



## Telework, productivity and wellbeing

### An Australian perspective

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Developments in networking and collaboration technologies offer new opportunities for employees to telework. Even though studies indicate that teleworkers can be more productive when working away from the office, results are mostly self-reported. Additionally, no studies have yet explored telework in terms of productivity and wellbeing from both a managerial and employee perspective in Australia. We followed a qualitative research design to explore telework, productivity and wellbeing, as well as a quantitative component to measure daily experiences of workers on telework and non-telework days. Findings indicate that 1) productivity is a management concern and requires a different management approach to yield productive outcomes; 2) high-level IT support is required for workers to be more productive; and 3) the ability to telework fosters wellbeing, which in turn contributes to productivity.

## Introduction

Recent developments in networking and collaborative tools such as Web 2.0 and mobile devices are rapidly changing traditional workplaces around the globe (Bayrak 2012). For example, work can now be conducted from anywhere without the need for face-to-face communication. Telework, or ‘telecommuting’, is defined as

*“...a flexible work arrangement whereby people work in locations, remote from their central offices with no personal contact with co-workers, but the ability to communicate with co-workers using ICT” (Di Martino and Wirth 1990).*

This flexible mode of working has been around for a long time, yet has only recently become a new and attractive way of conducting work due to recent developments in mobile and handheld devices.

A 2009 forecast indicates that the existing 43 million teleworkers in the USA may increase to encompass 43% of the US workforce by 2016 (Shadler 2009). There are currently no recent

comparable statistics on telework in Europe or the UK, but in 2005 the Czech Republic was the EU country with the highest number of workers (15.2%) who telework a quarter of their time or more ([EirOnline 2010](#)). In comparison, 17% of the Australian workforce was engaged in one or more forms of telework in 2008 ([NSW 2012](#)).

Considering the economic, organisational and social benefits of telework, large distances between capital cities in Australia and contributions that regional and rural business make to the Australian economy, it is important to explore factors that may foster the adoption of telework in Australia. With the ongoing rollout of the National Broadband Network (NBN), the Australian federal government is actively encouraging the growth of telework opportunities across Australian organisations ([Government of Australia 2012](#)).

From a management perspective, the inherent difficulties associated with measuring the productivity of teleworkers may be a barrier to telework adoption ([Pyoria 2011](#); [Weisberg and Porell 2011](#)). In collaboration with Cisco and IBES (The Institute for a Broadband-Enabled Society at the University of Melbourne), we conducted a study from April to November 2012, to explore the link between telework, productivity and wellbeing in a number of industry sectors across Australia.

The next section sketches background literature on telework and productivity, followed by a section that describes our research questions, research methodology and key findings. A discussion then follows with a summary of key themes arising from the research as well as avenues for further research.

## Background literature and research questions

Literature on productivity in the context of telework is scant and mostly self-reported, with a few authors highlighting the complexity of measuring productivity for teleworkers ([Baker et al. 2007](#); [Blok et al. 2010](#); [De Menezes and Kelliher 2011](#); [Neufeld et al. 2005](#)). Claims on productivity gains relating to telework are unanimous, with some indicating that telework could boost both organisational and individual productivity ([Pyöria 2011](#); [De Menezes and Kelliher 2011](#)). However, claims about higher productivity are often made without careful consideration of how managers perceive individual and team productivity. A study by [Westfall \(2004\)](#) proposes four factors that need to be incorporated in a productivity measurement equation: amount of work, intensity of work, efficiency of work and adjustments (i.e. additional organisational costs required to telework).

This framework formed a starting point for our discussions with teleworkers regarding their productivity. However, claims about higher productivity are often self-reported and made without careful consideration of how managers perceive individual and team productivity. For the purposes of this study, we took the view that productivity can relate to an individual or a team and is a measure of how effectively and efficiently assigned tasks are completed over time. More specifically in terms of telework, it can be described *as the attainment of measurable goals within time and on budget*.

An accurate measurement of productivity in the context of telework is not easy, considering other factors that may positively impact on an individual's productivity. Examples of such factors include social interactions with managers, team members or family members, as well as the organisational culture, situational resources, distractions in a workplace, and general wellbeing ([Baker et al. 2007](#); [De Menezes and Kelliher 2011](#); [Neufeld et al. 2005](#)). It was hoped that the research would provide some useful insights into the complex phenomenon of productivity and provide a starting point for future research efforts in this regard.

Prior studies on wellbeing argue that the level and combination of certain job-related characteristics (e.g. difficulty and stress levels, level of autonomy, demands of tasks and workplace social support) affect an individual's wellbeing ([Jeurissen and Nyklicek 2001](#); [Warr 1990](#)). These findings suggest that an individual's wellbeing positively influences attitudes and perceptions towards work and is consistent with suggestions that telework has

the potential to improve job satisfaction, morale, flexibility, and family/work life balance (Baker et al. 2007; Hartig et al. 2007).

Although there are numerous studies on telework, there is a noticeable gap in the academic research that explores the impact of telework on productivity and wellbeing from both a management and employee perspective, especially in the Australian context. In order to gain a better understanding of productivity and wellbeing with respect to telework, the main research question underpinning this study was 'How does telework impact on an individual's productivity and wellbeing?' More specifically, the study sought to investigate whether the ability to telework fosters an individual's wellbeing, which in turn increases an individual's productivity. Additionally, if telework can enable a more productive workforce with a better sense of wellbeing, how can Australian organisations empower this approach to drive changes in their workplaces?

In answering these research questions, we briefly describe the research methodology and findings in the following sections.

## Research methodology

We were interested in gaining a deeper understanding of people's perceptions, views and telework practices, and the impact of telework on productivity and wellbeing. Therefore, an exploratory research method with a predominantly qualitative nature was followed, complemented by quantitative data in the form of daily experience data logs. We interviewed 28 participants, (25 hybrid teleworkers and three non-teleworkers) across six Australian organisations from the education and government sectors as well as private enterprise. Participants were based in various locations, including Greater Melbourne, Sydney, Newcastle, Brisbane, Perth, Adelaide and Dubbo, and were carefully chosen based on their hybrid mode of telework (i.e., working at least two days from home each week). We were interested in both management and worker perspectives of telework and recruited teams of workers in order to gain insights on their experiences of telework. Three non-teleworkers were also invited to share their views on productivity and wellbeing as a method of comparison between teleworking and non-teleworking employees. Participation in this study was voluntary.

Table 1 summarises case study details across the various industry types. Data collection involved two phases. In Phase One, participants were interviewed wherever they worked, through face-to-face or video-call interviews. Interview questions focused on their perceptions of productivity and wellbeing while teleworking as opposed to non-teleworking. Phase Two followed the interviews and required each participant to log his/her daily experiences of telework and non-telework on four consecutive days in a week of their choice. For this purpose we developed a website so that participants could log their *actual* work experiences across four consecutive work days.

Case organisation (pseudonym)	Industry type	Number of participants, team and interview details	Roles interviewed
1. EduCo	Tertiary: Research Institute	1 manager Face-to-face interview	Director
2. EducoIT	Tertiary: TAFE	1 manager and 2 workers (full team participated) • Face-to-face interviews	Infrastructure and IT manager Senior Systems Administrator and Network Administrator (non-teleworker)
3. NetworkCo	Network and collaborative solutions	5 managers and 6 workers (1 team with 1 manager and 4 workers participated) • Video-call interviews	Regional Sales Managers, Project Managers (including 1 non-teleworker), Consulting Engineer, and regional sales team members
4. GovernCo	Council	3 managers and 1 worker • Face-to-face interviews	Project Managers and Education Officer
5. InfraStrucCo	Network infrastructure solutions	• 2 managers and 1 senior employee • Video-call interviews	Strategic Solutions Director, National Solutions Architect Manager and Solutions Architect
6. TestCo	Investment Banking and Superannuation services	• 1 manager and 6 workers (full team participated) • Face-to-face interviews	Application Testing manager 6 Testers including 1 non-teleworker

**Table 1** - Details of participating case study organisations

Three teams from NetworkCo, TestCo and EducoIT agreed to participate in the logging of actual work experiences. Apart from data on costs and expenses related to travel, costs related to working away from the office and using the Internet to conduct work, daily productivity and wellbeing data had to be logged prior to starting a work day and at the end of each work day. The logged data included:

- 1) actual hours worked;
- 2) feelings and attitudes towards work;
- 3) tasks planned;
- 4) actual completed tasks;
- 5) number and type of interruptions each day; and
- 6) individuals' general feelings of their day's productivity and wellbeing.

Participants' feelings about their daily tasks (morale, control over their work, job satisfaction, intensity of the work and pressure on telework days and non-telework days) were logged using a 7-point Likert scale. Additionally, participants were required to comment on their overall feelings of wellbeing and productivity each day (Figure 1 presents one of the screens from our day experience data logging website).

All interviews were transcribed and a thematic analysis of both the interview transcripts and logged data was undertaken. The analysis focused on identifying key themes that could explain productivity and wellbeing from both a management and worker perspective. Daily

experience data were useful as we could compare and link the website data of individuals and teams with the qualitative interview data.

Figure 1 - Example screen from the daily experience data log website

## Research results

We discuss our findings using three key themes that emerged from the data analysis.

### Theme 1: IT is an important enabler for telework productivity

Across all cases it was evident that productivity was closely linked to the availability and use of adequate technology to enable and support telework. Basic collaboration and networking tools, mobile devices, access to content, workspaces, individual desktops and a supportive network infrastructure are required to achieve productive outcomes. Based on varying levels of IT support for telework across our cases, we classified IT support for telework as being high-level, medium-level or low-level as outlined in Table 2. Participants from organisations with high-level IT support indicated they could work seamlessly from anywhere, and were perceived as being more productive than those from organisations with medium or low levels of IT support. A Project Manager from NetworkCo stated:

*“With [NetworkCo] being a technology company they give you everything, all the tools and technology you need to do your job well”.*

Another manager from the same organisation confirmed this organisation was at the high-end of the IT support spectrum for telework:

*“We’re at the higher end of the scale. We are provided with what’s called a virtual office environment. I have a router in my home, so my home office effectively becomes an extension of [NetworkCo’s] environment. So there is no difference in the environment between office and home, so technology is the enabler” (Regional Sales Manager, NetworkCo).*

Type of IT support for Telework per case organisation	Case organisation	Types of tools and applications required in 'away from work' locations
<b>High-level IT support</b> Multiple tools and devices are used and in most cases provided by the organisation to fully support telework	NetworkCo and InfraStrucCo	Audio, video-conferencing and online presence tools (e.g. WebX and Skype), instant messaging and chat tools (e.g. Jabber, MSN), laptops, sophisticated mobile and handheld devices (iPhones, iPads), high-speed internet connection to allow for a seamless office 'working away' experience. Electronic calendar tools (iCal), multiple screens for visual display of work, virtual desktops, collection of Web-based tools and cloud services that allow working away from the office (e.g. web-based email, Microsoft Exchange and Sharepoint online)
<b>Medium-level IT support</b> Organisational support limited to 'Bring Your Own Devices' (BYOD) with some tools provided by the organisation	TestCo and EducoIT	Medium level networking and collaboration tools that allow access to files and servers (e.g. audio/video tools) mobiles phones, limited collaboration between team members and limited use of handheld devices. Dial-up conferencing tools, medium speed internet connection, and some Web-based tools.
<b>Low-level IT support</b> Limited to no organisational support to provide tools and devices for telework	GovernCo and EduCo	Limited networking and collaboration tools and devices. Low speed internet connection to access files on servers, web-based email, less sophisticated mobile phones, and landlines

Table 2: Types of IT support and tools that enable and support productive telework

Participants from one of the medium-level IT support organisations indicated that virtual collaboration technologies (such as Skype and videoconferencing) could enhance their telework experience and improve productivity. This organisation provided only email and remote server access to support telework, requiring individuals to use their personal mobile phones for telework. One participant indicated how this impacted on her productivity:

*"I think that better technology could improve it [telework]. I know there are some companies that use Skype or other technologies, and that might be useful. You find sometimes you might be emailing someone with a question and you're waiting on a response and it's taking a bit of time."*(Tester, TestCo).

Another participant confirmed the need for collaborative meeting tools to enhance the quality of meetings for the testing team:

*"... we need something more, definitely Skype or video conferencing. Video conferencing would be fantastic."*(Tester, TestCo).

Teleworkers from organisations with limited networking and collaborative tools and devices, and low speed internet access indicated that this had a negative impact on their productivity:

*"The problem is logging into the [organisation's] system, it's slow .... I take a USB home the night before teleworking with all the big files on them so I don't constantly download from our server during the day. I try not to have to do the remote login because it takes forever to download files".* (Manager, EduCo)

Given that this study viewed productivity as a measure of how effectively and efficiently assigned tasks are completed over time, and the attainment of measurable goals within time and on budget, it would appear that teleworkers with high-level IT support were more

productive than others with medium or low-level IT support. This may be due to the ability of high levels of IT support to replicate the work environment as closely as possible, therefore allowing a seamless transition between working in the office environment and working from elsewhere.

## Theme 2: Relationship between telework and productivity

Productivity did not appear to be a major concern for organisations that have developed a telework culture and were at the high-level end of IT support for telework (NetworkCo and InfraStrucCo). Two participants from these organisations commented positively on productivity:

*“I think I am a lot more productive when I telework, I can remove myself from distractions, I can focus on my work, I can disappear from people quite easily. When I’m in the office, yes I can turn down my phone, put ‘do not disturb’ on the door but people can still see I’m there, they can still knock on my door and interrupt me.”* (Strategic Solutions Director, InfraStrucCo) and

*“What I’ve found with telework is that it gives you space in a different environment, whether it be at home, whether it be the coffee shop, or just in the office wherever you can just find some space to make sure you have a plan of attack for the day, week, month, year and make sure you’re tracking to it.”* (Project Manager, NetworkCo).

Even participants from the medium to low-level IT support organisations felt that they were more productive when working from home:

*“I’m more productive when I work from home. In my job I tend to get interrupted all the time - sometimes it’s important, sometimes not. But when I am here, people come to me all the time. It’s a very rare day when I set myself five things to get done that they will get done.”* (Senior Systems Administrator, EducoIT) and

*“I am much better working from home...I work in an open plan office and I work much better in a secluded environment. I can concentrate deeply here [from home when teleworking], I can’t do that at work.”* (Project Manager, GovernCo).

Daily experience data logs of these teams confirmed that participants felt they were more productive on telework days as opposed to non-telework days. An analysis of data logs indicates that participants completed more planned tasks on telework days as opposed to non-telework days. Data logs from the TestCo team indicated that frequent interruptions impacted on productivity across the team on non-teleworking days. Work-related interruptions on non-telework days were as long as 3 hours, whereas minimal or no work-related interruptions were logged on telework days for this team. Without exception, all participants agreed that socialising at work, while useful and often a necessary distraction in the office environment, meant that they were less productive on non-telework days.

Participants’ comments in terms of productivity on telework days across the participating organisations were positive and included comments such as the following:

*“...very productive today as I completed my tasks with little interruptions or software issues....working from home meant less interruptions from colleagues”* and *“I was able to get through a large amount of processing with no disruptions”* (TestCo participants).

Participants from the TestCo team rated their own productivity higher on telework days as opposed to non-telework days. Following the completion of the daily experience data logs, and without revealing specific details submitted in the daily logs, a short telephone meeting was conducted with the team manager to gauge the manager's perception of individual and team productivity during that period. Her response about the team's overall performance

during the week of daily experience data logs was positive – she indicated that her team’s productivity was high and that she was ‘*very pleased*’ with her team’s performance on telework days at the time of conducting the study.

Day experience data logs indicate that participants worked longer hours (1.5 to 3 hours longer) on telework days as opposed to non-telework days. Work days on telework days also started earlier (as early as 6:30am). Often participants reported that they would spend the time normally spent commuting to telework, thus extending their day, but also their feeling of job satisfaction resulting from greater productivity.

Three other aspects relating to productivity and telework also emerged from the findings. These relate to:

- 1) the issue of trust in the relationship between managers and teleworkers;
- 2) the need for teleworkers to be self-driven and self-managing; and
- 3) that a different approach to managing teleworkers is required.

#### **Trust:**

The importance of trust in terms of productivity and telework was mentioned by a number of participants who were interviewed. Perceptions indicated that trust is built over time as a result of one’s behaviour, as two participants indicated:

*“I found it difficult to find out what they [teleworkers] were doing – and it all came down to trust, could we trust them to be productive and do the work without them being in the office. And it came down to a point of getting to know the team and we soon got to know who could be trusted and who couldn’t and the ones we suspected weren’t doing the right thing, we monitored them closely.”* (Test Manager, TestCo) and

*“... When you start the job you are given the trust, and it’s yours to lose if you don’t do the right thing. And then you are judged by results, so if I deliver the results then I have the trust of my managers.”* (Project Manager, NetworkCo).

#### **A self-driven and self-managing attitude:**

A self-driven attitude towards work in general was another important factor that contributed to productivity during telework. Some participants declared themselves productive teleworkers since they are driven, independent workers with self-organising abilities. One participant commented that these aspects were important for productive teleworkers:

*“What I am looking for is autonomous, independent people who can work on their own.”* (National Solutions Architect, InfraStrucCo) and

*“I’m very quick at what I do, but I’m also a bit of a workaholic. I get in there [my home office] and get stuff done, and nothing is stopping me from finishing off tasks later in the day.”* (Project Manager, NetworkCo).

#### **A different approach to management of teleworkers:**

Managers indicated that telework requires a different management approach. Even though managers felt they trusted their workers, they had to arrange regular phone or video meetings to follow up work to make sure that milestones were being met and task-based deliverables were completed. One manager comment on his management style:

*“I say to my guys I’m more interested in the outcomes ... I expect a higher volume of output when they work at home because they are not getting distracted ... I have a list of things my team have to get through and they work off a register and as they update and tick off those pieces of work I can see the progress. So should my team not be producing things on time or to the expected quality I can see that very quickly”* (Manager, InfraStrucCo).

Another manager from the same organisation confirmed that managers need different management approaches to manage teleworkers:



*“Managers need to brush up on their skills to manage distributed teams – managers need to be able to manage, measure and reward remote employees more effectively”.*

In summary, findings suggest that telework requires a different management approach where frequent meetings, clear milestones and task deadlines are essential. Also, trust and a self-driven attitude are important aspects to foster a productive working environment (from both the manager and employee perspectives).

### **Theme 3: Telework and wellbeing**

Participants interviewed agreed unanimously that there is a positive relationship between telework and wellbeing. The flexibility and ‘head-space’ enabled by telework contributed to individual wellbeing and made workers feel more productive, as two participants indicated:

*“I guess the positives are less stress, no commuting on telework days, feeling comfortable when I’m working. I experience less anxiety on telework days, and have better work-life balance.”* (Project Manager, NetworkCo) and

*“I think I probably feel more refreshed when I’m at home, I almost feel like it’s a weekend sometimes because I enjoy my work. It’s not something like I feel I have to do. Normally by Thursday if I am not teleworking I would feel my energy ebbing away, then thank God it’s Friday, I would be tired by the end of the week and you need the weekend to recover. But having a Wednesday as a telework day, I have much more energy remaining for the end of the week. Maybe that’s because I get a chance to do stocktaking and clear the decks, clear my emails, when I telework mid-week.”* (Director, EduCo).

Additionally participants felt a heightened sense of wellbeing related to a work/life/family balance as one manager indicated:

*“... I get flexibility from telework, I can see more of my kids, take my daughter to school and also pick her up – these are things that regular office workers wouldn’t be able to do.”* (Project Manager, NetworkCo).

In day-experience data logs, participants rated their wellbeing as ‘high’ (between 5 and 7 on the rating scale) for telework days. Wellbeing data log responses on telework days for each of the teams (NetworkCo, TestCo and EduCoIT) confirmed this. Comments from participants of two teams were as follows:

*“Good balance between home/work being able to assist with the family and still get a number of tasks completed”* (NetworkCo) and *“I’m more than happy and stress free”* (TestCo).

Some daily experience data logged by participants on non-telework days was less enthusiastic. Remarks logged by two participants from NetworkCo were as follows:

*“I feel that I have achieved an average amount of work.....so I will be behind again [tomorrow] – [feeling] a little pressured”* and *“Productivity average to high... however stress levels increased due to number of interruptions”.*

Across the case studies, both interview data and daily experience data logs indicated that the ability to work away from the office enabled a better work-life balance which engendered a positive attitude towards work. Workers felt that teleworking allowed for greater flexibility and a sense of control over their work which energised workers, lowered stress levels and in turn allowed for more productive work. Additionally, workers could better balance family and work life, and the ability to have a presence at home contributed to a more happy family life.

In summary, from a wellbeing perspective, participants were positive about the future of telework. It would appear that reducing stress and enabling flexibility in work schedules increases productivity.

## Discussion

Based on our findings across the cases, it became clear that organisations need to ensure that the right type of IT support environment is created to support teleworkers. IT is considered to be a key enabler for telework, and therefore the provision of IT tools allowing teleworkers to communicate, collaborate and access content from anywhere is essential. High-level IT support tools can boost both individual and team productivity but even a mid-level IT support environment can significantly facilitate productive telework.

Therefore organisations need to carefully assess their existing IT infrastructure as well as the nature of work required to identify what individuals and teams need to facilitate communication and collaboration when working from anywhere. The ability to access content from anywhere is essential for telework and this study indicates that sophisticated mobile and handheld devices do indeed enable productive work outcomes.

Another aspect that needs to be considered in terms of telework and productivity is that of *trust*. A number of participants emphasised the importance of trust in a telework relationship between a manager and a worker. From our study it would appear that some managers are more willing than others to trust their employees to work productively in a telework environment. This was often related to management style, with more traditional managers being less comfortable with teleworking arrangements.

We found that managers who themselves were teleworking on a regular basis (and therefore understood the context of telework) worried less about trust and were more concerned with measuring outputs. In terms of management style, the study found that frequent and effective communication, where expectations and targets are clearly articulated and regularly monitored, forms a sound basis for managing teleworkers and can assist in developing an underlying platform of trust. Participants in the study were also asked to identify various attributes of productive teleworkers, and their responses included being driven, self-motivated, organised, disciplined, and being able to work independently.

Our findings suggest that wellbeing is an important factor in terms of teleworking and productivity. The ability to telework fosters individual wellbeing, which in turn makes workers more productive. Working from anywhere in a hybrid telework mode clearly re-energises workers, and helps them to get away from multiple interruptions in the office allowing them to work through piles of 'to-do lists'. Additionally, the ability to telework empowers workers to control their work-life and family balance. Almost all of our participants indicated that they would prefer to work in a hybrid-telework mode as they needed the social interaction and networking that they gained from being in the office, thereby enhancing their learning experiences, personal growth and the generation of new ideas.

Finally, our findings suggest that telework requires a new management approach to realise individual and team productivity. This approach requires more inputs from managers in terms of: clearly defined requirements and deliverables, setting of specific milestones, clear articulation of ways in which individuals and teams of teleworkers need to communicate and frequent follow-ups to ascertain that teleworkers are productive and deliver the results. This may be more demanding in terms of management style and time and may require deeper sense-making skills to monitor and assess activities undertaken by teleworkers. It would also appear that the organisational culture and climate sets the tone and can often have a profound effect on how telework is perceived, and how teleworkers are actually managed.

## Conclusion

Australian industries have not yet fully embraced the advantages offered by teleworking. Given the ongoing rollout of the National Broadband Network, Australia has the potential to considerably grow its capacity for telework opportunities. We expect that managers are not yet convinced that teleworkers can be productive when working from anywhere. Our study

indicates that workers can be as productive or even more productive when they telework, particularly if they have a supportive IT infrastructure and environment that enables telework.

Moreover, the ability to telework fosters individual wellbeing, which in turn yields greater productivity. It is clear that traditional office-based work is often less relevant or perhaps even unnecessary in an increasingly fluid and mobile world. In this regard, Australian managers face many challenges in managing a new generation of teleworkers who may be working from anywhere. Further research should consider the attributes required of both managers and workers in telework environments, as well as the strategies required to manage teleworkers successfully. Additionally more studies are required to get a more comprehensive and inclusive way of measuring individual and team productivity that incorporates wellbeing.

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