benefit. Logging in outside of hours allows workers to clear their inbox after a busy day or dedicate more focused time to tasks which require greater concentration in a quieter setting. Not only does this enhance performance, but it also gives workers a degree of freedom over their work. When working at night or on the weekend is to "catch up" for some time during the working day that was spent taking the kids to football practice or running errands, then workers genuinely experience the flexibility benefits that these devices provide.

That work-related mobile technology can actually enhance our life satisfaction, while not previously reported, is quite intuitive. While some workers can establish a complete segmentation of their work and private lives, most allow some degree of integration between the two worlds. It is not surprising, therefore, that positive experiences in one domain can influence positive experiences in the other. Hence, empirical research has highlighted a strong relationship between job satisfaction and life satisfaction (Erdogan et al., 2012). Prior research has shown that work allows individuals to build competence and autonomy, which in turn are predictors of life satisfaction (Day & Jriege, 2002; De Cuyper et al., 2009; Rau, 2006). Using mobile technology can indirectly influence life satisfaction via heightened job satisfaction. However, it can also directly improve life satisfaction by enhancing job control and performance and giving workers some freedom to balance their work and family commitments.

Yet, while the positive benefits of using mobile technology are very evident in this study, the negative consequences cannot be denied. The results clearly show that mobile technology does enact a degree of control over employees, with negative ramifications for their wellbeing. The more frequently participants used mobile phones, laptops and tablets, the higher level of control they experienced. Mediation results in SmartPLS showed that mobile technology usage was negatively related to job satisfaction when mediated by this experience of control. For participants in this study, the "pay off" for greater temporal and locational flexibility was the normalisation of working outside of regular hours. This spillover of work into their private lives led to higher levels of work-life conflict. Furthermore, the price of heightened performance was a more intensive work environment, characterised by rapid and continuous communications and delivering greater

volumes of work. Both these outcomes diluted job satisfaction in the process. The damaging wellbeing effects of mobile technology were not limited to reduced job satisfaction but also eroded life satisfaction. The control side of the mobile technology paradox is experienced as a work "demand". Prior studies have shown that work demands such as work overload, intensity and work-life conflict can erode life satisfaction (Boekhorst, 2017; Fein et al., 2017; Kossek & Ozeki, 1998). Therefore, it is not surprising to find that using mobile technology intensively during the work day, at night or on weekends can lead to workers feeling overloaded and their private lives being encroached upon, which compromises their broader satisfaction with life in general.

This study also explored whether having a paradox mindset could shift the mobile technology experience at work towards stronger wellbeing outcomes. As I revealed in the qualitative findings in Chapter 3, research participants demonstrated a high level of awareness of the mobile technology paradox. Their commentary reflected the "double-edged sword" metaphor, using words such as "good and evil" or "love-hate". They recognised that devices which enhanced their performance often led to overwork, while greater flexibility sometimes damaged work-life balance as well as improved it. While some were accepting of the trade-offs, others were clearly troubled by it. An emerging body of literature suggests that while the experience of paradox can lead to anxiety and defensiveness (Lewis, 2000; Smith & Lewis, 2011), having a positive mental frame can result in more constructive outcomes (Ingram et al., 2016; Miron-Spektor et al., 2018; Zhang & Han, 2019; Zhang et al., 2015). Although a relatively new construct, the paradox mindset scale developed by Miron-Spektor and colleagues (2018) has been tested in a few studies, which highlight that adopting a positive cognitive stance to paradoxical situations can be beneficial for organisations and their employees (Miron-Spektor et al., 2018; Sleesman, 2019; Zheng et al., 2018). Building on the recent work of Miron-Spektor et al. (2018), my conceptual model proposed that a paradox mindset was a useful cognitive frame, allowing workers to better cope with the contradictory outcomes of mobile technology usage. Specifically, I proposed that having a paradox mindset would allow users of mobile technology to manage the simultaneous tensions of greater autonomy on one hand but higher control on the other.

Bootstrapping analysis was undertaken in SmartPLS to test whether a paradox mindset moderated the indirect relationship between mobile technology usage and job and life satisfaction via the autonomy and control sides of the paradox. Results provided some limited support for the hypotheses. The analysis shows that a paradox mindset strengthens the relationship between autonomy and job satisfaction. Furthermore, analysis reveals that the conditional effect of a paradox mindset on the relationship between mobile technology usage and job satisfaction via autonomy is also positive and significant. Respondents who reported higher levels of a paradox mindset experienced a greater boost to their job satisfaction via the autonomy side of the paradox.

Having an appreciation of paradox, and an understanding that tensions are regularly experienced in an imperfect organisational life, allows workers to process their experience of technology in a

more balanced and nuanced way. They understand that greater flexibility brings its own restraints and greater performance can leave them feeling overworked. Being armed with this more constructive cognitive frame may allow users to change their behaviours in ways which optimise the benefits they extract from mobile technology. More likely, though, simply having a more realistic perspective of the benefits and drawbacks of the technology reduces the tensions associated with the mobile technology paradox, allowing the positive wellbeing effects to flow more freely. However, given that a paradox mindset resulted in a positive boost to job satisfaction in the context of mobile technology usage, it was surprising to see that this benefit did not flow through to life satisfaction. While the index of moderated mediation for this path was positive as predicted, it was nonetheless non-significant.

In addition to exploring whether a paradox mindset could boost the positive wellbeing outcomes of the mobile technology paradox, this study also considered whether it could buffer the negative ones. The results reveal that for my participants at least, having a more constructive orientation to paradox did not significantly shape the control side of the paradox and the negative consequences for job and life satisfaction. Contrary to my expectations, a paradox mindset did not moderate the relationship between mobile technology usage and job and life satisfaction through control. Therefore, while a paradox mindset can be a useful resource, which optimises the positive benefits of mobile technology usage, it does not appear to act as a coping mechanism, which would protect users from its darker side.

There are two possible reasons for this outcome, one theoretical and the other methodological. It is possible that the role of paradox mindset as conceptualised in my model is simply incorrect. Individuals with a paradox mindset may indeed recognise and accept the contradictory outcomes of mobile technology usage. This acceptance and embrace of the paradox allow them to better access the positive outcomes, and they experience a higher level of autonomy and job satisfaction as a result. But contrary to my framework, paradox mindset may not alleviate the negative outcomes of mobile technology at all. In that case, it operates differently from other cognitive frames which are known to both enhance positive outcomes and mitigate negative ones for individuals. For instance, extant research has highlighted the role of growth mindset (Dweck, 1988), the belief that intellectual ability is not fixed but can be developed, in fostering positive outcomes but also limiting adverse ones. Prior research has demonstrated that growth mindset has a positive relationship with academic achievement (Claro & Dweck, 2016). A meta-analysis undertaken by Burnette et al. (2020) has also highlighted the value of the growth mindset in reducing the experience of psychological distress. Unlike other mental frames, it is plausible that paradox mindset does not act as a coping mechanism which shields individuals from negative outcomes. Therefore, if paradox mindset is a resource for workers, it may be more appropriately conceptualised as one which seems to enhance the positive outcomes of mobile technology usage, without dampening the negative ones.

An alternative explanation may be more methodological in nature. It is possible that my conceptual model is correct and that paradox mindset does indeed act as a coping mechanism which limits the dark side of mobile technology. However, the sample size used in my study may simply not have been adequate, and a larger or more diverse sample may have yielded a significant result. Furthermore, testing the conceptual model in a different organisational setting may also have delivered a different outcome. Ultimately, it is important to remember that paradox mindset research is still in its infancy and, consequently, very underdeveloped. We are only beginning to understand how this mental frame may shape our experiences at work and with technology more generally. The findings of this study should encourage future researchers to more fully explore the usefulness of this mindset in dealing with paradox in the workplace.

8.1.3. RQ3: How Do Social Factors Shape the Impact of the Autonomy-Control Paradox on Employee Wellbeing?

It is clear that a mobile technology autonomy-control paradox exists with both positive and negative consequences for the wellbeing of participants in this study. To what extent these consequences were shaped socially was the focus of the third and final research question. Adopting a sociomateriality perspective (Orlikowski & Scott, 2008), this study suggested that the wellbeing outcomes associated with mobile technology use are not simply a function of the material properties of these devices but also of the social context in which they are used. The exploratory qualitative study revealed two key themes: the supervisory/team environment and technology norms. In my interviews, participants described the close working relationships they experienced with their supervisors and coworkers. It was evident that the support provided by leaders and colleagues accelerated the autonomy outcomes drawn from mobile device usage. For example, they described how trusting relationships with supervisors allowed them to access the flexibility benefits when using mobile devices. Additionally, close cooperation with peers allowed participants to strengthen their performance benefits.

8.1.3.1 Social Exchange

Leader–member exchange (LMX) theory tells us leaders enjoy close and supportive relationships with some of their subordinates in exchange for their performance and loyalty. Prior research has shown that these high LMX relationships provide benefits for organisations and their employees, including greater autonomy and flexibility and lower work-life conflict, stress and burnout (Graen & Uhl-Bien, 1995; Liden, Wayne & Sparrowe, 2000; Thompson & Prottas, 2006; Thomas & Lankau, 2009; Warner & Hausdorf, 2009; D. A. Major & Morganson, 2011; Dulebohn et al., 2012; Tummers & Bronkhorst, 2014; Sepdiningtyas & Santoso, 2017). A closely related concept is Team–Member Exchange (TMX), which proposed that close and supporting relationships between peers are strong predictors of empowerment and performance (Seers, 1989; Liden, Wayne & Sparrowe, 2000; Chen & Klimoski, 2003; Liden et al., 2000; Banks et al., 2014; Schermuly and Meyer, 2016; Olya & Ki, 2018).

Applying LMX and TMX theory, and the insights gained from the qualitative phase of this research, my conceptual model proposed that social exchange with leaders and peers was a job resource (Demerouti et al., 2001), which allowed mobile technology users to strengthen the wellbeing benefits received via the autonomy side of the paradox. Moderated mediation testing was used in SmartPLS to assess several hypotheses for mobile device usage. However, results of this testing did not support these hypotheses. Contrary to my expectations, LMX and TMX did not have a significant influence on the relationships between mobile technology use and job and life satisfaction via autonomy.

The conceptual model also proposed that LMX and TMX would buffer the reduction to wellbeing from the control side of the paradox. Drawing on social exchange theory and related studies which highlight the important role of supervisor and peer support in managing demands at work, my prediction was that LMX and TMX would act as resources which buffered the control side of the mobile technology paradox. However, the analysis did not support these predictions. Results showed that LMX and TMX did not moderate the relationship between mobile technology and control. Consequently, whether respondents experienced high or low levels of LMX and TMX did not influence the reduction in job and life satisfaction through technology enabled control.

A possible explanation for the apparent lack of impact of social exchange may that it acts both as a demand and a resource in the context of mobile technology usage. Some critical works suggest that social exchange may also have a 'dark side' (Erdogan and Bauer, 2015). A limited number of studies have outlined the negative consequences of high LMX relationships in particular. For example, Harris and Kacmar (2006) found a positive relationship between stress and LMX at high levels. Similarly, Lawerence and Kacmar (2012) found that workers in high LMX relationships felt obligated to deliver high levels of performance, which in turn led to greater work involvement and ultimately elevated levels of stress. It's possible, therefore, that mobile device users who experience high LMX and TMX receive so much communication, engagement and ultimately workload from their supervisors and colleagues, that the autonomy side of the paradox is eroded. However, if this exists alongside the positive aspects of social exchange including close relationships which support flexible working, it's possible that one side cancels out the other resulting in no significant interaction in the context of mobile technology usage.

Another explanation may be that social exchange does exert an influence, but its relationship with the other variables in my model exists in a different configuration from that which has been considered in my analysis. For example, it is plausible that social exchange acts as a predictor of mobile technology usage. Close and productive relationships with supervisors and colleagues may lead to more frequent and rapid communications, which require a heightened level of technology usage. Consequently, a higher degree of technology usage will strengthen the levels of autonomy and control experienced by workers. Prior research (Chen & Klimoski, 2003; Dulebohn et al., 2012; Graen & Uhl-Bien, 1995; Liden et al., 2000; Olya & Ki, 2018; Sepdiningtyas

& Santoso, 2017; Thompson & Prottas, 2006; Tummers & Bronkhorst, 2014) has indicated that LMX and TMX have a direct relationship with employee perceptions of empowerment, flexibility and performance (the autonomy side of the mobile technology paradox), in addition to work-life conflict and work intensification (the control side). While not tested in this study, it is possible that in addition to these direct effects previously illustrated in the literature, these outcomes are also mediated by mobile technology use.

8.1.3.2 Technology Norms

The technology norms cultivated by supervisors and coworkers, and how these shape the paradox and its wellbeing consequences, was also investigated in this study. During the interview stage, participants highlighted the role of technology norms and behaviours in shaping their experience with mobile technology, and the outcomes which flowed from it. In TechCo, intensive engagement with technology occurred in a cultural context where expectations of rapid responsiveness and after-hours availability were role-modelled by supervisors and teams, and then practised, rewarded and embedded into the organisation. These norms actively challenged the autonomy benefits that mobile technology provided and, in the process, undermined wellbeing. TechCo employees described how feeling obliged to respond quickly to emails and other messages, and to be available to supervisors and peers after hours, added to their experience of overwork, exhaustion, work-life conflict and generally reduced wellbeing.

Prior research on technology norms focused on the extent to which they predicted afterhours mobile device usage (Fenner & Renn, 2010; Richardson & Benbunan-Fich, 2011; Barber & Santuzzi, 2015). Supervisors and coworkers are important "social referents" whose behaviours are mimicked in the workplace (Bandurra, 1977). Observing a supervisor or coworker being a "quick responder" to emails, and being available to work at night or over the weekend, tends to normalise this behaviour, encouraging other workers to do the same and resulting in extended hours (Barber & Santuzzi, 2015; Derks et al., 2015; Matusik & Mickel, 2011). What has not received attention from researchers is the role that these technology norms play in weakening the positive wellbeing benefits from the autonomy side of the paradox and intensifying the negative ones on the control side. In fact, just one quantitative study has examined this area. Derks et al. (2015 find that supervisor norms, but not coworker norms, intensify the relationship between mobile technology usage and work-life conflict.

Findings from the qualitative interviews and prior empirical studies were used to shape the conceptual model. It proposed that technology norms operated in a different way to LMX and TMX. Here again I draw on JD-R theory (Demerouti et al., 2001) by conceptualising technology norms as workplace demands which bring negative consequences for employee wellbeing. Specifically, the model proposed that these norms weaken the autonomy side of the paradox and, therefore, buffer the positive impact on job and life satisfaction. Furthermore, these norms strengthen the control side of the paradox and exacerbate the reduction in job and life satisfaction.

Moderated mediation testing in SmartPLS was used to investigate several hypotheses. Ultimately, the data did not support the hypotheses. However, some important findings were uncovered.

The PLS analysis showed that supervisor technology norms did not weaken the autonomy dimension of the paradox; in fact, they strengthened it. Data showed that the positive relationship between mobile technology use and autonomy was stronger when supervisor technology norms were higher. Consequently, norms strengthened the indirect relationship between mobile technology usage and job satisfaction. By increasing the autonomy of mobile device users, their job satisfaction was also enhanced as a result. This also extended to life satisfaction. Results demonstrated a clear link between higher levels of supervisor norms, autonomy and life satisfaction. My intuition that supervisor technology norms would shape the autonomy side of the paradox and have consequences for wellbeing was indeed correct. However, the direction of influence was incorrect. When supervisors role model and cultivate behaviours of technology availability and responsiveness, this strengthens the autonomy side of the paradox, resulting in positive improvements to workers' job and life satisfaction.

The model also proposed that technology norms would enhance the control side of the paradox and further intensify the reductions in job and life satisfaction. When workers feel obliged to copy the after-hours technology behaviours of their supervisors, this extends the working week and increased the likelihood of work-life conflict. Similarly, a culture in which people are encouraged to respond quickly to electronic communications should strengthen the experience of work intensity and overload. I hypothesised that both effects would further diminish wellbeing. Bootstrapping results reveal that supervisor norms also shape the control side of the paradox. However, once again, the direction of influence was contrary to my hypothesis. I had expected these to strengthen the control side of the paradox and put further pressure on wellbeing. However, what I found was the opposite. Results showed that supervisor norms actually weaken the relationship between mobile technology usage and control. Supervisor norms seem to buffer the reduction in job satisfaction resulting from technology enabled control. In other words, being exposed to norms which emphasise responsiveness and availability seemed to benefit job satisfaction and not damage it. Furthermore, I discovered that life satisfaction was also aligned with this finding. As supervisor technology norms reduce the control side of the paradox, they also have a role in mitigating the negative impact of technology-enabled control on life satisfaction. Therefore, in this study, instead of being a demand, the results demonstrate that the technology norms can act like a resource strengthening the experience of autonomy while simultaneously limiting the degree of control associated with mobile devices.

While supervisor technology norms did shape the paradox of mobile technology usage (albeit in a different way to expected), results showed that the same norms of technology availability and responsiveness when demonstrated by coworkers, had no impact. Smart PLS testing showed that the relationship between mobile technology usage and both autonomy and control was not

moderated by coworker norms. Consequently, the positive and negative wellbeing outcomes of mobile device usage were not influenced by the technology behaviours of coworkers.

These results reveal the moderating influence of supervisor technology norms in the context of job and life satisfaction. The surprise finding that supervisor norms seem to increase the autonomy side and reduce the control side of the paradox with positive consequences for both job and life satisfaction, was a fascinating one. There are several reasons why mobile technology norms may act as a resource for workers. In outlining my conceptual model in Chapter 5, I suggested that when workers receive constant emails from supervisors and feel compelled to respond, this dilutes their job control and effectiveness by redirecting their activities to the immediate requirements of the supervisor. However, it's entirely possible that this redirection actually enhances job control and performance (or at least the perception of it) by prioritising tasks, resolving issues, improving leader-follower collaboration or simply heightening the perception of task accomplishment.

A possible explanation for the finding that these norms are a resource which weaken the control side of the paradox, may lie in the fact that mirroring the behaviour of your supervisor by working after hours, may provide some comfort that you are simply doing what others are. By normalising intense engagement with technology in this way, technology norms may dull users' perceptions of the negative side effects. Another possibility may be that these norms play an indirect role by shaping the work-home segmentation preferences of workers more towards integration, which makes them less susceptible to experiencing the work-life conflict brought on by using mobile devices. Alternatively, perhaps the influence of supervisor technology behaviours goes further by motivating subordinates to copy traits of successful people to assist in their own advancement in the organisation. Mirroring the behaviours of supervisors for these reasons may, in turn, heighten the positive affect associated with this activity and, therefore, strengthen the wellbeing outcomes. I am reminded of the words of "Amanda", one of my interviewees who described her own after-hours connectivity in the context of her supervisors.

> She's always available … she works really long hours, late into the evening. I don't feel like she expects us to work these hours, but you do have a degree of, I guess modelling by example. You feel a little pressure to match it. … If she was only working nine to five, I'd probably be a bit resentful if I was working much longer. Because whatever I'm doing, she's doing more. You know I don't feel like she's asking me to do something that she wouldn't do. (Amanda, Solutions Designer)

Considering the influence of social exchange and technology norms together, the data presented here provides several important insights. First, these social factors clearly play a role in shaping the autonomy-control paradox and its wellbeing outcomes for device users. Technology norms can shape both sides of the paradox with positive implications for job and life satisfaction. This underscores the sociomaterial dimension of this technology. The benefits and costs of using these

devices are as much dependent on their features and functionality as they are on the social context in which they are used. This has important implications for management and device users, which I will discuss in the next section.

Second, supervisors and peers appear to exert different influences. Experiencing close and supportive relationships with supervisors and coworkers did not alter the experience of mobile technology users as I had expected. However, supervisors' norms did impact this experience, although differently to coworkers. The digital availability and responsiveness modelled by leaders acted like a resource which accentuated the autonomy dimension of the paradox, including flexibility, job control and performance while buffering the control dimension including work-life conflict and work intensification. For example, when workers perceive their supervisor as delivering quick responses to electronic communications at night, it seems to reduce their own experience of control and not intensify it as I had expected. However, the technology behaviours of coworkers did not exert a significant influence. The direction and intensity of these effects may depend on the relative importance of supervisors to peers in the organisation. Leaders have considerable influence over the experiences of followers by assigning work, allocating resources and enacting rewards and punishments (Kelloway & Barling, 2010). However, the horizontal power that teams can exert over their members has also been highlighted in the works of Barker (1993) and Sewell (1998), amongst others. It is worth noting that 21% of the participants in this study were members of "agile" teams, which tend to be self-managing in their approach (Hoda et al., 2012; Moe et al., 2010). Consequently, the overwhelming majority of respondents in the survey worked in non-agile or traditional style teams, where power dynamics are more vertical than horizontal. Therefore, it is possible that the interplay of technology and social experiences in traditional teams, where workers closely identify with their supervisor, is quite different to that of agile settings with closer connection to peers.

Finally, the impact of technology norms does not have to be negative, as previously thought. This study shows that when workers are exposed to the technology behaviours of leaders who demonstrate responsiveness and availability, it appears to strengthen their experience of autonomy and soften their experience of control and, as a consequence, strengthen job and life satisfaction. This is quite a surprising finding and quite different to the limited extant research. For example, a prior study by Derks et al. (2015) highlights that supervisor technology norms strengthened the relationship between mobile technology usage and work-life conflict. Similarly, in a qualitative study, Mazmanian et al. (2013) reveal how shared assumptions regarding accessibility and responsiveness outside normal working hours blur the boundaries between work and home, leading to higher levels of stress. Yet, in my study, results show that technology norms can act as a resource which reduces the control side of the paradox in ways which appear to be beneficial for workers. However, it is important to voice a word of caution here. While the technology behaviours of supervisors can normalise technology practices such as being online

over the weekend, this will ultimately extend the working week with likely implications for fatigue, burnout and other negative wellbeing impacts.

8.2. Research Contributions and Opportunities for Future Research

8.2.1. Contribution to Theory

This study makes several contributions to the field of mobile technology research. Drawing on extant literature, relevant theory and my exploratory qualitative findings, this study proposed and tested a conceptual model which explains the autonomy-control paradox of mobile technology. In doing so, it builds on the works of Jarvenpaa and Lang (2005), Mazmanian et al. (2013) and Ter Hoeven et al. (2016) and extends the available literature in this field. Much of the prior research is qualitative in nature, which provides us with a deep understanding of the lived experiences of mobile technology users. However, quantitative studies have been lacking in this field, which has restricted our knowledge of exactly how engagement with technology interacts with various work outcomes. The few quantitative studies have examined the *individual* outcomes of mobile technology usage, whether positive or negative. For example, Richardson and Thompson (2012) reveal that after-hours connectivity is linked with employee perceptions of greater job control, while Fenner and Renn (2012) explore the consequences for work-life conflict. However, the nature of the mobile technology paradox is that it leads to both positive and negative outcomes for workers, which occur simultaneously and are dependent on one another. A key contribution of this research is to bring together the discrete elements of the mobile paradox, which have been measured separately in previous quantitative studies, into an overarching model and test this with empirical data. By taking a predominantly quantitative approach, I have measured the paradoxical relationships between mobile technology use and the experience of autonomy and control. Furthermore, I illustrate how the sub-dimensions of these higher-order constructs of autonomy and control are interdependent, revealing that locational and temporal flexibility coexists with work-life conflict, and performance and job control sit alongside work intensity. Finally, this study differs from previous research which has overwhelmingly focused on the impact of mobile technology usage outside of normal working hours, as the results highlight that the paradox of mobile technology is also experienced during regular office hours.

Participants in this study were professional workers in white-collar settings. However, mobile devices are also increasingly used by blue-collar workers. Future research could examine how the paradox of mobile technology is experienced in semi-skilled or blue-collar settings, for example, whether retail assistants or delivery drivers experience the same degree of autonomy and control when using these devices for work. Scholars could also more closely scrutinise the applications on mobile devices. For example, interview participants at TechCo described the introduction and rapid uptake of MS Teams as something of a “game changer”, facilitating even higher levels of connectivity with colleagues through file sharing, messaging and video conferencing. In a post-COVID world, collaboration applications such as MS Teams, ZOOM,

Google Meet and Slack are increasingly commonplace in organisations to facilitate working from home. These applications and how they shape the autonomy and control experiences of workers represent a rich new source of inquiry for scholars.

This study also contributes new insights into the ways in which mobile technology can both positively and negatively impact employee wellbeing. When prior studies have focused on the wellbeing impacts of mobile technology, they have largely restricted their consideration to burnout and stress (Barber & Santuzzi, 2015; Nam, 2013; Park et al., 2020; Towers et al., 2005). A handful of studies have considered the impact on job satisfaction, a wellbeing measure of significant interest to managers and workers alike, with some mixed results (Nam, 2014; Wright et al., 2014). The findings presented here, which show that mobile technology use can strengthen job satisfaction through the autonomy dimension and reduce it through the control side, add to this limited pool of empirical data. Moreover, the results outlined in this study have extended this stream of research through the examination of life satisfaction. This work contributes a new perspective as the first study to examine how the mobile technology paradox impacts life satisfaction. It clearly demonstrates that using mobile technology is associated with the benefits of increased flexibility, job control and performance. This boost to users' sense of autonomy, in turn, positively influences their life satisfaction. Paradoxically though, users can also experience a reduction in life satisfaction when devices enact a degree of control through heightened work-life conflict and work intensity. This new focus on life satisfaction is critical as the impact of mobile technology use, whether positive or negative, is not simply confined to the workplace but has wider consequences for the lives and wellbeing of its users.

By examining the social factors which shape the experience and outcomes of mobile technology in the workplace, this study extends the emerging literature which adopts a sociomaterial (Orlikowski & Scott, 2008) perspective on this phenomenon. This research stream shows that the positive and negative outcomes of technology use are a function not only of the material properties and functionality of the devices but the wider social context in which they are used. This study adds to the works of Fenner and Renn (2010), Barley et al. (2011), Mazmanian et al. (2013) and others in developing this stream of research, and importantly it provides a contemporary data set for a post-COVID world where the digitalisation of the workplace has reached new heights.

In line with this sociomaterial approach, this study reveals the important role that leaders play in shaping the technology experiences of their followers. This was explored in two ways. First, I examined how social exchanges between leaders and their subordinates could influence the paradox of mobile technology and its wellbeing benefits and consequences. Harris et al. (2015) have previously examined the moderating role of LMX on just one component of the mobile technology paradox:, that of work-life conflict. In this study, I proposed a broader approach, suggesting that higher levels of LMX would intensify the autonomy side of the mobile technology paradox and stifle the control side, with positive consequences for employee wellbeing. Interviews

with participants in TechCo supported this proposition, which was incorporated into the conceptual model and tested in the quantitative phase. Ultimately, however, the quantitative results did not lend support to my hypotheses. Nevertheless, this intersection of mobile technology with social exchange represents an exciting new avenue of research within this field, which has been largely unexplored to this point. This study is just one of two works to explore LMX in this context, and I encourage other scholars to continue to investigate possible ways in which social exchanges can influence the mobile technology paradox.

Second, this study significantly extends the prior literature on the impact of mobile technology norms. Extant studies have primarily focused on the role of technology norms as a predictor of mobile technology usage (Fenner & Renn, 2010; Richardson & Benbunan-Fich, 2011). However, Derks et al. (2015) take a different approach by highlighting the influence of technology norms as a moderator of work-home interference. Responding to the call for further research in this area, this study builds on the work of Derks et al. (2015) in several key areas. First, I extend consideration to other negative outcomes of mobile technology usage, including work intensity, in addition to the positive impacts on flexibility, job control and performance. Second, I reveal that the technology norms demonstrated by leaders play a surprising role in strengthening the autonomy side of the mobile technology paradox and weakening the control side. Critically, this study challenges the notion that technology norms are a demand which adds to the burden imposed on workers when using mobile devices. In fact, the data presented here shows that the norms of availability and responsiveness cultivated by leaders can, in fact, be a resource which improves autonomy and lowers control. This finding stands in sharp contrast to prior research which frames technology norms as a demand (Barley et al., 2011; Day et al., 2012; Mazmanian et al., 2013).

Third, the results of this study highlight that supervisor technology norms can have a positive impact on employee wellbeing. In this study, I reveal that when supervisor norms act as a resource which strengthens the experience of autonomy and lowers control, this leads to improvements in workers' job and life satisfaction. This was a surprising finding and contrary to Derks and colleagues' (2015) findings in relation to work-life conflict, at least, and to other studies which have framed these norms as a demand with negative consequences for wellbeing. In demonstrating that technology norms can act as a resource rather than a demand, this is the first study to indicate their positive impact on wellbeing. Given the differences in these findings, I encourage future researchers to continue to explore the circumstances under which technology norms can shape the paradox, and employee wellbeing as a result. This study is situated in a traditional organisational hierarchy based on vertical power structures with reporting lines between supervisors and workers. Therefore, future studies could examine non-traditional organisational constructs, such as agile environments or self-managed teams where peer-to-peer relationships often usurp leader-follower relationships. By sidelining the influence of leaders, would the horizontal power structures (Barker 1993; Sewell 1998) in these environments mean that

coworker technology norms carry more significance and, therefore, have more impact on the mobile technology paradox?

In addition to social factors, this study illustrates the important role of individual characteristics in shaping the technology experiences of workers. The paradox mindset has emerged in recent years as a useful lens to consider how individuals can constructively respond to organisational paradoxes. This construct has been applied to the study of leadership, performance and innovation (Miron-Spektor et al., 2018; Sleesman, 2019; Zheng et al., 2018). This is the first study to illustrate the role that a paradox mindset can play in moderating the paradoxical outcomes of mobile technology usage. Specifically, I reveal that approaching the use of mobile technology with a paradox mindset allows workers to strengthen the autonomy benefits derived from usage, resulting in higher levels of job satisfaction.

The paradox mindset allows people to feel comfortable with tensions, opening up the possibility that paradox results in a “virtuous circle” and not a “vicious” one (Miron Spektor et al. 2018; Smith & Lewis, 2011). They understand that both sides of the paradox facilitate one another. Users of mobile devices at work may often see both the positive and negative sides of device usage. But those with a paradox mindset go beyond this by adopting a more nuanced perspective. They understand that these benefits and drawbacks are, in fact, related. In other words, there are no flexibility benefits without intrusions into private time. There can be no heightened performance without the risk of overwork. In short, there is no freedom without control. The ability to recognise, accept and thrive in these situations of paradox allows some users of mobile technology to shape their wellbeing experiences in more constructive ways.

These findings also add to the emerging new literature on paradox mindset and highlight the importance of having this positive mental frame when navigating the tensions of organisation life. Future research could explore how *other* mental frames can shape the autonomy-control paradox of mobile technology. One particularly salient line of inquiry could be “technological frames” (Orlikowski & Gash, 1994), which examine how individuals prior experience and knowledge of technology shapes the meaning they draw from it (Cornelissen & Werner, 2014; Oleson, 2014; Treem et al., 2015). Using this approach, scholars could explore how the meaning that workers ascribe to technology shapes their experiences of autonomy and control through mobile devices.

8.2.2. Contribution to Practice

Organisations and their leaders are confronted with paradoxes every day. They encounter scenarios of exploration versus exploitation, profits and purpose, and stability and change (Schad et al., 2016). Leaders are required to balance the objectives of the organisation to achieve higher levels of performance, greater output or higher financial returns and, simultaneously, protect the wellbeing and motivation of employees. This is often a difficult act of paradox management as organisations’ objectives are sometimes at odds with those of their workers. Leaders can push for higher levels of performance, but this can come at the expense of exhaustion, burnout and

ultimately disengagement and employee turnover. This appears to be an increasing challenge for organisations faced with significant cost pressures, which often respond with lower resourcing resulting in diminished wellbeing for their workforce. In the context of higher levels of workplace stress and burnout, Australian federal legislation was updated in 2023 to reflect psychosocial risks at work. Organisations, their boards and senior leaders now have a positive duty of care to prevent psychosocial hazards.

Mobile technology reflects this juggling act for managers. This research shows that using this technology is a terrific resource which can enhance performance; however, too much connectivity results in overwork. Similarly, devices bring flexibility, which benefits both employers and workers, but can also lead to significant family disruption. Managers, and the human resources practitioners who support them, need to understand the impact of mobile technology in the wider context of community concerns about longer working hours and working-from-home practices, which have emerged since COVID-19. Quite alarmingly, Australia has one of the lowest rates of work-life balance amongst OECD countries, significantly below certain European economies, such as Italy, Denmark and Norway, and slightly lower than other Western nations, including the United Kingdom and the United States. Thirteen per cent of Australian employees work "very long hours" compared to the OECD average of 10%. Legislation protecting workers' right to disconnect was introduced in Australia in August 2024. This means that employees can refuse contact with their employer outside of normal working hours, except in circumstances where the refusal is "unreasonable". In effect, this means that eligible employees can decline to "monitor, read or respond to contact from an employer or a third party" (Fair Work Legislation Amendment (Closing Loopholes No. 2) Bill 2023). In commenting on the new legislation, the Australian Prime Minister, Anthony Albanese, said: "What we're simply saying is someone who's not being paid 24 hours a day shouldn't be penalised if they're not online and available 24 hours a day" (Menon, 2024). The legislation is intended to restore work-life balance and, not surprisingly, has won the support of the union movement but has been criticised by business groups and the federal opposition.

The results of this study should also be considered by managers in the context of the related debate about working from home. Prior to 2020, working from home was something of a niche practice, typically reserved for more senior employees (Dockery & Bawa, 2020). While this mode of working has been in existence since at least the 1970s, it failed to attract widespread popularity despite some initial enthusiastic predictions. All this changed in 2020. The rapid spread of the COVID-19 virus forced most countries into lockdown. As a consequence, large portions of the workforce were now confined to their homes, and this new way of working became the "norm" almost overnight. While working from home was introduced *en masse* as a necessary public health measure, its benefits extended well beyond this. Research studies conducted before the pandemic, and more recently, suggest that workers enjoy the shorter commuting times, flexibility, autonomy and work-life balance advantages of working from home (Athanasiadou & Theriou, 2021; Dockery & Bawa, 2014; Gajendran & Harrison, 2007; Gallagher, 2021). Further, it seems

that organisations have also benefited from improved productivity, job satisfaction and employee retention (Barrero et al., 2020; Boell et al., 2016; Etheridge et al., 2020; Gallagher, 2021; Harker Martin & MacDonnell, 2012). Yet, working from home is not without its challenges. Research highlights some significant problems, including social isolation, blurred boundaries, gender inequities and reduced wellbeing (Ahrendt et al., 2020; Baard & Thomas, 2010; Bloom et al., 2015; Elbaz et al., 2022; Etheridge et al., 2020; Hayes et al., 2020). Despite this, the popularity of working from home has remained high with workers but is being increasingly challenged by organisations which want their employees to return to something more akin to pre-COVID arrangements. Ironically, many of the large technology companies in the US, including Meta, ZOOM and Google, whose hardware and software support working from home, are requiring employees to come back into the office a few days a week (Bhattarai, 2023). In Australia, one of the country's largest banks, ANZ, went as far as linking the payment of bonuses to attendance in the office, citing the collaboration benefits of being in the same physical space with colleagues (Ziffer, 2023). Yet, many employees are pushing back, at least against a full-time return to the office, with several studies showing a preference for two to three days of working at home (Williamson & Colley, 2022). Mobile technology is, of course, the tool that makes working from home possible in the first place. COVID-19 became a catalyst accelerating the uptake of a range of digital technologies, including video telephony, 5G, digital networks, the Internet of Things, cloud computing, artificial intelligence and machine learning (Amankwah-Amoah et al., 2021). Indeed, the benefits and consequences of working from home can be as much attributed to the working practice as it can be to the technologies enabling it.

Working from home emerged as a significant topic of debate in the 2025 Australian federal election campaign. The opposition Liberal party announced a new policy whereby Commonwealth employees would no longer be able to work from home and instead would be required to return permanently to the office. This position proved so unpopular with the electorate that it was ultimately withdrawn. However, this ill-fated policy was regarded by many as an example of the Liberal party being out of touch with community sentiment on this topic and the needs of modern working parents more generally, and may even have been a factor in the opposition's significant loss on election day (Hoelscher, 2025). By contrast, the incumbent Labor party emerged as a strong advocate for the flexibility that working from home enables. These developments may give Australian CEOs who are contemplating the rescinding of working from home arrangements some pause for reflection about the likely reaction from their employees.

Set against this wider context of workers' desire for more flexibility and work-life balance, concerns about longer working hours, the intrusion into family life and burnout consequences, and the ongoing tussle over working from home practices, the findings outlined in this study have some important implications for managers, human resource practitioners and workers. A useful starting point is to accept that these technologies, whether loved or loathed, are an indispensable part of working life for professionals, and consequently, they are here to stay. The contemporary

office environment will continue to be shaped by digitalisation with ongoing implications for work practices. Mobile technology is in many ways a positive resource for both workers and employers, something which can strengthen performance, job control and flexibility. This research has attempted to present a balanced view of the benefits and downsides of this technology to educate managers and other stakeholders. While managers also need to understand the dark side of these devices which can lead to work-life conflict, overload and work intensity, my findings are not aligned with the more critical and pessimistic accounts of some scholars (Agger, 2011; Leclercq-Vandelannoitte et al., 2014). Indeed, managers are encouraged to be equally as cautious about celebrating the "liberating" qualities of this technology as they should be about dismissing it as "enslaving". However, in attempting to manage the paradoxical outcomes of mobile technology usage within their teams, managers need to keep the wellbeing impacts of these devices, which can be experienced as both enhanced and diminished job and life satisfaction, front of mind.

Mobile technology is not inherently "good" or "bad". Yes, devices can result in positive and negative outcomes for users, but these are also influenced by the social environment in which device users operate, as well as their own choices and perspectives. Understanding this is important for managers and human resource practitioners. Managers need to be aware that their own technology behaviours can influence their followers in both constructive and damaging ways. Before sending those emails on Saturday morning, they would do well to reflect on whether they are encouraging their subordinates to work over the weekend. While supervisor technology behaviours may normalise this activity for workers in ways that do not lead to lower job and life satisfaction, it is quite likely that in the longer term, it will damage wellbeing in other ways, possibly through fatigue and burnout.

The results presented in this study should also serve as a reminder to individual workers that they are not simply passive consumers of mobile technology (Russo et al., 2019). Their natural agency gives them choices about how and when technology is used, but also the mental frames they employ to interpret their experiences. The results should encourage users of mobile technology to recognise and assess its inherent contradictions in a constructive, balanced and thoughtful way. In applying a paradox mindset to mobile technology in this manner, workers will be better equipped to optimise its positive wellbeing consequences.

My encouragement of workers in this way should not be misconstrued to mean that they alone are responsible for how they experience mobile technology. Their agency only goes so far. Ultimately, managers are accountable for the technology environment they provide, and how it shapes both the autonomy and control of their teams. Based on the findings of this study, managers and human resources practitioners are encouraged to have open discussions with workers about how they use mobile technology, the benefits they draw from it, as well as its potentially harmful effects. Involving workers in developing guidelines for the more effective and healthier use of these technologies should become an important element of engaging the

workforce around appropriate working-from-home arrangements, which meet the performance goals of the organisation but respect the boundaries that workers and their families need to thrive. Furthermore, leaders must also be conscious of role modelling "healthier" technology behaviours, which reduce the pressure that users feel to be overly responsive to emails and the requirement to be "on call" at night, on weekends and on holidays.

8.3. Research Limitations

Like all research endeavours, this study is not without its limitations. First, the quantitative phase of this research used cross-sectional data. An inherent limitation of the cross-sectional approach is that it cannot claim causation (Spector, 2019). Therefore, while the PLS-SEM analysis shows a relationship between mobile technology usage and autonomy, it cannot infer that one causes the other. Similarly, this study cannot determine that autonomy causes job satisfaction, only that they are associated with one another. To determine a causal relationship would require a longitudinal approach. Notwithstanding that, the quantitative findings are theoretically grounded. Furthermore, the quantitative results are aligned with the qualitative data in which interviewees described how using mobile technology increased their experience of autonomy and improved their wellbeing.

Second, the survey methodology used in this study carries the risk of Common Method Bias. As I outlined in Chapter 5, Common Method Bias may be introduced when data is sourced using the same instrument and respondents (Mackenzie & Podsakoff, 2012; Podsakoff, 2003). However, employing several strategies has allowed me to reduce the risk as far as practicable. For example, the questionnaire largely comprised pre-existing scales which had been tested for reliability and validity in prior studies. A pilot study was conducted to pre-test the questionnaire. Additionally, the relevance of the research topic and the confidential and voluntary nature of participation were emphasised in the preamble to the questionnaire.

Third, the majority of participants in both the qualitative and quantitative phases of the research were drawn from one organisation, TechCo, a leading technology firm in Australia. TechCo markets communications services and, therefore, its employees use mobile devices extensively to do their jobs. Consequently, we cannot simply generalise that the findings would be equally applicable to other sectors. However, given the extensive use of mobile technology in many workplaces, the technology experiences of participants in this research would certainly not be unfamiliar to white-collar workers in other industries.

Fourth, data was collected at a specific point in time both during and after many of the COVID-19 lockdowns in Australia. It is acknowledged that technology is constantly evolving and, therefore, so too will the experiences of workers who rely upon it. Having said that, even with changes in technology, the appetite for connectivity with colleagues seems to intensify and not lessen. The introduction of MS Teams in TechCo, for example, accelerated both the pace and volume of

electronic messaging. Moreover, in a post-COVID world, work practices will continue to evolve, but the tension between work and family demands remains a topic of significant debate.

Fifth, some of the effect sizes outlined in the results could be classified as small. This is particularly true of the mediation and moderation results. Some readers may be inclined to disregard results showing smaller effect sizes as lacking in practical significance (Gaskin, 2023). However, it is important to remember that by their very nature, mediating effects, in particular, tend to be small (Gaskin, 2023; Walters, 2019). Furthermore, smaller effect sizes should not be automatically dismissed as unimportant (Funder & Ozer, 2019; Walters, 2019). For example, smaller effect sizes can have substantive consequences over time (Funder & Ozer, 2019) and may prove to have stronger predictive power than larger effect sizes (Gaskin, 2023).

Sixth and finally, the research participants in this study were not selected entirely at random. Some of the interviewees in the qualitative phase were selected based on my relationship with them, while others were chosen at random. Furthermore, I approached TechCo team leaders who were known to me to participate in the questionnaire. Therefore, it is possible that if other teams had participated, their technology experience, and hence the results, may have been different. Consequently, I cannot suggest that the results outlined in this study are representative of the primary research site, TechCo. Having said that, it is also important to note that participants were drawn from a good cross-section of the organisation, representing a range of its major functions.

Appendix 1: Questionnaire

Start of Block: Introduction

Q1 **Questionnaire on Mobile Technology use**[2]

Hi there!

Welcome to the questionnaire on mobile technology at work. My name is Robert Carroll and I am a PhD student at UTS. My PhD research is focused on how people use mobile technology (mobile phones, laptops and tablets) for work purposes and what impact it may have on experiences at work. The information you provide in this questionnaire will be used to help understand the consequences of how people use mobile technology in the workplace.

Participation in this study is voluntary and confidential. It will take approximately 15 minutes to complete the questionnaire. We don't expect this questionnaire to cause any discomfort or harm. The questionnaire is **anonymous** and data will only be reported in aggregate form. Information collected will be stored securely on a UTS platform and can only be accessed by my PhD supervisor and me.

In accordance with relevant Australian and/or NSW Privacy laws, you have the right to request access to the information about you that is collected and stored by the research team. You also have the right to request that any information with which you disagree be corrected. This will only be possible if you provide personal information which may individually identify you, or be reasonably identifiable (e.g. if any open-text responses contextually identify or re-identify you).

If you have queries or concerns about the research, please feel free to contact me on 0411 656 106 or my supervisor, Professor David Bedford on david.bedford@uts.edu.au. If you have any concerns or complaints about any aspect of the conduct of this research that you wish to raise independently of the research team, please contact the UTS Ethics Secretariat on 02 9514 2478 or email research.ethics@uts.edu.au and quote the UTS HREC reference number ETH22-7035.

Please click on the button below to indicate that you agree to take the survey and then click on the forward button to go to the first question.

Thank you!

[2] This is a Microsoft Word version of the questionnaire which has been exported from Qualtrics and therefore does not have the same formatting as the version completed by respondents.

Q2 **Consent to participate in the survey**
I agree to take the survey (1)
I do not agree to take the survey (2)

Skip To: End of Block If Q2 = I agree to take the survey
Skip To: End of Survey If Q2 = I do not agree to take the survey

End of Block: Introduction

Start of Block: Qualifying question

Q3 To get things underway we'd like to ask some questions about how you use mobile technology at work.

Q4 Do you use mobile devices (e.g. mobile phone, laptop, tablet) for work-related purposes?
Yes (1)
No (2)

Skip To: End of Survey If Q4 = No

End of Block: Qualifying question

Start of Block: Mobile Technology usage - frequency

Q5 Which of the following mobile devices do you use for work purposes?

	Employer supplied device (1)	Privately owned device (2)	Do not use for work purposes (3)
Mobile phone (1)			
Laptop (2)			
Tablet (3)			

Q6 **Next we'd like to ask you some questions about *how often* you use mobile devices for work purposes at different times of the day, on weekends and during holidays**.

Q7 In a typical working day, how often do you use the following devices for work-related purposes **during normal work hours**:

	Never (1)	Rarely (2)	Sometimes (3)	Often (4)	Very often (5)
Mobile phone (1)					
Laptop (2)					
Tablet (3)					

Q8 In a typical working day, how often do you use the following devices for work-related purposes **in the morning before you** commence your normal work hours (e.g. at home or while commuting):

	Never (1)	Rarely (2)	Sometimes (3)	Often (4)	Very often (5)
Mobile phone (1)					
Laptop (2)					
Tablet (3)					

Q9 In a typical working day, how often do you use the following devices for work-related purposes **in the evening after you finish your normal work hours** (e.g. at home or while commuting):

	Never (1)	Rarely (2)	Sometimes (3)	Often (4)	Very often (5)
Mobile phone (1)					
Laptop (2)					
Tablet (3)					

Q10 In a typical **weekend day (e.g. Saturday or Sunday) or public holiday,** how often do you use the following devices for work-related purposes:

	Never (1)	Rarely (2)	Sometimes (3)	Often (4)	Very often (5)
Mobile phone (1)					
Laptop (2)					
Tablet (3)					

Q11 In a typical **annual leave day,** how often do you use the following devices for work-related purposes:

	Never (1)	Rarely (2)	Sometimes (3)	Often (4)	Very often (5)
Mobile phone (1)					
Laptop (2)					
Tablet (3)					

End of Block: Mobile Technology usage - frequency

Start of Block: Mobile Technology usage - duration

Q12 **In this section we'd like to ask you some questions about the *amount of time* you spend using mobile technology at different times** of the day, on weekends and during holidays.

Q13 In a typical working day, how much time do you spend using the following devices for work-related purposes **during normal work hours**:

	Nil (1)	0-1 hours (2)	1-2 hours (3)	2-3 hours (4)	3-4 hours (5)	4-5 hours (6)	5-6 hours (7)	6-7 hours (8)	7-8 hours (9)	8 + hours (10)
Mobile phone (1)										
Laptop (2)										
Tablet (3)										

Q14 In a typical working day, how much time do you spend using the following devices for work-related purposes **in the morning before you commence your normal work hours** (e.g. at home or while commuting):

	Nil (1)	0 - 0.5 hour (2)	0.5 - 1 hour (3)	1 - 1.5 hours (4)	1.5 - 2 hours (5)	2 - 2.5 hours (6)	2.5 - 3 hours (7)	3 + hours (8)
Mobile phone (1)								
Laptop (2)								
Tablet (3)								

Q15 In a typical working day, how much time do you spend using the following devices for work-related purposes **in the evening after you finish your normal work hours** (e.g. at home or while commuting):

	Nil (1)	0 - 0.5 hour (2)	0.5 - 1 hour (3)	1 - 1.5 hours (4)	1.5 - 2 hours (5)	2 - 2.5 hours (6)	2.5 - 3 hours (7)	3 + hours (8)
Mobile phone (1)								
Laptop (2)								
Tablet (3)								

Q16 In a typical **weekend day (e.g. Saturday or Sunday) or public holiday,** how much time do you spend using the following devices for work-related purposes:

	Nil (1)	0 - 0.5 hour (2)	0.5 - 1 hour (3)	1 - 1.5 hours (4)	1.5 - 2 hours (5)	2 - 2.5 hours (6)	2.5 - 3 hours (7)	3 + hours (8)
Mobile phone (1)								
Laptop (2)								
Tablet (3)								

Q17 In a typical **annual leave day,** how much time do you spend using the following devices for work-related purposes:

	Nil (1)	0 - 0.5 hour (2)	0.5 - 1 hour (3)	1 - 1.5 hours (4)	1.5 - 2 hours (5)	2 - 2.5 hours (6)	2.5 - 3 hours (7)	3 + hours (8)
Mobile phone (1)								
Laptop (2)								
Tablet (3)								

End of Block: Mobile Technology usage - duration

Start of Block: Supervisors and coworkers technology norms and expectations

Q18 **This next set of questions describe how your supervisor and colleagues may use mobile technology and what expectations they may have of you when using these devices.**

Q19 The following statements relate to your supervisor. Please rate your level of agreement with each statement.

	Strongly disagree (1)	Somewhat disagree (2)	Neither agree nor disagree (3)	Somewhat agree (4)	Strongly agree (5)
My supervisor expects me to respond to work-related messages immediately. (1)					
My supervisor expects me to respond to work-related messages during my free time outside of work. (2)					
When I don't answer my email during my free time outside of work, my supervisor clearly shows that they do not appreciate it. (3)					
I feel that I have to respond to messages from my supervisor immediately during my free time outside of work. (4)					
My supervisor emails regularly in the evenings. (5)					
I often receive emails from my supervisor during the weekend. (6)					

When I send an email to my supervisor during the weekend, they react the same day. (7)
My supervisor responds to work-related messages immediately. (8)

Page Break

Q20 The following statements relate to your colleagues. Please rate your level of agreement with each statement.

	Strongly disagree (1)	Somewhat disagree (2)	Neither agree nor disagree (3)	Somewhat agree (4)	Strongly agree (5)
My colleagues expect me to respond to work-related messages immediately. (1)					
My colleagues expect me to respond to work-related messages during my free time outside of work. (2)					
When I don't answer my email during my free time outside of work, my colleagues clearly show that they do not appreciate it. (3)					
I feel that I have to respond to messages from my colleagues immediately during my free time outside of work. (4)					
My colleagues email regularly in the evenings. (5)					
I often receive emails from my colleagues during the weekend. (6)					

When I send an email to my colleagues during the weekend, they react the same day. (7)
My colleagues respond to work-related messages immediately. (8)

Q21 Please rate the extent to which you agree with the following statements regarding your level of control over mobile technology use.

	Strongly disagree (1)	Somewhat disagree (2)	Neither agree nor disagree (3)	Somewhat agree (4)	Strongly agree (5)
I have control over how I use mobile technology at work. (1)					
I choose the types of mobile technology I use in my job. (2)					
I decide when to use mobile technology for work purposes. (3)					
Having a work phone and a personal phone allows me to keep my work and my personal life separate. (4)					
After normal work hours, I put my mobile devices away so that I'm not bothered by work. (5)					
I limit the amount of time or when I use mobile technology for work purposes during non-work hours (for example, only until 7 p.m.). (6)					

End of Block: Supervisors and coworkers technology norms and expectations

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Start of Block: Attitudes towards work

Q22 **Next we'd like to ask some questions about your experiences regarding various aspects of your job.**

Q23 The following statements relate to the level of **autonomy** you experience in your job. Please rate your level of agreement with each statement.

	Strongly disagree (1)	Somewhat disagree (2)	Neither agree nor disagree (3)	Somewhat agree (4)	Strongly agree (5)
My job allows me to make my own decisions about how to schedule my work. (1)					
My job allows me to make a lot of decisions on my own. (2)					
My job gives me considerable opportunity for independence and freedom in how I do the work. (3)					
My job permits me to decide on my own about WHERE the work is done. (4)					
My job permits me to decide about WHEN the work is done. (5)					
I have the freedom to work wherever is best for me - either at home or at work. (6)					
I do not have control over when I work. (7)					

Q24 The following statements relate to your feelings about your **performance** in your job. Please rate your level of agreement with each statement.

	Strongly disagree (1)	Somewhat disagree (2)	Neither agree nor disagree (3)	Somewhat agree (4)	Strongly agree (5)
I almost always perform better than an acceptable level. (1)					
I often perform better than can be expected from me. (2)					
I often put in extra effort in my work. (3)					
I intentionally expend a great deal of effort in carrying out my job. (4)					
I try to work as hard as possible. (5)					
The quality of my work is top-notch. (6)					

Q25 These statements describe what is sometimes referred to as "work intensification", that is high volumes of work and a fast pace of work. For each statement you are asked to rate the extent to which it describes your job.

	Does not describe my job at all (1)	Describes my job a little (2)	Somewhat describes my job (3)	Describes my job a lot (4)	Describes my job perfectly (5)
Fast-paced work under tight deadlines. (1)					
More work than I can complete. (2)					
Large scope of responsibility that amounts to more than one job. (3)					
Work demands a lot from me emotionally. (4)					
The work is so intense that it is mentally tiring. (5)					

Q26 The following statements are about how your work interacts with your life outside of work. Please rate your level of agreement with each statement.

	Strongly disagree (1)	Somewhat disagree (2)	Neither agree nor disagree (3)	Somewhat agree (4)	Strongly agree (5)
After work, I come home too tired to do some of the things I'd like to do. (1)					
On the job I have so much work to do that it takes away from my personal interests. (2)					
My family/friends dislike how often I am preoccupied with my work while I am at home. (3)					
My work takes up time that I'd like to spend with family/friends. (4)					

Q27 The following statements are concerned with the quality of the relationship with your supervisor. Please rate your level of agreement with each statement.

	Rarely (1)	Occasionally (2)	Sometimes (3)	Fairly often (4)	Very often (5)
Do you know where you stand with your supervisor….do you usually know how satisfied your supervisor is with what you do? (1)					

Q28 .

	Not a bit (1)	A little (2)	A fair amount (3)	Quite a bit (4)	A fair deal (5)
How well does your supervisor understand your job problems and needs? (1)					

Q29 .

	Not at all (1)	A little (2)	Moderately (3)	Mostly (4)	Fully (5)
How well does your supervisor recognise your potential? (1)					

Q30 .

	None (1)	Small (2)	Moderate (3)	High (4)	Very high (5)
Regardless of how much formal authority they have built into their position, what are the chances that your supervisor would use their power to help you solve problems in your work? (1)					

Q31

	None (1)	Small (2)	Moderate (3)	High (4)	Very high (5)
Again, regardless of the amount of formal authority your supervisor has, what are the chances that they would “bail you out” at their expense? (1)					

Q32

	Strongly disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly agree (5)
I have enough confidence in my supervisor that I would defend their decision if they were not present to do so? (1)					

Q33

	Extremely ineffective (1)	Worse than average (2)	Average (3)	Better than average (4)	Extremely effective (5)
How would you characterise your working relationship with your supervisor? (1)					

Q34 The following statements are concerned with the quality of the relationship with your colleagues. Please rate your level of agreement with each statement.

	Strongly disagree (1)	Somewhat disagree (2)	Neither agree nor disagree (3)	Somewhat agree (4)	Strongly agree (5)
Other team members clearly recognize my potential. (10)					
Other team members usually let me know when I have done something that makes their job easier (or harder). (11)					
In busy situations, other team members often volunteer to help me out. (12)					
When other team members are busy, I often volunteer to help them out. (13)					
I often let other team members know when they have done something that makes my job easier (or harder). (14)					
Other team members are willing to finish work that was assigned to me. (15)					
Other team members clearly understand my job-related problems and needs. (20)					

I often make suggestions about better work methods to other team members. (21)

I am willing to finish work that has been given to other team members. (22)

I am flexible about switching job responsibilities to make things easier for team members. (23)

Page Break

Q35 Thinking about the team that you are a member of, how much freedom does the team have to manage its own work? Please rate your level of agreement with each statement.

	Strongly disagree (1)	Somewhat disagree (2)	Neither agree nor disagree (3)	Somewhat agree (4)	Strongly agree (5)
The members of my team are responsible for determining the methods, procedures, and schedules with which the work gets done. (1)					
My team rather than my supervisor decides who does what tasks within the team. (2)					
Most work-related decisions are made by the members of my team rather than by my supervisor. (3)					

Q36 The following statements relate to your overall level of satisfaction with your job. Please rate your level of agreement with each statement.

	Strongly disagree (1)	Somewhat disagree (2)	Neither agree nor disagree (3)	Somewhat agree (4)	Strongly agree (5)
I find real enjoyment in my job. (1)					
I like my job better than the average person. (3)					
I am seldom bored with my job. (4)					
I would not consider taking another kind of job. (5)					
Most days I am enthusiastic about my job. (6)					
I feel fairly well satisfied with my job. (7)					

Q37 The following statements relate to your overall level of satisfaction with life in general. Please rate your level of agreement with each statement.

	Strongly disagree (1)	Somewhat disagree (2)	Neither agree nor disagree (3)	Somewhat agree (4)	Strongly agree (5)
In most ways my life is close to my ideal. (1)					
The conditions of my life are excellent. (2)					
I am satisfied with my life. (3)					
So far I have gotten the important things I want in life. (4)					
If I could live my life over, I would change almost nothing. (5)					

Q38 The following statements are about how central your job is to your life. Please rate your level of agreement with each statement.

	Strongly disagree (1)	Somewhat disagree (2)	Neither agree nor disagree (3)	Somewhat agree (4)	Strongly agree (5)
The most important things that happen to me involve my work. (1)					
I live, eat and breathe my job. (2)					
Most of my interests are centered around my job. (3)					
I have very strong ties with my present job which would be very difficult to break. (4)					
Most of my personal life goals are job-oriented. (5)					
I consider my job to be very central to my existence. (6)					

Q39 The following statements describe the experience of burnout. For each statement, please select the answer which is most relevant to your experience.

	Never (1)	Rarely (2)	Sometimes (3)	Frequently (4)	Always (5)
I feel emotionally drained from my work. (1)					
I feel used up at the end of the workday. (2)					
I feel burned out from my work. (3)					
I feel frustrated by my job. (4)					
I feel like I'm working too hard on my job. (5)					

Q40 The following statements describe how you might relate to conflicting demands or ideas at work. Please rate your level of agreement with each statement.

	Strongly disagree (1)	Somewhat disagree (2)	Neither agree nor disagree (3)	Somewhat agree (4)	Strongly agree (5)
When I consider conflicting perspectives, I gain a better understanding of an issue. (1)					
I am comfortable dealing with conflicting demands at the same time. (2)					
Accepting contradictions is essential for my success. (3)					
Tension between ideas energize me. (4)					
I enjoy it when I manage to pursue contradictory goals. (5)					
I often experience myself as simultaneously embracing conflicting demands. (6)					
I am comfortable working on tasks that contradict each other. (7)					
I feel uplifted when I realise that two opposites can be true. (8)					

I feel energized when I manage to address contradictory issues. (9)

End of Block: Attitudes towards work

Start of Block: Open question

Q41 Are there any comments you would like to make about how you use mobile technology for work purposes and the positive or negative impact it has on your experience at work or life in general? (optional)

____

End of Block: Open question

Start of Block: Demographics

Q42 **The questionnaire is almost complete!**
Before we finish, we'd like to ask a few questions about you.

Q43 Are you
Male (1)
Female (2)
Non-binary (3)
Other (4)
Prefer not to say (5)

Q44 What is your age?
18 - 24 (1)
25 - 34 (2)
35 - 44 (3)
45 - 54 (4)
55 - 64 (5)
65 - 74 (6)
75+ (7)

Q45 What is your current marital status?

Married (1)
Never married (2)
Widowed (3)
Divorced (4)
Separated (5)

Q46 How many children are living in your household?
(Note: Please enter a number in each box. Enter 0 if not applicable)

Under 5 years (1) ____
Aged 5 to 18 years (2) ____
Over 18 years (3) ____

Q47 Please indicate your highest level of educational qualifications.

Primary education (1)
Secondary education (2)
Certificate (3)
Diploma or advanced diploma (4)
Bachelor degree (5)
Graduate certificate or diploma (6)
Postgraduate degree (7)

Q48 Which statement best describes your job level in your organisation.

Individual contributor with no direct reports (1)
Manager (2)
Director or above (3)

Q49 Do you work in an Agile (i.e. squad or chapter) team?

Yes (1)
No (2)

Q50 Which statement best describes your employment type?

Full-time employee (1)
Part-time employee (2)
Full-time independent contractor (3)
Part-time independent contractor (4)

Q51 In a typical week, how many days do you work from home?

0 days working from home (0)
1 day working from home (1)
2 days working from home (2)
3 days working from home (3)
4 days working from home (4)
5 days working from home (5)

Q52 Taking everything into account, how many hours do you work in a typical week?

Number of hours per week (1) ____

End of Block: Demographics

Appendix 2: Supplementary Tables

Table 6.3
Device Type and Ownership

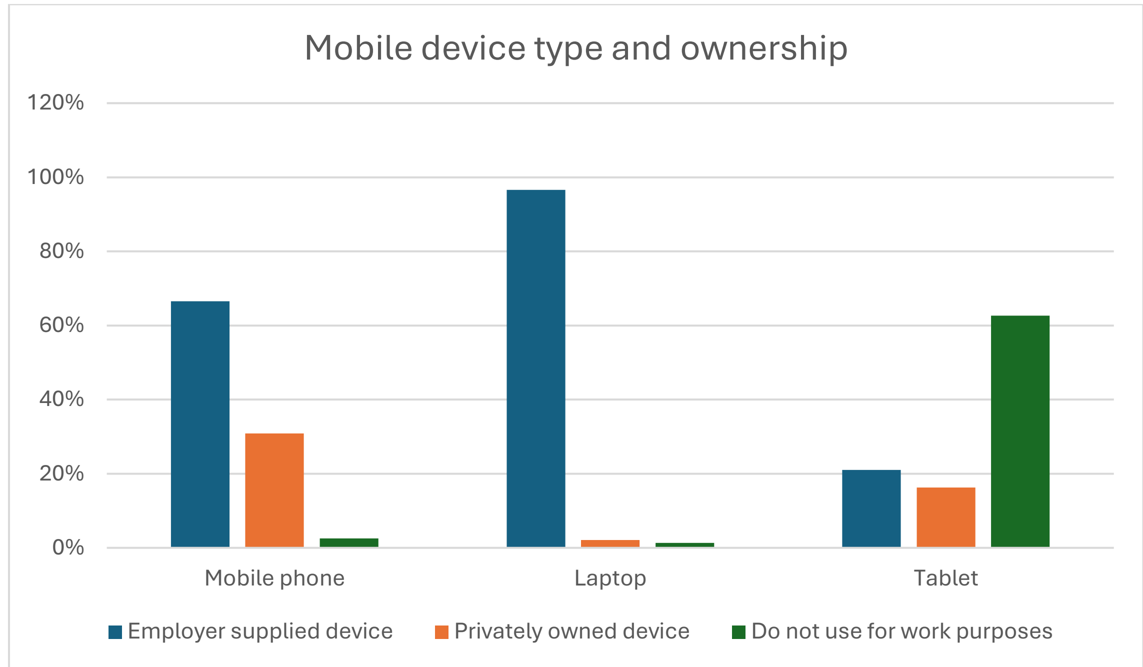

Table 6.4
Frequency of Mobile Technology Usage During Normal Work Hours

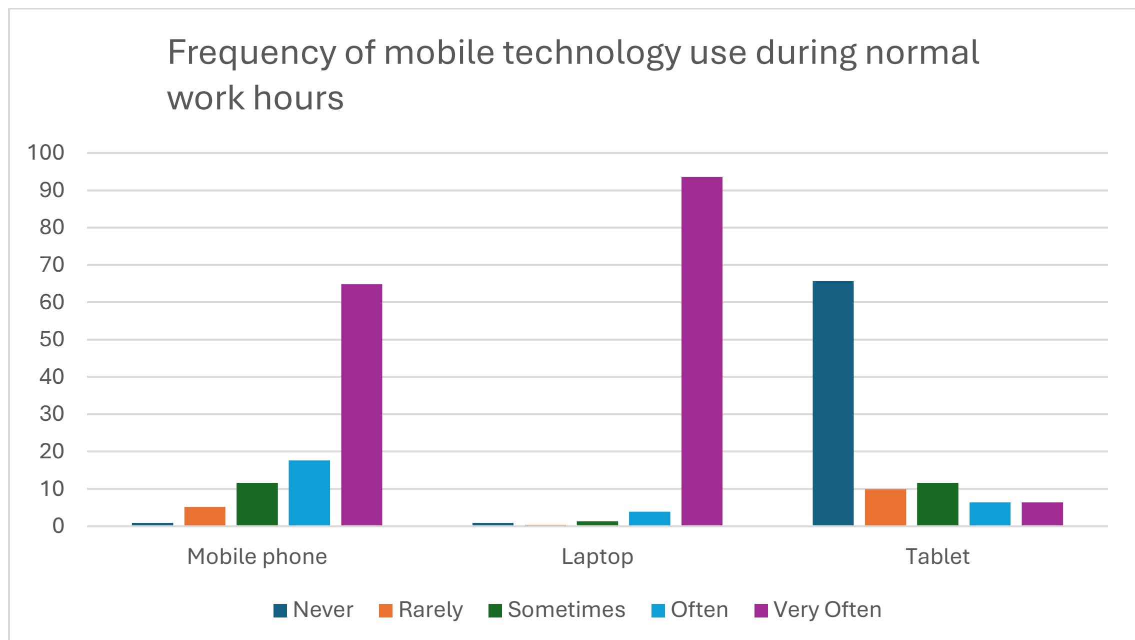

Table 6.5

Duration of Mobile Technology Usage During Normal Work Hours

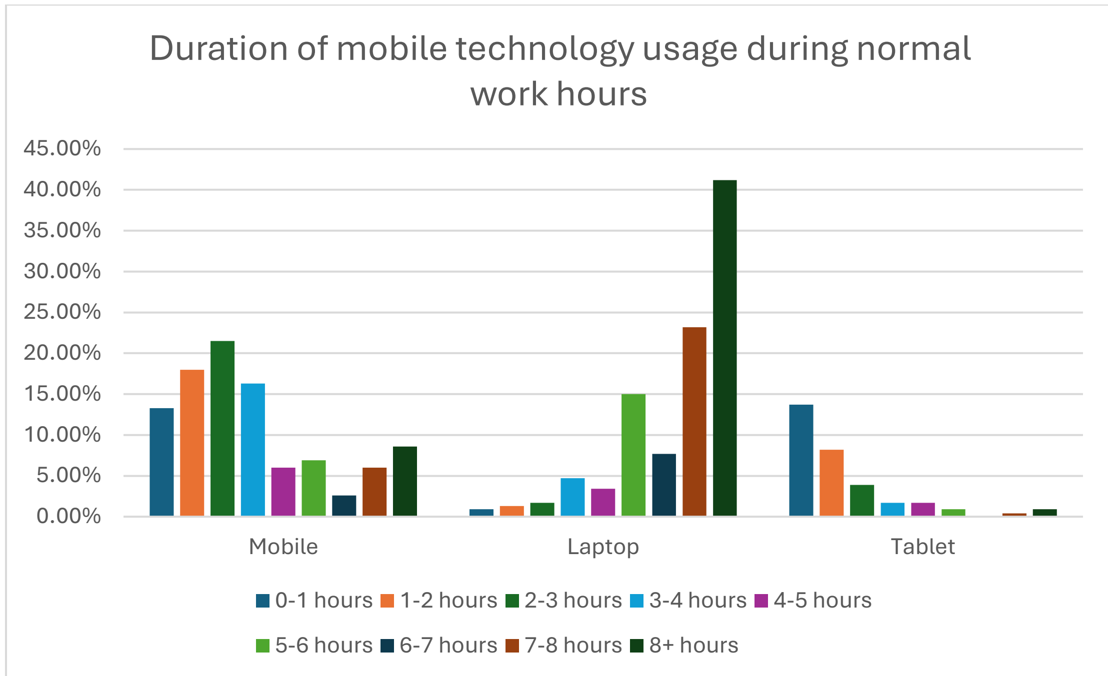

Table 6.6

Frequency of Mobile Technology Usage Outside of Normal Work Hours

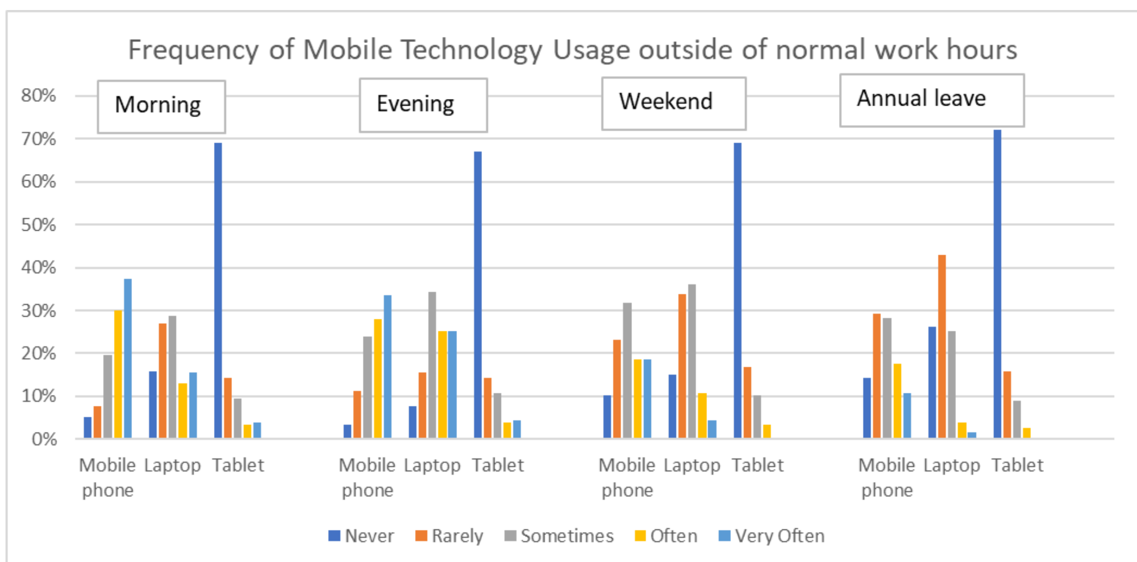

Table 6.7

Duration of Mobile Technology Usage Outside of Normal Work Hours

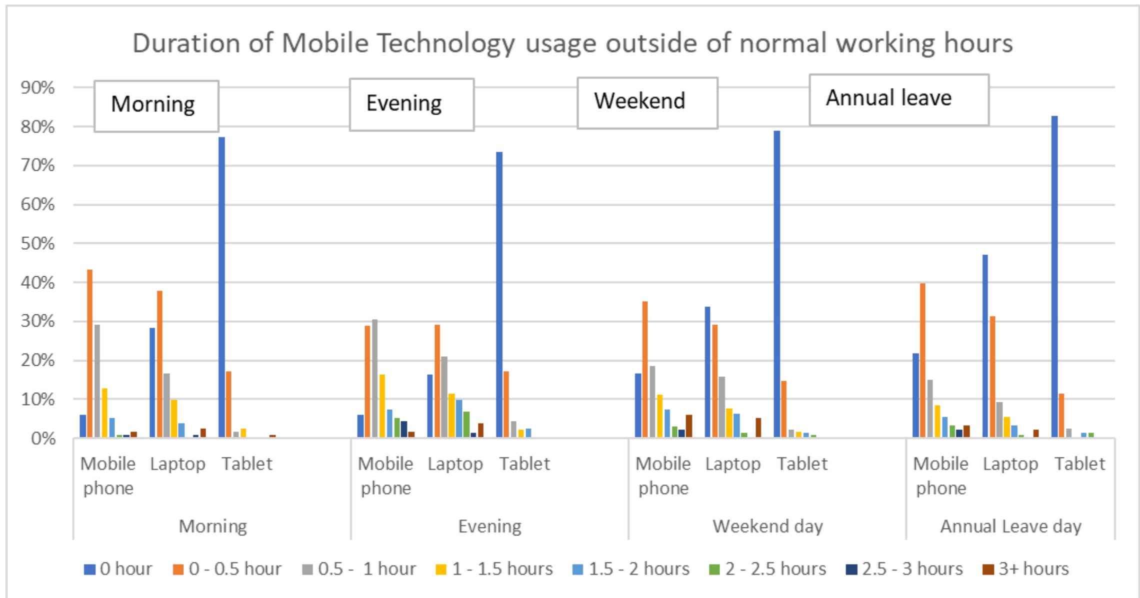

Table 10.1

Structural Relationship Results for Mobile Technology Usage During Normal Working Hours (Work)

Hypothesis	Hypothesised paths	Bootstrapping estimates (p value)
	Direct relationships	
H1	WORK-> Autonomy	0.159 (0.016)
H2	WORK-> Control	0.172 (0.028)
	Mediated relationships	
H3 (a)	WORK -> Autonomy -> JOB_SAT	0.066 (0.007)
H3 (b)	WORK -> Autonomy -> LIFE_SAT	0.039 (0.023)
H4 (a)	WORK -> Control -> JOB_SAT	-0.041 (0.028)
H4 (b)	WORK -> Control -> LIFE_SAT	-0.039 (0.031)

Table 10.2

Structural Relationship Results for Mobile Technology Usage Outside Normal Working Hours (Out)

Hypothesis	Hypothesised paths	Bootstrapping estimates (p value)
	Direct relationships	
H1	OUT-> Autonomy	0.216 (0.001)
H2	OUT-> Control	0.238 (<.001)
	Mediated relationships	
H3 (a)	OUT -> Autonomy -> JOB_SAT	0.085 (0.006)
H3 (b)	OUT -> Autonomy -> LIFE_SAT	0.050 (0.019)
H4 (a)	OUT -> Control -> JOB_SAT	-0.061 (0.008)
H4 (b)	OUT -> Control -> LIFE_SAT	-0.053 (0.007)

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