

Australian Telework Advisory Committee (ATAC)

CONSULTATION PAPER

**Telework for Employees and Businesses:
Maximising the Economic and Social Benefits of
Flexible Working Practices**

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ACRONYMS AND GLOSSARY

AGIMO	Australian Government Information Management Office
APSC	Australian Public Service Commission
ATAC	Australian Telework Advisory Committee
ATUG	Australian Telecommunications User Group
BROADBAND	High-speed, low-latency, 'always-on' Internet connectivity
CENTIE	Centre for Networking for the Information Economy
DCITA	Department of Communications, Information Technology and the Arts
DEWR	Department of Employment and Workplace Relations
E-WORK	Telework arrangements that rely upon advanced ICT (qv), such as broadband and next generation networks
FACS	Department of Family and Community Services
ICT	Information and Communication Technologies
IDC	Inter Departmental Committee
IT	Information Technology
LAN	Local Area Network
MITE	Modular Interactive Telecommunications Environment
NSW RTA	New South Wales Road Transport Authority
OHS	Occupational Health and Safety
PC	Personal Computer
RIM	Remote Integrated Multiplexers are kerbside units that are connected to main exchanges via a fibre-optic cable. Houses are then connected to the RIM via normal copper phone lines. The presence of RIMs can prevent ADSL from being delivered to premises, and dial-up speeds are often degraded too
SETEL	Small Enterprise Telecommunications Centre
SME	Small-to-Medium Enterprise
SPAN	Service Provider Industry Association
TELECOMMUTING	Flexible working arrangements designed to minimise travel costs and commuting times
VOIP	Voice over Internet Protocol. An Internet-based telephony product, which translates voice signals into data packets and transfers them across the Internet. VOIP products are generally a less expensive, and potentially less reliable, alternative to traditional telephony services
VPN	Virtual Private Network. A technology that overlays communications networks with a management and security layer, enabling network managers to establish secure communication flows, while still enjoying the low cost of a public network, such as the Internet
xDSL	Generic term for all Digital Subscriber Line technologies

Telework for Employees and Businesses: Maximising the Economic and Social Benefits of Flexible Working Practices¹

BACKGROUND

The formation of the Australian Telework Advisory Committee (ATAC) responds to a commitment by the Government to establish a telework and home-based business taskforce consisting of government agencies, industry and small business representatives to advise on options and impediments to the development of telework for employees and businesses.

The Australian Government recognises a public interest in the accelerated development of telework. Benefits include improved business efficiencies and cost savings, economic opportunities for regional industry, improved work/life balance for Australian workers, and reduced congestion and environmental impacts.

The ATAC represents an opportunity for the Government and the private sector to share telework experiences and discuss current activities and to consider strategies to accelerate the development of and maximise the opportunities and benefits provided by telework for Australian workers.

This paper is intended to clarify the scope of the telework review, and to inform discussion by the ATAC on the drivers and impediments to accelerated adoption of best practice telework in Australia.

This paper is accompanied by three other short papers which provide an overview of telework developments in Australia and overseas, and which provide a review of available teleworking research. Taken together these papers provide a snapshot of Australia's position in the context of global telework trends, and provide a preliminary outline of relevant issues and policy challenges.

The ATAC invites submissions from all interested individuals and organisations on the telework issues outlined in this paper. A set of questions have been developed which may assist you in responding to this submission (See Attachment C)

¹ This paper has been prepared by the Department of Communications, Information Technology and the Arts and the Department of Employment and Workplace Relations, for the Australian Telework Advisory Committee (ATAC).

SECTION 1: WHAT IS TELEWORK?

Teleworking is a flexible working practice, enabled by information and communication technology (ICT), that allows work to be organised in innovative and in many cases more efficient ways away from the main worksite.

There is no universally accepted definition of 'telework'. However, most analysts agree that telework involves arrangements that occur when workers reduce their commute by carrying out all, or part of, their work away from their normal places of business. Teleworking can be broadly defined by a number of characteristics: the nature of the employment relationship (such as an employer-employee, labour hire or self-employment arrangement); the location of work (home-based office, satellite office or telecottage, etc), the extent of the use of computers and technology; and the proportion of time spent working remotely compared with time spent on site.

Some analysts argue that the term telework relates exclusively to work performed within a home-based office environment. Others, however, expand the definition to include all remote working arrangements, regardless of whether they are performed from home offices, branch offices, airport lounges, internet cafes, hotel rooms, business centres or other external venues.

There is also varying emphasis on the importance of technology as an enabler of telework. For example, many European analysts classify any home-based work as telework, while most Australian and North American analysts define telework as being supported by information technology, such as Internet and broadband connectivity.

A range of further issues reduce the potential for any universal or simple definition. For example, there remains disagreement about whether telework includes paid as well as unpaid work, whether it includes informal as well as formal workplace agreements, and whether these arrangements need to be full-time, or subject to standard hours to be included in a telework definition.

Variations in the definition of telework are highlighted by the different terminology used. For example, 'e-work' is sometimes used to describe telework arrangements that rely upon advanced ICT, such as broadband or next generation networks. 'Telecommuting' is another term that is sometimes used to describe arrangements which are specifically designed to minimise travel costs.

Teleworkers therefore potentially exist in a very broad industrial context, ranging from a public sector database manager, who uses a narrowband Internet connect to link to the office while nursing a sick child, to a neurosurgeon based in Berlin training students in Perth using virtual imagery applications transported across an ultra-wideband network connection.¹

The Canadian Telework Association estimated in 2004 that 65 per cent of jobs would be amenable to telework.² These include, but are not limited to, occupations in professional and knowledge-intensive sectors.

International IT research firm, Gartner Group, estimated that there were 137 million teleworkers in the global labour market at the end of 2003.³ These workers include architects, book-keepers, editors, financial planners, graphic designers, stockbrokers, lawyers and radiologists. Not all consider themselves

teleworkers, many simply use technology to do their work away from the traditional workplace.

Telework: A Working Definition

The broad range of telework models make it necessary to clearly define telework, in order to provide an appropriate level of focus to the policy review process. The following section of the paper outlines a suggested working definition of telework.

The general definition of ‘telework’ may include a number of different organisational models, including: work performed by employees from home, including by the self-employed; work performed in ‘satellite’ working centres; virtual work; mobile work; time-shifting arrangements; off-shored operations; and home-shored operations.

- An overview of telework models is at **ATTACHMENT A**.
- Telework case-studies are provided at **ATTACHMENT B**.

In terms of a working definition for the purposes of the ATAC review, it is recommended that telework be defined as encompassing work arrangements which take place between a remote worker and a central business location, including where these arrangements:

- involve a worker located at home, either as an employer connecting to a work location, or as a self-employed worker, connecting to clients; and
- are enabled by ICT, such as a PC and network connectivity; and
- occur within the context of the Australian economy (eg. not ‘off-shoring’ or ‘time-shifting’ arrangements); and
- involve full-time, part-time or casual work; and
- occur within the context of an employment relationship; and
- are either formal or informal; and
- are voluntary or compulsory.

This definition establishes the Australian Government’s desired focus on telework as an enabler of economic growth and better work-life balance for Australian workers. The definition will also allow scope for discussion on a number of possible telework models, including home-based work, work by the self-employed, work in satellite centres and home-shored work.

While not the specific focus of the review, it is recognised that innovative workforce practices, including off-shoring and time-shifting, may also yield economic and social benefits, and may provide quality of life improvements to participating individuals.

SECTION 2: THE BENEFITS OF TELEWORK

The benefits and costs of telework are well documented. The range of positive social, economic and environmental benefits include:

- improved business efficiencies and cost savings for business;
- improved economic opportunities for regional industry;
- better work-life balance and quality of life for workers;
- improved social and economic outcomes for disabled and infirm workers;
- reduced traffic congestion and environmental pollution; and
- ongoing business operationality in the face of natural or man-made disasters or crises.

The costs of telework are dealt with in Section 4.

Improved business efficiencies and cost savings

Increased productivity

The changing nature of firms, and the growth of contract work, have together resulted in many organisations finding telework to be an increasingly attractive proposition. There is evidence that teleworkers in some industries are more productive relative to traditional office workers.

- 2004 US Employment Policy Foundation survey found that on average teleworkers handle 26 per cent more calls and brought in 43 per cent more business than at-office workers.⁴
- The Colorado Telework Coalition found that American Express teleworkers in the US produce 43 per cent more business than their colleagues who work in an office.⁵
- The International Telework Association has found that employers in the US save over \$10,000 per teleworker per year in costs related to absenteeism and job retention⁶.

Cost-savings

The cost-savings achievable through telework are potentially significant, enabling organisations to reduce operating expenses, including real-estate and parking costs. Telework can also result in other benefits, such as lower rates of employee sick leave and absenteeism. Offering employees flexible working conditions and an improved work/lifestyle balance increases an organisation's chances of attracting and retaining high calibre employees, and may alleviate the costs of staff turnover, which in some organisations is estimated to cost between 150–400 per cent of an employee's annual salary.⁷

- 25 per cent of IBM's 320,000 global workforce telework, saving IBM US \$700 million in real estate costs.⁸
- Since 1998, AT&T has reduced its office space costs by 50 per cent through telework, saving it US \$500 million.⁹
- Of Nortel's 13,000 teleworkers, 4,000 no longer need dedicated office space in a Nortel building, enabling the company to save US \$20 million annually on real estate.¹⁰

In a period of low unemployment and high staff mobility in Australia, telework can provide employers with an improved ability to attract and recruit staff as well as retain corporate knowledge. This is particularly of benefit as Australia's workforce ages. Telework can also maximise productivity gains through improved staff morale.

- A 2004 US Flexible Working Survey found that teleworkers were 67 per cent more likely to be loyal to their employers.¹¹
- In a 2002 Positively Broadband survey, over 30 per cent of respondents claimed to prefer the option of teleworking over a higher salary.¹²

Improved economic opportunities for regional industry

Eroding the tyranny of distance

Telework enables remote workers to overcome the 'tyranny of distance' by closing the gap between their residence and their workplace.

Telework improves economic opportunities for non-metropolitan communities, creating jobs and opening new markets for regional industry. Many local authorities and regional bodies globally are promoting the development of teleworking skills in the local workforce. For example, in 2004 the UK Local Government Management Board recommended that local authorities invest in their own ICT capacity and market themselves aggressively as regional teleworking hubs.¹³

Telework may be an effective tool to counter the 'brain drain' occurring in some remote communities. Indeed, ICT-enabled flexible working arrangements have become increasingly popular for small to medium enterprises (SMEs), including for those located in regional Australia.

Improved service delivery

Teleworking can enhance the delivery of essential services to regional, rural and remote areas. For example, psychiatrists working at the Adelaide Glenside Hospital are currently able to engage in virtual consultations with patients in 67 South Australian rural and remote communities through the use of broadband-enabled video-conferencing facilities.¹⁴

Improved work-life balance for Australian workers

Teleworkers can achieve an enhanced capacity to balance work and caring responsibilities through greater flexibility and control over working time and time saved through avoiding commuting.

It is important to note that teleworking is not designed to provide a long-term substitute for care arrangements. Rather it allows workers to manage both their work and caring commitments in a more flexible way than traditional working environments allow. In the UK, since April 2003 parents with disabled children or children under six have the right to request flexible working, including to telework. Under UK law, employers are under a duty to give serious consideration to such requests.¹⁵

- A UK 2002 University of Bradford survey of 2,000 BT teleworkers reported that 82 per cent felt that teleworking was important to their quality of life.¹⁶
- A 2001 ABS survey of teleworking in NSW found that some of the main reasons given by workers for teleworking included that there were less distractions working from home (15 per cent) and for childcare or family considerations (13 per cent).¹⁷
- A study of teleworking in Australian local government found that 6 of 9 local councils expecting greater assistance for employees with family or caring responsibilities through home-based work, realised this expectation.¹⁸

Mitigating against possible long hours of work and providing career progression opportunities are also important to ensure that teleworking arrangements promote better work and life balance for workers in an equitable way.

Opportunities for aged and disabled workers

At a time of skill shortages across a range of industries, and concerns about the long-term economic effects of an ageing population, there is growing recognition of the need for increasing labour force participation by encouraging older and disabled workers to remain in the workforce for longer periods.

A 2003 report by the Australian Public Service Management Advisory Committee pointed out that “increased flexibility in work patterns and arrangements will be an important part of the response to demographic changes, recognising the life stage dynamics influencing workforce participation”.¹⁹ The 2004 Treasury discussion paper *Australia’s Demographic Challenges* specifically identified the need for more flexible working options to cater for an ageing workforce.²⁰

Telework is also being driven by the need for employers to cater for staff with disabilities and chronic health problems. Workers with special needs are an expanding demographic within the workforce, and according to the 2003 Support for Flexible Work Practices IDC, assistive technologies are now being developed that will improve access by disabled workers to the benefits of flexible work arrangements.

Reduced traffic congestion and environmental pollution

Reduced travel requirements

Telework reduces the amount of time spent commuting by a worker and the number of business kilometres traveled each year. In this context, adoption of telework will result in environmental benefits, including reduced pollution and traffic congestion and a decreased reliance on limited energy reserves.

- According to the *Network World* magazine, in 2002 the average US commuter lost nearly two full days (46 hours) stuck in congested traffic.²¹
- A 2000 report by the UK Home Office estimated the net public loss to the UK economy of wasted commuter time spent in congested traffic, at £20B.²²

Many Governments around the world now promote telework strategies to minimise environmental impacts. For example, the National Institute of Environmental Health Sciences in the US reimburses most of the cost of broadband for employees if they work from home.²³ Teleworking is a key component of the Australian Government's National Greenhouse Strategy's Greenhouse Gas Abatement Program aimed at improving air quality.²⁴

Ongoing business operationality in the face of natural or man-made disasters or crises

The ability for employees to continue productive work in the event of disaster and so ensure some ongoing business operationality is a major advantage of telework. While in Australia disease and terrorist activities are not significant drivers of telework, it is worth noting that telework is generally seen as a means to mitigate against the dangers of a terrorist attack. For example, the US Society for Human Resource Management has noted that: "One of the constants heard from Government leaders (post 9-11) is that the War on Terrorism may require structural changes in the way Americans live. The situation for the workplace will be no different".²⁵

SECTION 3: ADOPTION OF TELEWORK IN AUSTRALIA

A range of data show that while telework is not widespread in Australia, it is becoming a feature of Australian working arrangements. The 2001 ABS census estimated that there were approximately 438,000 workers in Australia who worked from home on the day of the census, constituting 5.3 per cent of the working population.²⁶

The 2001 ABS Telework NSW survey identified 245,000 teleworkers in NSW, comprising 8% of employed people.²⁷ The Household Income and Labour Dynamics in Australia (HILDA) Wave 3 survey found that, in 2003, 17 per cent of total Australian employees had worked any hours at home.²⁸

These figures do not compare favourably to more spectacular adoption telework trends, including in the US (24 per cent), and European countries such as the Netherlands (26 per cent), Denmark (22 per cent) and Finland (22 per cent).²⁹

ABS figures reveal that teleworking is most prevalent amongst professional people employed as managers, consultants and administrators termed 'advanced clerical and service workers'. Farm workers also comprise a significant proportion of the teleworking population. According to the ABS Telework NSW survey private sector employees account for 79 per cent of teleworkers, but a greater proportion of public sector employees teleworked (44,800 or 10 per cent) compared to those in the private sector (142,300 or 7 per cent).³⁰

According to a recent survey by Pacific Internet, 36 per cent of SMEs currently utilise broadband-enabled telework arrangements, while another 19 per cent intend to adopt them within 6-12 months.³¹

The HILDA survey findings suggest that 33 per cent of employees who had worked from home have a formal teleworking arrangement with their employer. Also, employees on fixed contracts (27 per cent) are more likely to work from home compared to permanent employees (19 per cent) and casual employees (7 per cent).³²

The most common age group for Australian teleworkers is 35 to 44 years.³³ For example, an IBM Australia survey found that most of the firm's teleworkers are in the early part of their working careers, with teleworking much less common for employees over 50 years of age.³⁴

Like elsewhere in the world, telework adoption is being driven by ICT and online technologies. According to the ABS Telework NSW survey, 62 per cent of employees used a facility supplied by their employers, including a laptop PC (44 per cent), mobile phone (37 per cent), and Internet (19 per cent).³⁵

DCITA telework statistics procurement

There is a shortage of telework statistics in Australia. The ABS and other organisations have previously undertaken surveys on telework trends, although these have largely been ad-hoc in nature. Private sector data providers such as IDC, Gartner, and Point-topic, have also tended to focus on supplier-centric measurements; providing analysis of technologies with telework applications (eg VOIP) rather than broader demand analysis.

To address this data shortage, DCITA is funding the inclusion of telework related questions in the Sensis E-business and Consumer Confidence survey. This will be a first step towards mapping the emerging telework market and development of a telework information base to underpin advice and policy development. Standard results from both surveys will be available in late 2005.

Sensis survey: *Measurement of the Adoption of Teleworking in Australia*

- Practices by small and medium-sized enterprises (SMEs)
- Understanding the employee perspective

Sensis Pty Ltd undertakes an annual survey of SME participation in the information economy, (the *Sensis SME E-business Index*). The Sensis SME E-business Survey comprises a sample of 1,800 SMEs (1-200 employees). The survey is conducted in March each year with results released later in the same year. DCITA has arranged for six questions relating to teleworking to be included in the current survey:

- Do you or any of your employees telework?
 - o Where is that work performed?
- How many of your employees telework?
 - o On average, how many hours a week do your staff telework?
 - o How many of your employees do not telework?
- What facilities and equipment do your employees use to telework?
 - o Which of these facilities do you provide to your employees to assist in teleworking?
 - o Do you have formal agreements in place for teleworking, or is teleworking managed on an informal basis?
 - o What are the main tasks your employees undertake when they are teleworking?
- What are the main reasons that employees telework in your business?
- Has the introduction of teleworking had a positive impact, a negative impact or no real impact on your business?
 - o In what way has it had a (positive)/(negative) impact?
- Do you intend to introduce teleworking in your business?
 - o When do you intend to introduce teleworking?
 - o What are the main barriers preventing you from having introduced teleworking already?

DCITA has also arranged for further teleworking questions relating to employee adoption and perceptions of teleworking to be included in the Consumer Household Survey also undertaken by Sensis Pty Ltd. This survey runs parallel to the Sensis SME business surveys. These questions will focus on the employee perspective, covering the following topics:

- Adoption of teleworking;
- Time spent teleworking;
- Technology used to telework;
- Technology provided by business to assist employee telework;
- Pros/cons of teleworking;
- Interest in teleworking (for non-teleworkers); and
- Barriers to teleworking.

Australian and international telework developments are described in more detail in the *Telework Australia* and *International Developments in Telework – Key Benchmark Countries*, papers II-IV, available on the DCITA web-site.

Government Initiatives

The public sector has played an important role in pioneering and promoting telework. The public sector has also funded important research and analysis into teleworking trends.

DEWR Publications

DEWR produces work and family fact sheets on-line (www.workplace.gov.au/WorkFamily) including one on home based work and teleworking which provides tips on implementing and reviewing telework arrangements. DEWR also produces an on-line Family Friendly Agreements Clauses database (www.wagenet.gov.au/FFAC) with example clauses on home-based work across different industry and business sizes.

DCITA Advanced Network Program

Government supports a range of innovative research initiatives into telework methods. For example, funds have been provided via DCITA's Advanced Networks Program to the Centre for Networking Technologies for the Information Economy to support the development of technologies to improve the capabilities of virtual workers.³⁶ These technologies may soon enable medical students in remote areas to train on virtual patients, and workers to collaborate in virtual environments with distant colleagues.

DCITA telework case-studies

In 2003 DCITA produced a series of case-studies designed to highlight broadband as an enabler of telework, which discussed the benefits of telework from the perspective of a variety of professions.³⁷ DCITA has made this case-study series available through its web-site, at: www.dcita.gov.au/___data/assets/pdf_file/21055/Broadband-Teleworking.pdf.

FACS Support for Flexible Work Practices IDC

Government has recently sought to facilitate a whole-of-government approach to telework within the public-sector. In 2004, the Department of Family and Community Services chaired the Support for Flexible Work Practices IDC which aimed to identify and encourage best practice in flexible working across the Australian Public Service.

The IDC developed a series of recommendations to support the use of home-based telework in the public-sector, including by establishing a 'community of practice' aimed at sharing information about ICT support for telework, and by developing 'better practice checklists' with a focus on the management of ICT to support internal business processes.

Private-Sector Initiatives

Many private sector organisations and employer groups, such as the Australian Chamber of Commerce and Industry (ACCI), have played an important role in the development of telework best practice, while others, including Toshiba and the IIA have recently commissioned their own research activities into telework trends and workplace attitudes to better inform their own approach to the implementation and

management of telework initiatives. It is envisaged that consultation with stakeholders during the ATAC review process will assist the identification of additional private-sector telework initiatives.

Australian Chamber of Commerce and Industry

In 1998 ACCI produced a telework guide and checklist. The guide includes discussion of teleworking equipment requirements, employment agreements, OH&S considerations, insurance and security issues. However, the ACCI Guide is an early study and therefore does not adequately touch upon the importance of high-speed connectivity and broadband-enabled applications to telework arrangements.

Imago Multimedia Centre

A Modular Interactive Telecommunications Environment has been developed by Imago with support from the Federal Government. The self-contained portable building brings advanced communications to remote locations, and is designed to handle a range of remote working needs. When equipped with power generators and satellite links, these units can be deployed in the most isolated areas.³⁸ A MITE case-study has been included at [ATTACHMENT C](#)

Toshiba Australia

In April 2004, Toshiba Australia commissioned a survey of 600 managers and employees across Australia and New Zealand to explore opinions on flexible working. The survey covered a wide range of industry sectors, including communication services, finance, government administration and transportation.

Toshiba released a report, *Mobility and Mistrust*, which outlined survey findings. The report found that many Australian managers do not trust employees to work away from the office and are therefore denying them the opportunity to work flexibly. Mistrust between co-workers regarding flexible working is also prevalent, with those who work away from the office subject to criticism from colleagues.

Following the publication of this report, Toshiba has called on leading business people, management and human resource experts to be involved in a Special Interest Group on flexible working. The outcomes of this consortium will be published in a management guide, which will provide organisations with practical advice on how to achieve the benefits offered by flexible working, including models and case studies.

Other research activities

The IIA has indicated that they are currently undertaking their own research into telework opportunities. It is envisaged that their research findings will be made available shortly.

SECTION 4: TOWARD IMPROVED TELEWORKING

Having recognised the public interest in the development of best practice telework and the significant economic and social benefits of flexible working models, the Government has formed the ATAC to advise it on options for achieving more widespread adoption of telework. A key aspect of this policy development process will include the identification of barriers and drivers to the accelerated adoption of telework in Australia.

For many workers and businesses telework is an attractive proposition, inspired in the main by employees' desire to cut commuting time and to improve work-life balance and quality of life. From the employer's point of view, telework is generally driven by a desire to improve productivity, provide greater flexibility of working arrangements and retain experienced staff.

Telework adoption has traditionally been inhibited by a range of factors, including IT connectivity issues, cultural resistance from employers and co-workers, poor work management practices and restrictions on flexible working arrangements in industrial instruments. Telework can also be impeded by either a perception of, or actual problems with, a range of regulatory issues, including security, privacy and access implications, equipment and utility access costs, and occupational health and safety (OH&S) considerations.

However, advances in online technology, such as wireless and broadband Internet, and broadband-enabled applications, such as voice over Internet protocol (VOIP) and virtual private networks (VPNs), are now making telework a viable option for many more Australian workers. In this context, ICT is serving as a catalyst for the development of flexible work practices for many Australian workers, and for business models for Australian enterprises.

Telework – Adoption barriers and impediments

There appears to be a range of workplace impediments which make the adoption of teleworking practices too costly or too difficult for Australian organisations. These include:

- Cultural resistance;
- Managing telework;
- e-Security;
- Equipment and utility costs; and
- OH&S considerations.

Cultural resistance

Senior management commitment to, and support of, teleworking for employees is an important prerequisite to changing the culture of an organisation.

The traditional work culture, based on 19th Century factory based workplaces, is still dominant in many management practices and work processes. In the workplace, standard working hours and the physical presence of the employee are often considered essential prerequisites to the supervision of staff. Resistance from managers and co-workers who do not believe that employees can work effectively

without being located in the office five days a week is a significant obstacle to the adoption of telework. Similarly, workers may be reluctant to become involved in teleworking schemes for fear that their commitment to their careers and the organisation will be questioned.

- The 2002 Positively Broadband eWork Survey found that 10 per cent of respondents believed that teleworking was not an option in their workplace because: “it did not fit into the culture of the organisation”.³⁹
- An Australian telework project undertaken in 1999–2002, based on case studies of 9 organisations, found that ‘management of telework programs was most successful where there was evidence of a management culture based on trust; traditional forms of management based more on direct observation and control hindered effective implementation of programs.’⁴⁰

Managing telework

Issues related to work management can cause concern for employees and managers dealing with telework or considering the implementation of a teleworking program.

Inadequate guidance and preparation for telework, and poor communication and performance management can result in the failure of telework arrangements. Alternatively, it may be difficult for a teleworker to disengage from work after working hours, or employees may work longer to demonstrate that a teleworking arrangement is working well. Similarly, teleworkers may not appreciate that time previously spent commuting is not time that must necessarily be spent working at home.

Evidence suggests that not all employees are suited to telework, and that telework is not an ideal arrangement for all occupations. Feelings of isolation for teleworkers may be a problem due to remoteness from the workplace and colleagues, less direct supervision and distractions that may occur at home. The University of Bradford survey noted that 19 per cent of respondents found the drawbacks of teleworking more significant than initially anticipated. The main reason given was a lack of social interaction.⁴¹

- A 2002 UK University of Bradford survey noted that 69 per cent of respondents found that their working hours had increased as a result of teleworking.⁴²
- In the same survey, 45 per cent reported an increase of more than nine hours a week.⁴³
- An Australian telework project undertaken in 1999-2002, based on case studies that ‘telework was often seen as a “privilege”, found an associated expectation in some cases for employees to work additional hours. The convenience of close proximity of home and work added to a tendency towards extension of hours.’⁴⁴

Security

Managing and maintaining flexible work practices in an increasingly secure environment presents new challenges for both public and private organisations. Security issues, including security of the home,

access to the teleworking office by other members of the household, and the development of procedures for the classification and handling of sensitive and confidential materials, may prevent organisations from implementing teleworking schemes. Many Government agencies have advised that their home-based work policies dictate that work at the protected level or higher is not suitable to be undertaken at home.

- According to a 2004 *Watchguard Technologies* survey, 39 per cent of network administrators surveyed believed that teleworkers were not knowledgeable enough to secure their systems.
- According to the same survey, 24 per cent believed that there was no way to ensure that security guidelines were followed by teleworkers.⁴⁵

Equipment and Utility Costs

Teleworking arrangements may require agreement between employees and managers on who pays for equipment and IT support and ongoing expenditure including telephone, electricity and heating. Without formalised guidelines it may be difficult to separate out work-related usage from general household usage.

Workers with various forms of physical disability or with physical infirmity (due to age) are likely to require assistive and adaptive technology at home in order to be effective teleworkers. This has significant cost implications.

Methods for the reimbursement of expenses may need to be considered, particularly where these costs are normally included in household accounts. Insurance of work-related equipment may also complicate telework arrangements.

Occupational Health and Safety

For the purposes of worker's compensation and accident prevention, the home office is generally considered part of, or an extension to the organisation's workplace. Under OH&S legislation in most Australian jurisdictions, employers have responsibility for taking all reasonable steps to ensure the health and safety of their employees.

OH&S considerations are a recurrent theme in the implementation of teleworking schemes, and existing policies and procedures in an organisation may not be appropriate for the home work-site situation.

Telework Adoption – Drivers and Incentives

Broadband connectivity and emerging ICT applications, such as VOIP and VPN technologies, are enabling and driving flexible working practices for many Australian workers. These emerging technologies, coupled with a longer-term trend toward organisational decentralisation and labour market reform, are making telework an increasingly viable proposition.

Broadband Internet is quickly becoming a 'must-have' resource for many teleworkers, allowing many professionals to perform their work more easily, and allowing many new occupations to telework that

have not previously engaged in flexible work practices.

Broadband connectivity, while a key enabler of telework adoption, is also a significant barrier to increased adoption of flexible working arrangements. For instance, many regional and rural markets lack access to high-speed Internet, and technical issues, such as those related to the use of RIMs, create reception broadband ‘black spot’ problems in metropolitan markets.

- According to the 2001–02 AT&T employee survey, teleworkers with dedicated data lines work at home on average twice as many days at those that do not.⁴⁶
- 18% of respondents in a recent survey published in the *Australian Personal Computer* magazine identified telework as a key reason for taking up a broadband service.⁴⁷

Administrative and business-related processes are becoming increasingly difficult to manage via narrowband Internet. However, the cost of broadband services is frequently claimed to be a major impediment for telework. While there remains debate about exactly what impact price has on the uptake of broadband connectivity, it is clear that if services are not considered to be affordable, businesses and teleworkers will not use them.

Accessibility issues are complicated by differences in the functionality of current technologies. For example, the types of applications that can be delivered over some high-speed synchronous DSL services, such as video-conferencing, cannot easily be delivered over a one-way satellite service.

- According to a recent US AT&T telework survey, inefficiencies resulting from a lack of technology were the major reason for ending telework arrangements (36 per cent), with the inability to download large files identified as the single most significant inhibitor (38 per cent).⁴⁸

Network reliability is another factor which may potentially undermine the efficacy of telework arrangements. In this context, poor infrastructure maintenance and untimely fault repairs may impede the capacity of teleworkers to maintain seamless communications with clients and co-workers.

Specialist broadband-enabled applications are now also being developed that make telework a viable option for a wider range of professions, including for the research, education and health-care sectors.

- A 2003 study by Access Economics estimated that medical teleworkers could realise savings of AUD \$190 million over ten years through the use of broadband-enabled tele-diagnostic applications.⁴⁹

Wireless Broadband offers a convenient option for many mobile teleworkers. Wireless connectivity is

often a less expensive deployment option than fixed-line technologies, and evidence suggests that it is able to extend the reach of high-speed Internet to remote communities, and facilitate the delivery of Government services, such as health-care and education, into rural and remote areas.⁵⁰

VPN technology is also enabling telework practices. An inability to manage secure communications between remote workers and central business locations has often been considered to be a barrier to the accelerated uptake of telework. However, off-the-shelf VPN products are now available that allow teleworkers to establish encrypted data flows with distant local area networks (through the use of firewalls and authentication and identification protocols), thereby enabling the security of a proprietary network, with the convenience and low-cost of the public Internet.

VOIP is also emerging as an important enabler of telework adoption. VOIP services potentially save organisation's money in telephony charges, and make these expenses more predictable for budgeting purposes, which provides additional business certainty.

- The Alexis de Tocqueville Institution estimated that the US Government could save between 25–60 per cent of costs associated with a traditional telephony service by switching to VOIP.⁵¹

Workplace change and demand for flexibility

Over the last couple of decades, the Australian workforce has changed from a manufacturing base to service sector industries. There has been an increased participation of women in the labour force, and rates of part-time and casual employment have risen for both women and men. Businesses have had to face greater market competition, resulting in the need for greater responsiveness to market forces as well as meeting the demand for more service provision. This has stimulated demand for a more flexible workforce by employers, including reliance on labour hire outsourced arrangements.

Workers are also attracted by the flexibility of workplace arrangements. There is a greater demand for more work/life flexibility, and employees have become increasingly attracted to workplaces with flexible hours of work, part-time work and flexible leave. Some commentators have noted the trend for 'down-shifters' who want more leisure time, have greater involvement in volunteer sectors or want more time to spend with family. Demand for home-based work and teleworking arrangements is a part of this trend.

SECTION 5: CONCLUSION

Many Australian business organisations have profited from teleworking arrangements, and have developed formal arrangements that establish effective supervision and collaboration processes. However, many organisations in both the public and private sectors are prevented from accessing the benefits of telework by unsupportive management practices and the lack of access to appropriate ICT resources.

ICT and online technologies, although enabling transformation of the workforce to more flexible arrangements, are creating a 'digital divide' between those that can and can't access teleworking opportunities. Unfortunately, many of the employees that lack the technological capacity to telework effectively are the same workers that require these opportunities most, such as regional workers and people with the disabilities and older workers.

It will be necessary to re-examine work processes and explore market-based mechanisms and regulatory solutions. It follows that without clear and realistic commitment and improved communication between employer and employees, best practice telework initiatives will not be adopted successfully in the occupational groups to which it is most suited.

The Government supports teleworking arrangements that achieve economic growth outcomes and which allow Australian workers the opportunity to achieve improved work-life balance and quality-of-life. To accomplish these important policy objectives Government is seeking direction from ATAC on how best to accelerate telework adoption and develop flexible working options for Australians.

The development of an improved telework policy will be enabled by the clear identification of telework drivers and key impediments. This paper aims to stimulate and support discussion within Australia on the attractions, enablers and barriers to telework adoption, and this will in turn help clarify the issues to be discussed in the final report by ATAC to the Government.

TELEWORK MODELS

Home-based telework refers to the situation in which an employee undertakes work responsibilities from home. These arrangements are usually enabled by Internet connectivity and other ICT, and developed within the context of formal business agreements, or managed on an informal and ad-hoc basis to accommodate illness or the special needs of a worker.

Home-based self-employment occurs when the proprietor of a business is located and operates the business from their home, on either a full-time or occasional basis. According to the ABS, in 2002, 42% of all home-workers were self-employed.⁵²

Satellite centres describe an arrangement in which an organisation establishes a remotely located workplace for employees to use on an occasional or regular basis. Satellite centres are used to reduce the commuting time of employees and lower expenses, such as real-estate costs, for employers.

Virtual work involves collaboration between remote work teams, such as medical practitioners, scientists, film-makers, educators and industrial designers, which occur in the context of a simulated work environment, supported by advanced connectivity and broadband-enabled applications. For example, the 'haptic workbench' training system, currently being developed by the CENTIE in Perth, provides a virtual surgery environment through the use of 3D graphics, stereo audio and haptic data displays. This facility enables virtual workers to train across vast distances in real-time.⁵³

Time-shifting involves work undertaken between workgroups located in different global time-zones to maximise 24-hour business productivity cycles. For example, Lateral Sands, a post-production company located in Perth, uses a high-speed network link and virtual private network to work cooperatively with its partners in Silicon Valley. The time-zone difference enables the company to develop time-critical projects outside of US business hours.⁵⁴

Off-shoring involves the procuring of services or products, such as the parts used in manufacturing a motor vehicle, from a supplier or manufacturer located overseas in order to cut costs.

Home-shoring, in which work stations (including from call centres), are moved into an employees home, are generally utilised to save on infrastructure costs and reduce staff turn-over. Home-shoring is increasingly seen as a viable alternative to off-shoring.⁵⁵

Mobile Workers, such as builders and tradesmen, use ICT to communicate with clients and co-workers from the field or from on-site locations. However, some analysts do not consider mobile work a true variant of telework as there is generally little interaction between the worker and a fixed-work location.

SELECTED CASE-STUDIES

NSW Government, Road Transport Authority (satellite centre)

The NSW RTA established a telework trial in 1993–94, which involved setting up telecentres in Sydney and around the edge of the metropolitan area, at the Central Coast, Blue Mountains and Wollongong.

The trial lasted for six months and involved 80 staff, and was assessed for its impact on the workers' productivity (increased), distance travelled by the employee (decreased) and whether the workers and their managers were satisfied with the arrangement (mixed).

The Leader of Alternative Transport at the RTA, reports that although workers were enthusiastic about the arrangements some of the managers felt uncomfortable about their lack of contact with staff. "We don't get that attitude from our managers as often now, telework has gone mainstream in the organisation and they are more comfortable with it".

As a result of the trial, the RTA set up an office in West Gosford in 1998 for its workers on the central coast between Sydney and Newcastle. For these employees the office has cut their average commuting time from 3 hours a day to 20 minutes. The West Gosford office has eight workspaces, and links to the main office via a broadband connection.

Lateral Sands (time-shifting)⁵⁶

Lateral Sands' office resides amongst a range of professional and service companies in West Perth, but it does not have a client within 10,000 km of the office. The majority of work is performed for companies working in the US Silicon Valley. To undertake and deliver work Lateral Sands relies on an Internet ADSL link.

The company has built a business reviewing and checking microprocessor designs. It is highly specialised work involving engineering skills. In less than four years, Lateral Sands has grown to twelve staff and built up an impressive client list.

At the beginning of every job two or three staff travel to the client's premises, where they remain for as long as six weeks, to ensure they have a good feel for the way the client operates and a sense of the personalities they will be working with. Once they have returned there is a weekly routine to ensure good communication is maintained.

For complex projects based on tight timelines, and conducted over such long distances, there is little margin for error. According to Mr Cooksley, "if there is a serious enough problem, we are on the plane". For these urgent visits and for project start-ups, the company has bought an apartment in Santa Clara. The US base also has a VPN connection back to the Perth office to allow staff to access tools kept on computers there.

Modular Interactive Telecommunications Environment (Rural satellite centre)⁵⁷

The Modular Interactive Telecommunications Environment was developed by Imago Multimedia Centre in Perth, Australia, with support from the Federal and Western Australia governments, to bring high-tech communications to remote areas of Australia. According to information from Imago, the unit resembles "a small transportable cottage with two rooms, [and] incorporates talkback TV, two-way video conferencing, Internet and e-mail facilities." It can be moved from region to region as needed.

The first one started operation in Exmouth, Western Australia (about 1000 miles north of Perth) on September 24. Imago says it hopes the cyclone-resistant MITE will become the communications standard for regional Australia. According to Imago, eight more MITEs are planned for regional areas of Western Australia. When equipped with power generators and satellite links, the units can be deployed in even the most isolated and remote areas.

Possible applications are for remote access to trained medical staff in larger cities, access to government services in state or Federal capitals, distance education, and perhaps services such as banking. The MITE includes two large rooms, one seating up to eight people for video-conferencing and the other with seven PCs, a central server, and Internet access. The unit is approximately 13 feet by 45 feet, which gives it a good deal of interior space but still means it can be transported easily to most areas by truck.

Collaborative Training and Education Centre (Virtual working)⁵⁸

A leading example of an innovative virtual working environment enabled by broadband is the 'Haptic Workbench', a virtual surgery training system being developed by the Collaborative Training and Education Centre (CTEC) in Perth.

The Haptic Workbench makes it possible for medical students to practice their surgery skills on 'virtual patients'. The workbench can also make a virtual representation of a variety of surgical procedures that trainee surgeons can not only see but also experience through sensations based on touching, cutting and manipulating the objects involved.

The system uses 3D graphics, stereo audio and haptic (force-feedback) displays of data in the user's immediate computer workspace. This virtual surgery environment provides interactive modelling and interpretation, enabling the user to work directly with the data or objects in the display.

CTEC is developing the virtual surgery training system, in conjunction with the CSIRO and a private company MedicVision. The CSIRO is using a high-capacity 10Gbps broadband network provided by the Centre for Networking for the Information Economy (CeNTIE) to demonstrate collaborative use of this technology on a gall bladder simulation between two sites, each with a Haptic Workbench.

Database Manager (home-based employee)

Malcolm's life was turned upside down eight years ago when, at age 45, he suffered a series of massive strokes. A maths and science teacher with 30 years' experience, Malcolm survived the ordeal but the strokes took their toll. He now describes himself as a functional quadriplegic since he does not have the use of his arms or legs and only little movement remains in his right hand.

But it is this right hand, combined with technology, that allows Malcolm to manage GrantSearch, an online database of Australian scholarships and grants. Malcolm maintains the database from his home in South Australia, and from a rented office nearby, even though the GrantSearch headquarters is in Perth. Both offices run with a full complement of Microsoft accessibility software. Malcolm's office in town uses an ADSL Internet connection.

Malcolm says: "My work gives me a few extra shekels to spend and something other than bowel movements to talk about. It helps to fill my day, but more than that, it gives me a sense of doing something useful. I also have access to the world and the range of characters that go with it, a real sense of achievement and a self esteem that sometimes gets me into trouble."

Malcolm has teleworked for GrantSearch for almost six years as an independent contractor. It has cost about \$3,800 over the years to get established at home, which includes a specially-made desk and an extra phone line. The rented office, which he's had for about 10 months, is still a work in progress. It has so far cost about \$2,500, with weekly costs averaging about \$100.

QUESTIONS FOR CONSIDERATION

The following is a guide prepared by ATAC which may help in developing a response to this submission.

Drawing from their own experiences and understanding of the subject, members of the public are invited to comment on a range of telework issues, including:

- The potential social and economic benefits and disadvantages of telework;
- Cultural, regulatory, technical and/or legal factors that are enabling or preventing telework adoption; and
- Policies and actions that Government could use to encourage the adoption and effective use telework in Australia.

Members of the public that are teleworkers, or who have previously engaged in telework activities, are invited to provide comment on issues including:

- Where do you telework?
- Approximately, how many hours per week do you telework?
- What proportion of your working week is spent teleworking?
- What facilities and equipment do you use to telework?
- What facilities and equipment are provided by your employer?
- Has the introduction of teleworking had a positive impact, a negative impact or no real impact on you?

Members of the public that employ teleworkers on a permanent or occasional basis, or who are considering introducing telework arrangements, are invited to provide comment on issues including:

- How many of your employees telework?
- How many of your employees do not telework?
- How many of your employees would like to telework?
- If you do not utilise telework, do you intend to introduce teleworking in your business?
- Do you have formal agreements in place to telework, or is teleworking managed on an informal basis?
- What are the main reasons that employees in your business telework?
- Has the introduction of teleworking had a positive impact, a negative impact or no real impact on your business?

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