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Department of Broadband,
Communications and the Digital Economy

Creating jobs through NBN-enabled telework.

Deloitte Access Economics

colmar brunton.

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Executive summary

This report investigates the degree to which participation in the labour force may increase with the rollout of the National Broadband Network (NBN) and the increased telework opportunities it will provide. This study involved qualitative and quantitative research, leading to economic modelling to estimate the impacts of NBN-enabled telework on labour force participation, employment and Gross Domestic Product (GDP) in the Australian economy.

Economic modelling findings

> The economic modelling found that NBN-enabled telework may create 25,000 additional jobs in full-time equivalent terms by 2020-21. Around 10,000 of these jobs will be created in regional Australia.

> The NBN is expected to create 16,000 to 18,000 construction jobs at the peak of the NBN rollout (around 13,000 in FTE terms). The results in this report suggest that through telework, the NBN will create twice many jobs – on an ongoing basis – resulting in an increase in labour force participation. This is a significant result.

> While there is uncertainty about precisely how telework will evolve in the Australian economy in the coming decade, the results of this study suggest it will be one of the biggest structural changes to the labour market this decade.

> GDP is expected to be $3.2 billion higher in 2020-21 and $8.3 billion higher in net present value for the period 2012-13 to 2020-21.

Qualitative and quantitative research findings

> A surprisingly high proportion of mature workers reported that they already have a formal telework arrangement with their employer (16% of people in the labour force nearing retirement age). In addition, 13% of part time and casual employees reported already having a formal telework arrangement.

> Sixty per cent of mature workers reported they would take up telework if it was available to them and as a result delay retirement by an average of 6.6 years – this is a notable result given the ageing of the population and the impact this will have on overall participation rates.

> Seventy-three per cent of part-time workers reported they would take up telework if it was available to them, and 68% were somewhat willing, moderately willing or very willing to change the industry in which they worked in order to access telework.

> Seventy four per cent of people not in the labour force with family or carer responsibilities reported they would take up a telework employment opportunity if one was available to them.

> Sixty-six per cent of people who were not in the labour force with a disability would take up a telework employment opportunity if one was available to them.

> Seventy per cent of people not in the labour force living in regional/remote locations of Australia reported they would take up a telework employment opportunity if one was available to them.

Key findings, conclusions and implications

Quantitative research findings

Mature workers

A small proportion of mature workers indicated they already had a formalised arrangement with their employer to work from home on a regular basis (16%), each week or fortnight, and this was occurring across a diverse range of sectors. This demonstrates that telework is still in its infancy in the labour force, with the true benefits and capabilities not currently being realised. Projected uptake and potential demand of telework is high amongst employees, with a very large proportion of mature workers (60%) indicating they would take up a telework position and delay their retirement. This finding was prevalent across a wide range of sectors, mostly at the professional or management level. An additional 6% indicated they would change industry to telework; however, not all current teleworkers wanted to delay their retirement.

The definition of “retirement” has evolved over recent decades; the meaning changing from ceasing all paid work, to remaining in the paid labour force. The majority of mature workers indicated they planned to remain in the paid labour force in some capacity, after “retiring” from their career jobs. Over half of this subgroup reported a preference to work part-time from home and part-time from the office, with telework having the capacity to delay retirement for an average of 6.6 years.

The growing awareness amongst employers of telework and corresponding levels of familiarity presents an opportunity to allow greater numbers of people nearing retirement to remain in the labour force longer than they originally intended, by providing a gentle transition into retirement and delaying the cessation of a connection to the paid labour force. As the concept of telework becomes more accepted, and the capabilities of telework gain more awareness by employers, the types of roles and jobs conducted from home or remotely should increase, as should the diversity of sectors and industries enabling employees to telework.

Part-time workers

A small proportion of part-time and casual workers are already engaging in telework (13%) under a formalised agreement with their employer, and a large additional proportion (62%) reported that they would take up telework if a position became available to them. This provides an opportunity for telework to address levels of underemployment within this audience: a third of part-time and casual workers indicating they would prefer to work on average 15.2 additional hours per week.

Of this group eager to telework, a large proportion would want to do this for the majority of the week (an average of 24.1 from home, out of a total of 29.4 hours), but would still welcome some contact with the office. This is not surprising, as a key concern about telework is social isolation.

Not in the labour force

Just over 60% of those not in the labour force living regionally or remotely, with caring or family responsibilities, or with a disability indicated a desire to be in paid employment; however, the main barriers were ill health, and caring for children. This presents an opportunity for telework to overcome these needs to increase labour force participation among these groups.

If telework was available, 74% of people living regionally or remotely, 76% of people with family or caring commitments, and 70% of people with a disability would take up such an employment opportunity. These groups indicated a preference to work from home the majority of the week, but still have some connectedness to the office each week to overcome issues of isolation.

If telework is able to address the main barriers to entering the labour force for these audiences (for example by providing flexible hours, a home office suited to a disability, reduced travel time to and from work), there is an opportunity to allow people not in the labour force to re-enter in a part-time capacity, (respondents indicated a preference to work between 22.1 and 23.2 hours on average from home (24.0 – 25.6 hours per week on average in total)).

Overall

Telework is a concept that is associated with low levels of awareness and moderate levels of scepticism from employers and employees. The concept of telework, and the capabilities of NBN-enabled telework are yet to be widely tested and demonstrated. Over time, the practice of telework will gain the traction necessary to familiarise employers with the benefits of telework, both to their employees and their business. Traction and momentum is required in order for this to become a widely accepted manner of work, across permitting industries and types of work, and for the full benefits and economic impacts of NBN-enabled telework to be realised.

Economic modelling findings

The economic modelling found that the midpoint of the high and low estimates of the impacts of NBN-enabled telework is 25,040 additional jobs in full-time equivalent terms by 2020-21, and a GDP that is $3.2 billion higher in 2020-21 and $8.3 billion higher in net present value for the period 2012-13 to 2020-21.

We note that the NBN is expected to create 16,000 to 18,000 construction jobs at the peak of the NBN rollout (around 13,000 in FTE terms). The results in this report suggest that through telework, the NBN will create twice many jobs – on an ongoing basis – by increasing the labour force. This is a significant result.

A previous Access Economics (2010a) report on the impacts of telework found that if 10% of people teleworked, the travel time savings would be worth $1.3 billion, and that the (gross) real estate office savings could be worth $210 million to $690 million. This study has some methodological differences, but as a broad comparison the results in this report suggest that through increasing labour force participation, the impact of telework on GDP could be larger than the office savings for businesses or travel time savings for individuals.

While there is uncertainty about precisely how telework will evolve in the Australian economy in the coming decade, the results of this report suggest it will be one of the biggest structural changes to the labour market this decade. The approach in this report is conservative, and we conclude with a discussion about the factors that will influence whether telework has a more significant impact on the Australian economy.

1. Introduction

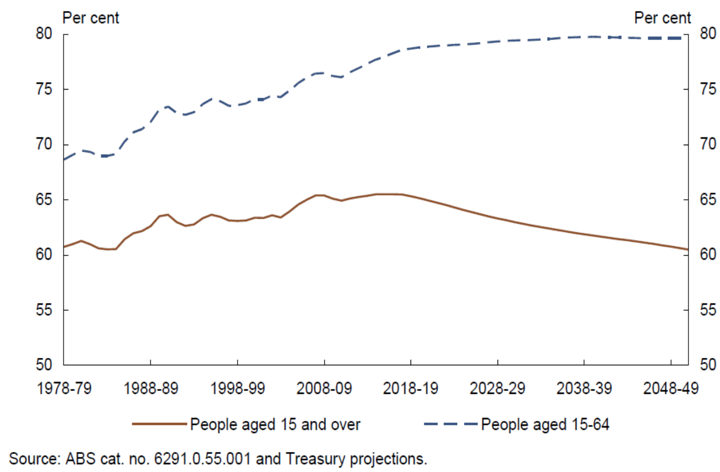
1.1 Background

This report investigates the degree to which participation in the labour force may increase with the rollout of the National Broadband Network (NBN) and the increased telework opportunities it will provide. This involved qualitative and quantitative research leading to economic modelling to estimate the impacts of NBN-enabled telework on labour force participation, employment and Gross Domestic Product (GDP) in the Australian economy.

To provide context for understanding the potential impact of telework, the Intergenerational Report 2010 shows that over the longer term, the ageing of the population is projected to lead to falling total participation rates over the next 40 years. As the ageing population increases, the corresponding lower rates of participation are projected to depress the total labour force participation rate from 65% in 2009-10 to 61% by 2049–50. That is, the impact of ageing on participation is expected to outweigh an increase in the working age participation rate for people aged 15 to 64 years from 76% in 2009–10 to 79.7 per cent by 2049–50.

By raising labour force participation, telework may play a role in addressing one of the key challenges facing the Australian labour market and economy in coming decades.

Figure 1 Intergenerational Report 2010: Historical and projected participation rates



Source: *The Intergenerational Report 2010.* Chart 1.8: Historical and projected participation rates

1.2 Research and economic modelling

Colmar Brunton Research and Deloitte Access Economics were commissioned by the Department of Broadband, Communications and the Digital Economy (the Department) to investigate the degree to which labour force participation would be increased with the rollout of the National Broadband Network (NBN) via NBN-enabled telework.

The NBN is planned to deliver reliable, high-speed broadband to all Australian premises, giving more employees and employers the confidence to engage in telework. The NBN will make it easier to share files, collaborate and take part in high-definition multi-party video conferencing. We note there has been no uniform definition of “telework” established. For the purpose of this report, “telework” was defined as working from home or remotely (away from the office) one or more days per week.

At a macro level, the Department hypothesised that there may be three main ways the labour force participation rate may be increased by the introduction of telework:

1. Extending time in the paid labour force for those nearing retirement; and/or
2. Increasing the utilization of the underemployed (i.e. working part-time or casually);
3. Increasing the participation of those not currently in the paid labour force, with a particular focus on subgroups including people located regionally or remotely, people who have family or caring responsibilities, and people who have a disability.

Colmar Brunton Research conducted qualitative and quantitative research with the three target groups above. Using the results from the quantitative research component, Deloitte Access Economics undertook economic modelling, examining labour force changes from telework, and their economic impacts. This report presents the study findings from the research (quantitative and qualitative), and the economic modelling.

1.3 Study aim and objectives

The main aim of this study was to understand whether (and to what extent) the NBN and increased opportunity for telework would increase the labour force participation rate. The primary purpose of the quantitative research phase was to provide data to inform the economic modelling phase.

The specific objectives for this study were:

- To investigate the perceived likelihood of mature workers delaying their retirement if they had the opportunity to telework;
- To determine the proportion of part-time or casual workers who may increase their hours of work per week if telework was available to them;
- To investigate the opportunities for increasing labour force participation amongst people not currently in the workforce, in particular for sub-groups:
  - People with family and/or caring responsibilities;
  - People with a disability; and
  - People living in regional and remote areas who may not be able to access suitable opportunities locally.

2. Qualitative research: Discussions with employees and employers about telework

2.1 Qualitative research methodology

At the commencement of this study, six focus groups were conducted: two with employers, and four with potential and existing employees. The primary purpose of the focus groups was to inform the questionnaire design for the quantitative research stage. The focus groups examined:

> Potential benefits of the NBN for employers and potential/existing employees;

> Potential benefits of telework for employers and potential/existing employees;

> Drivers and barriers to telework and how they might be overcome;

> Whether and under what circumstances participants think telework could potentially increase or extend their participation in the labour force;

> Perceptions of who, and how many more people will be prepared to enter (or remain in) the labour force because of NBN-enabled telework.

Recruitment and focus group structure

For potential and existing employees, separate focus groups were undertaken in Sydney, Adelaide and Coffs Harbour, with four key target audiences:

1. Full-time workers aged 45 years and over, nearing retirement;
2. People with family/caring commitments, part-time / casual workers or not in the labour force;
3. People with a disability that limits their ability to work, part-time / casual workers or not in the labour force;
4. People living in a regional location, part-time / casual workers or not in the labour force;

For employers, groups were split by size of business (under 100 employees or 100 or more employees). There was a good representation of different industry sectors, weighted to those where telework is a more realistic possibility (e.g. not manual labour occupations).

Within each group we ensured there was a good mix of gender and socio-economic background.

The qualitative discussion guides used for employers and employees can be seen at Appendix A.

2.2 Key qualitative research findings

Current employment challenges

Prior to discussing awareness of and attitudes towards telework specifically, participants were asked to describe their level of involvement in the work place and their views in relation to the general employment market in terms of work opportunities open to them.

Part-time workers

Those with family/carer commitments who are currently in paid employment have found positions that reflect the required flexibility to work around their required commitments. This may mean that they work fixed part-time hours; fixed hours that are structured around particular timed commitments (such as picking children up from school); or that they work flexible hours.

Those with a disability reported mixed experiences in relation to their ability to participate in the workforce. For those that had developed a physical disability over the course of their employment (such as from a degenerative injury or a motor vehicle accident) generally reported that their employer had been accommodating (at least to some degree) in terms of their physical limitations. Mobility and the ability to actively manage pain or discomfort associated with their physical disability were the two critical factors identified as needing to be actively considered in terms or developing appropriate work arrangements with their employer. With the right arrangements, these participants indicated they could be equally as productive as any of their able bodied colleagues. Importantly, it was evident that those who had a more specialised role or position generally reported having more bargaining power in terms of negotiating suitable employment arrangements, whereas lower skilled workers were observed to have less bargaining power.

There is much evidence in the feedback that those who see their employer as providing them flexible working conditions to fit their other commitments feel a high level of loyalty and commitment to their employment; particularly those at the lower skilled end of the job market. In many cases, employees felt that there were limited other employment options that would meet their specific requirements, or that having limitations in their working availability would make them uncompetitive in a new role.

In most cases, people with flexible working conditions had initially commenced full-time work with their employer and had subsequently negotiated the required flexibility after a period of time. It is considered much more likely that the trust required in allowing flexible (or independent) working conditions is earned from a period of non-flexible working and that employees are far less likely to be afforded this type of flexibility without have first demonstrated their ability to work in a non-flexible fashion. In this sense, flexibility – including specifically the ability to work from home or another remote location – is seen as a reward rather than something that can be demanded by the employee.

Some participants currently employed in flexible work reported difficulties in negotiating flexible conditions with their employer. Some were intimidated by making the request and others struggled to present a strong case to support their request. Similarly, many of those who were willing to find work that would meet their flexibly requirements found it difficult to be open with potential employers about the limitations on their time.

Not in the labour force

A number of disability and carer group participants reported difficulty in finding employment that is suitable to their requirements. Many reported that the nature of the work they might be eligible to undertake would require travel to a central workplace and the commitment to a minimum number of hours once they were there. Such working arrangements were perceived to lack the flexibility required to manage either their respective disability or caring arrangements, and as such many felt the pool of potential roles for them in the labour force was limited.

The perceived speed of technological change (even industry specific language in some cases) was also seen as a significant barrier to re-entering the labour force. This impacted both in terms of reduced self-confidence and willingness to put themselves forward for certain positions, and also a perception among some that employers may be less willing to invest in training or skills development if they have concern about the sustainability of the person's employment over the medium to longer term.

A further barrier to looking for opportunities to re-enter the labour force is the potential loss of benefits outweighing the short-term (or even long-term) income opportunities. This factor is compounded for those who need to seek, and potentially pay for alternative care arrangements for their dependants during time committed to working. A number of participants indicated that even where they could find employment with an employer willing to provide the flexibility required, the overall limited capacity to work (in terms of hours) was perceived to leave them in a financially poorer position than if they remained solely on benefits.

Those with a degree of mental illness or disability reported significant difficulty in finding and sustaining employment; particularly in any environment where they would be required to regularly interact and work with colleagues. Overall, it was evident from their reported experiences in the labour force that a number of employers are not well equipped to manage the needs of employees with mental illness, and that better tailoring of roles and work environments may assist in fostering longer term employment outcomes for this cohort.

Overall, the key challenges that face those who are not currently meeting their maximum capacity to participate in the labour force can be summarised as:

- Physical and or psychological limitations to work;
- Mobility issues;
- Requirements for workplace modifications to facilitate participation;
- Lack of self-confidence;
- Perceived age discrimination;
- Lack of industry diversity and employment opportunities (particularly evident in regional areas);
- Relationship between paid work and income support eligibility criteria;
- Perceived increased job market competitiveness and skills and experience requirements of even entry level roles;
- The ability and cost of travel;
- The inability to provide sufficient caring support to dependants.

<u>The view of employers</u>

Employers reported difficulty finding and retaining high quality staff. To some extent this was driven by difficulties finding the people with a sufficient level of knowledge, the right attitude and appropriate skills. There was a perception that young people were not sufficiently prepared through their education experience for transition to the workplace. Older people were seen to bring high levels of experience, but at times were unwilling to do "lesser" tasks while others were enjoying their semi-retirement to the extent that it impacted negatively on their availability for work when required.

Some employers reported negative experiences with staff (such as long work-cover cases, litigation cases and instances where a new employee could not demonstrate the assumed skills) and this had a lasting negative effect on their confidence to employ staff. They talked about recruitment having a "risk mitigation" focus rather than an "opportunity" focus.

Defining "telework"

The use of the term "telework" was generally not familiar. Concepts such as "working from home" are more easily understood. Communication around telework requires clear communication of what it does and does not include.

Some participants not in the labour force tended to assume when discussing the impact of telework, that it is defined as a job that is solely conducted remotely. Others see it as an extension of existing working structure with increasing accessibility of information through technological advancement providing access to work around the clock. For these employees it is seen as largely resulting in work hours *in addition* to core hours rather than as a replacement of core hours.

Remote-only telework is seen to have specific benefits for particular sub-groups that are lost if the nature of the work is not solely remote. Those with disabilities for example would benefit from the ability to work solely from their home location, and face increasing difficulty with any requirement to travel to a central location.

Many labour force participants noted that the advent of technology such as smartphones meant they were more readily connected to their workplaces, some with 24-hour access to email and work servers. Some expressed a degree of concern that such constant connection to the workplace can be detrimental to social connections (e.g. family and friends) if not managed appropriately.

To ensure all participants had a common understanding of subsequent questions posed in relation to telework over the course of the focus groups, participants were given a definition of telework as a formal rather than ad-hoc arrangement, whereby an employee leverages technology to work from home one or more days every week.

In general, there were two 'natural pathways' to telework arrangements:

> An arrangement needs to be predicated by development of trust and a positive performance track record in a centralised work environment (e.g. most viewed telework as a 'privilege' rather than a 'right'); or

> Employees in high demand or niche fields can negotiate telework as part of an original employment contract or relationship.

The practicalities of telework

Having provided the above definition of telework, discussion in each of the groups turned to the practicalities associated with such working arrangements.

Roles in which the employee has an agreement with the employer to do a certain proportion of work remotely are were assumed by most research participants to have been negotiated at an individual level between the employer and employee and are predicated on the trust built between the two parties over a period of non-remote employment where the employer has demonstrated productivity and the ability to work independently in the common workplace. In this way it tends to be seen as a 'benefit' granted to employees to reward their good performance. In this context, those not currently in the labour force found it hard to envisage an arrangement where a telework arrangement could be agreed without this initial stage of non-remote work. As this period of non-remote work is a significant barrier for most non-participants, employment involving telework becomes no more viable than 'normal' employment arrangements (e.g. involving daily travel to a central work location). Very few non-labour force participants were able to identify roles where they would be able to take up work on a telework basis immediately.

In order to make telework successful, both employees and employers recognised that the teleworker would need to demonstrate good self-motivation and discipline. Hence it was seen to appeal more to

some types of personalities (and to some extent, some industries) more than others. Some actively noted that their desire for social interaction through work made them a poor candidate for telework.

The issue of work-related costs was identified across all groups as a potential area requiring consideration. Potential employees tended to assume that the hardware and software required to complete remote work would be provided and maintained by the employer. Some potential issues were associated with identifying the costs of telework from personal use for things like internet usage and telephone bills. Similarly, some concern was evident about out-of-pocket expenses for consumables (including electricity and gas associated with lighting, heating/cooling, etc.).

Across the groups, the following factors were identified as needing to be present before telework arrangements can be actively considered:

- The provision and maintenance of appropriate infrastructure (computer, internet etc.);
- Positioning in an appropriate industry and job role (task focussed, information-centred);
- The ability to impose sufficient security measures for personal information;
- A high level of trust between the employer and the employee;
- A supportive employer attitude;
- The right kind of employee personality (e.g. being self-motivated and disciplined).

Perceived benefits of telework

The key benefits of being able to telework are seen to be the greater flexibility or structuring work hours around personal commitments, and increased access to employment for those who are restricted to stay at home. Working from home is seen to mainly benefit those with caring commitments, those with a physical disability and those with mental illness, although the vast majority of participants indicated such arrangements would likely reduce stress and allow for less time wasted travelling between home and work.

For both employers and employees, the opportunity to provide flexible working conditions via telework is seen as a formal recognition of the degree of trust between the employer and employee. This was viewed as benefiting both parties given scope for increased loyalty and productivity for the employer, while offering flexibility and lifestyle advantages to the employee.

<u>Benefits for the employee</u>

The key benefits for the employee specifically focussed on the increased degree of employment flexibility. This was considered an advantage not only in terms of the structure of working hours (that is, being able to fulfil basic time requirements at most convenient or preferred times throughout the day or night) but also in terms of the working environment, dress code and being able to fulfil ad hoc caring or personal requirements while still being productive.

Employees also cited other benefits such as minimised travel time and costs (especially in major metropolitan locations), minimised lateness through traffic unpredictability, the ability to be flexible with break times, and lowered risk of the spread of illness (either when they themselves were ill or one or more of their colleagues was ill).

Benefits for the employer

The key benefit of providing telework opportunities were perceived by employers to be the minimisation of resources resulting from having staff in a central location (leading to tangible cost savings). The potential for increasing loyalty, and therefore productivity among staff was also considered a critical benefit to employers.

Other perceived employer benefits included increasing the pool of potential employees due to increased flexibility in employee requirements, increased productivity through staff being able to work (to some extent) through sickness and issues with dependants, and the ability to better utilise travel or commuting time in a productive manner.

Benefits for society

Telework was also viewed by both employees and employers as offering significant benefits for the environment in a number of ways. Firstly, the immediate reduction in carbon emissions associated with work related travel was commonly cited as a societal benefit of telework. Other positive benefits identified include reduced traffic congestion on the roads, and the ability for employers to reduce the size of centralised workplaces.

Perceived disadvantages of telework

Disadvantages for employees

The key disadvantages of telework for the employees centred on the impact of working alone. Hence, the potential for social isolation, the difficulties maintaining skills in isolation and the loss of the benefits of interaction such as ad hoc training and learning from others' questions were highlighted as potential disadvantages to the employee. Apart from those that were severely limited in terms of capacity or willingness to travel, the vast majority felt that at least some degree of human interaction with work colleagues was required in order to sustain feeling part of a broader team or organisation.

Employees also felt that increased distractions and a less controlled environment were a potential employee disadvantage (linked to the employee's own disposition and suitability to telework), as was the need to justify the impact of issues like power failures and IT issues on productivity. Potential out-of-pocket expenses and the need to track and justify expenditure for work-related items were also seen as potential negative issues.

Disadvantages for employers

Employer disadvantages were seen to centre on the loss of the ability to monitor staff and ensure the highest level of productivity. The impact on team dynamic was also identified as a possible disadvantage to employers who would have to work harder to develop a cohesive and communicating team if they were not centrally located. It was anticipated that the administration of equipment and software supply and maintenance could increase costs for employers. Similarly, it was felt likely that there could be additional administrative costs associated with tracking the business expenses as separate from personal use expenses.

The issue of workers compensation and the need to ensure the worker's premises was an appropriately safe environment was raised as a potential disadvantage by some employers. As noted above, the fact that a degree of trust between employer and employee was generally a pre-cursor to telework arrangements meant that there was often less formality in relation to these issues and employees afforded telework opportunities were trusted to do the right thing from an occupational health and safety perspective. However, discussion of this issue gave some employers pause to consider whether these current arrangements needed a greater degree of formalisation.

Perceptions of telework opportunities among sub-groups

Disability/carers

As previously established above, the most significant benefit of telework for those with caring commitments is the ability to better balance their commitments between work and caring. This would be facilitated by being able to work from the caring environment, and therefore being physically available should there be an unexpected caring requirement. Flexibility of how required hours are structured would allow them to control this balance in a similar way. This would not only allow them to complete the required hours as throughout the day, but would also enable them to be productive at times that fit with their caring commitments.

Those who have experienced this arrangement indicated that the supportive and understanding attitude of the employer, and the trust between employee and employer was critical to the success of the arrangement.

Mature workers

Comments from mature workers suggest the traditional concept of retirement – where an employee completely ceases work commitments at a specific age – no longer applies for many people at this life stage. Instead, the majority of participants indicated they are expecting some form of transition into retirement which could be facilitated by the introduction of a telework arrangement for an existing role. As with other cohorts, the ability of those aged 45 and over to take up telework opportunities was generally viewed as being constrained by the nature of the work they undertook, with a somewhat lower level of willingness to undertake training or development at this later life stage that might afford them greater telework opportunities (e.g. retraining in a new or different industry).

In many cases, employees aged 45 and over saw telework opportunities as a way of extending their working life without the imposition of the traditional office location and 'working day'. This means that they will remain longer in the labour force under telework arrangements than they otherwise would have done. However, this would occur on terms that suit them and their changing lifestyle.

Additionally, there was a degree of scepticism evident among some in this group that employers will be sufficiently trusting and willing to make these arrangements to retain older employees – especially those who currently work within the public sector (where the need for organisation-wide policies were identified as a potential key constraint in the ability to offer telework under transition to retirement type arrangements).

Regional employees

Those in regional areas see telework as providing the potential for wider employment opportunities and access to industries and roles that are not traditionally available in regional areas. There is an added advantage to regional employers that the use of telework could significantly reduce or eliminate the cost of renting office space, and the associated overheads.

Another critical advantage identified by those in regional areas was the fact that many roles often require servicing of a wider geographic region than with similar roles in metropolitan environments. One participant (a social worker who dealt with disadvantaged youth across a wide geographic area) reflected on the opportunities that telework could afford her, noting that the ability to video conference (using a high quality, reliable link) rather than needing to visit each client individually, may mean she could see seven or eight clients each day as opposed to the three or four she is limited to seeing currently, due to travel time.

Impact of the National Broadband Network

Awareness of the NBN was observed to be high among all participants, but knowledge about its benefits, timeframes for completion and specific impact on individuals is minimal. Concerns were also raised about individual household cost to access the NBN, and the extent to which it would increase speed and access in the long-term.

Employees felt that the NBN will most benefit high users of the internet such as those who download large files, access movies and play online games. The NBN is currently considered likely by many to be used predominantly for the latter two activities than in a commercial or business context.

During the groups, participants were played a series of short videos of case studies highlighting how the rollout of the NBN could impact both at a business and personal level. These videos were useful in terms of prompting participants to more readily reflect on how very high broadband speeds promised via the rollout of the NBN may transform work practices at a number of levels, and generally made it easier for individual participants to contextualise how they may be directly impacted.

There were some clear differences to emerge in terms of the views of the impact of the NBN by whether participants were based in a metropolitan or regional area. Participants in metropolitan locations generally felt that broadband internet speeds were already quite good, and as such the NBN was viewed as delivering more ‘incremental’ improvements to data transfer speeds. The greatest benefit identified was the ability for high quality video conferencing to potentially alleviate non-productive commuting time.

In contrast, participants from regional areas generally reported internet speeds and reliability to be poor, and as such the rollout of the NBN was seen as potentially having a much larger impact in terms of its use as a business tool. From an employee perspective, the NBN was seen as potentially affording them access to roles further afield and thus increasing the diversity of job opportunities available to them (e.g. potentially performing the same roles as those in cities, but from a remote location). It was also noted that faster broadband speeds may see the need for travel between regional centres significantly reduced.

Impact of increasing telework opportunities

Employees felt that increasing use of telework would encourage and expand the range of jobs and tasks that could be undertaken from home or remotely, and that it would therefore create opportunities for people to access work, or increase the contribution of those currently restricted in their ability to participate. However, the opportunities were still viewed as being limited to particular industries (generally white collar, information-based jobs and activities) and it was assumed many industries would never offer this type of flexible work due to physical presence or security requirements inherent in the employment tasks.

Employers felt that the increased use of telework would have more impact on introducing work opportunities for those currently not in employment rather than extending the working hours of those already in the labour force.

Overall, telework was perceived to have the potential to positively impact on the provision of employment opportunities for those who have a mobility limitation (including those in remote or regional areas), and who currently cannot work. It was also seen to have a potential positive impact on retaining employees in the labour force longer as the increased flexibility would suit people transitioning into retirement.

3. Quantitative research: Survey of Australian workers and those not in the labour force

3.1 Quantitative research methodology

In order to provide data to inform the economic modelling stage of this study, a large-scale computer-assisted telephone interview (CATI) survey of N=1,933 was undertaken between 5th September and 25th September 2012.

Sample details

To address the research objectives, the survey targeted three key groups of the general population:

1. Full-time employees nearing retirement, aged 45-64 years (Mature workers);
2. Part-time and casual employees, aged 15-64 years (Part-time workers); and
3. People not in the labour force, aged 15-64 years (Not in the labour force).

Each group was treated as a separate sample. Sample quotas for gender, age and location (state/territory, and metropolitan / regional / rural status) were set for each group based on the most recent ABS statistics, to reflect the broader populations of full-time workers, part-time workers, and those not in the labour force.

People who did not fall into one of these groups were screened out of the survey. Targeting of these groups enabled Colmar Brunton Research to gain robust sample sizes to inform the economic modelling, and determine specific impacts on labour force participation rates for each group.

Participation of the following groups was monitored to ensure adequate representation across the overall sample:

a. People located regionally or remotely;
b. People with a disability that restricts or prevents labour force participation; and
c. People with family or caring responsibilities that restrict or prevent labour force participation.

All recruitment was undertaken by Colmar Brunton Research's experienced team of ISO accredited social and government research interviewers.

The quantitative questionnaire can be seen at Appendix B.

Weighting

Data was post-weighted using the latest ABS statistics to ensure each group was representative in terms of age, gender and location of the broader population of mature workers employed full-time, part-time and casual workers; and people not in the labour force.

3.2 Key quantitative research findings

Mature workers

Employment background and plans for retirement

The average number of years having been in the labour force reported by mature workers was 32 years. The largest number of years in the labour force was reported by respondents currently working in the transport and storage sector (36.1 years), followed by the communications services sector (34.6 years), and the finance and insurance sector (34.4 years).[1]

Table 1 **Average number of years worked in the labour force**

The table shows that the average number of years having been in the labour force reported by mature workers.

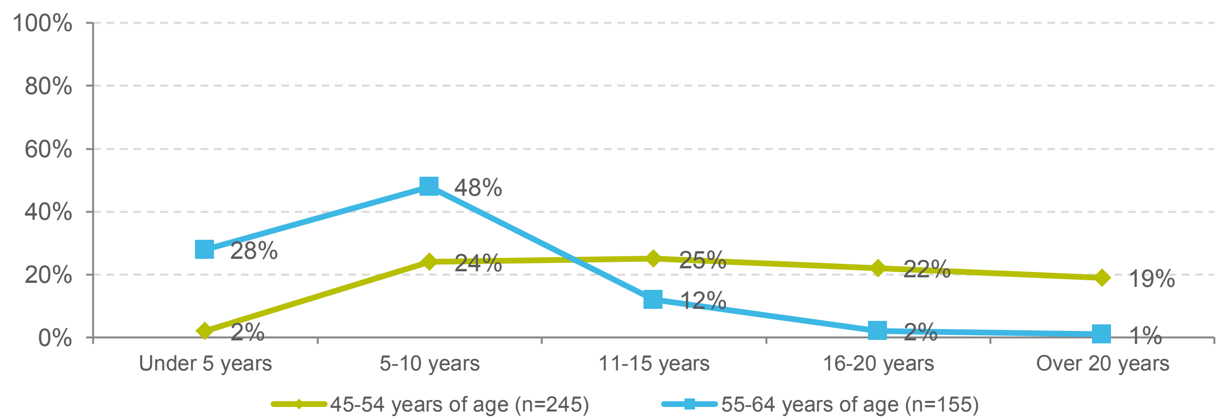
	Mean number of years in labour force (SD)
Mature workers (n=400)	**32.0 years** (9.1 years)

Q9. How many years have you been in the workforce?
Base: Mature workers (n=400)

In terms of planning for retirement, the majority of mature workers reported planning to retire within the next 15 years. Not surprisingly, when observing trends by age, it is clear to see that the majority of the older age group (55-64 years) intends to retire within the next 10 years (76%), compared with the majority of 45-54 year olds, who largely intend to retire between 5 and 20 years from now (71%).

Figure 2 **Estimated number of years until retirement, by age group**

The figure shows the estimated number of years in which mature workers intend to retire, split by age group.



Q10. How many years do you think it will be until you retire?
Base: Mature workers (n=400)
Note: This chart does not display 4% unsure and 4% not anticipating retiring.

Interestingly, retirement intentions most often incorporated a plan to remain tied to the paid labour force in some capacity (63%), whereas only 20% of mature workers indicated that when they retire they plan to cease all paid work.

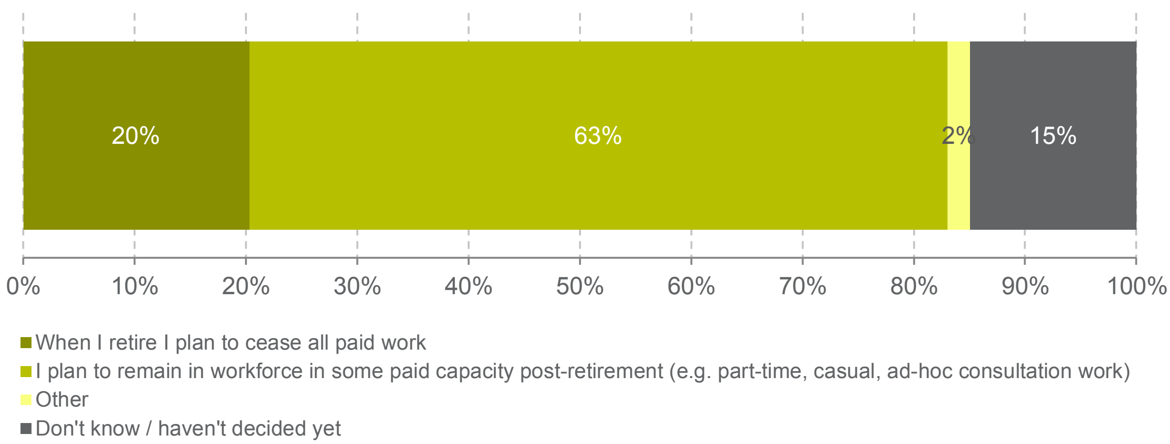
[1] Mean number of years in the workforce denotes time overall in workforce, not in particular industry.

When examining retirement intentions of mature workers by the spread of industries within which these respondents are currently employed full-time, of respondents who plan to cease all paid work on retirement, the largest proportion are currently employed in government or defence (17%), followed by the manufacturing industry (15%), health and community services (12%), and transport and storage (12%).

Of respondents who plan to remain in the paid labour force post-retirement, the largest proportion was currently employed in the education industry (14%), followed by government or defence (12%), and health and community services (12%).

Figure 3 **Retirement plans**

The figure shows retirement intentions of mature workers.



Q11. Which of the following best describes you plans for retirement?
Base: Mature workers (n=400)

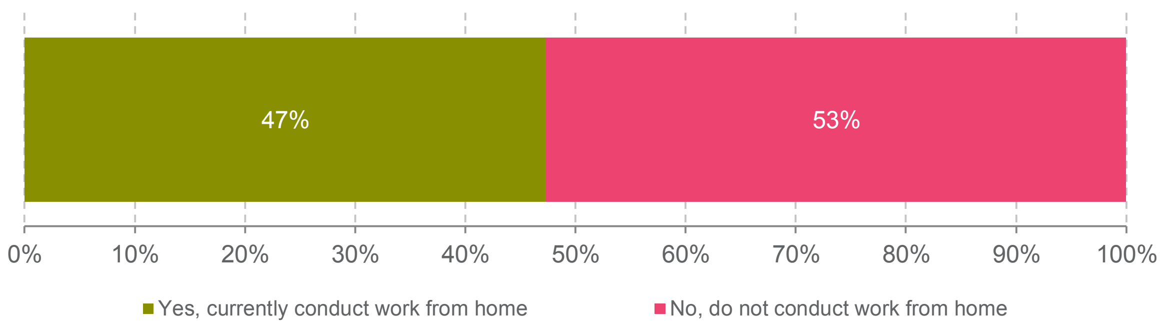
Current telework arrangements

Almost half of the mature workers (47%) indicated that they currently conduct work from home or remotely, out of the office. Respondents however may have been referring to work conducted from home in addition to work conducted at the workplace, on the same day.

When broken down by industry, among respondents who conduct work from home, the largest proportion indicated they were employed in the education industry (16%), followed by government administration or defence (12%), and the construction industry (10%). Of those who do not conduct work from home, the largest proportion worked in the manufacturing industry (15%), followed by government administration and defence (14%).

Figure 4 **Current telework, as permitted by employer**

The figure mature workers' current working habits regarding conducting work from home or remotely, out of the office.

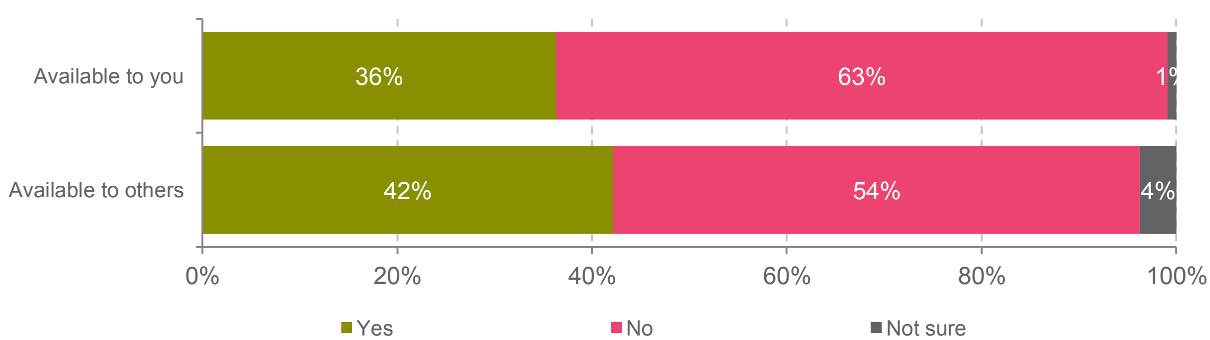


Q25. Do you currently conduct any work in your current position from home or remotely (out of the office)?
Base: Mature workers (n=400)

Thirty-six per cent of respondents indicated that working from home on a regular basis was an option available to them in their current role. When looking at industry breakdowns, and permissions for telework from employers, of those working in the agricultural, forestry, fishing and hunting industry, telework is available to 55%; and of those working in finance and insurance, telework is available to 54%.

Figure 5 **Availability of telework permission in current employment position**

The figure shows the availability of working from home on a regular basis to respondents in their current role, and others in their organisation.

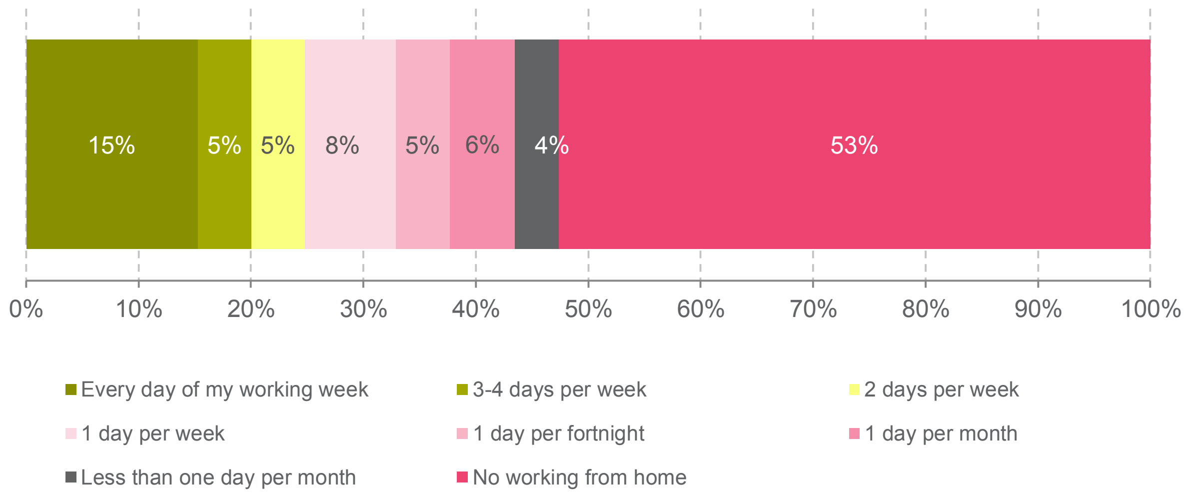


Q26. Is working from home on a regular basis currently available to you as an option?
Base: Mature workers (n=400)

In relation to frequency of telework, 15% of mature workers indicated they worked from home or remotely every day of their working week; 33% conducted work from home on a weekly basis.

Figure 6 **Frequency of telework**

The figure shows the frequency of working from home or remotely within an average working week for mature workers.



Q28. How regularly do you work from home or remotely?
Base: Mature workers (n=400)

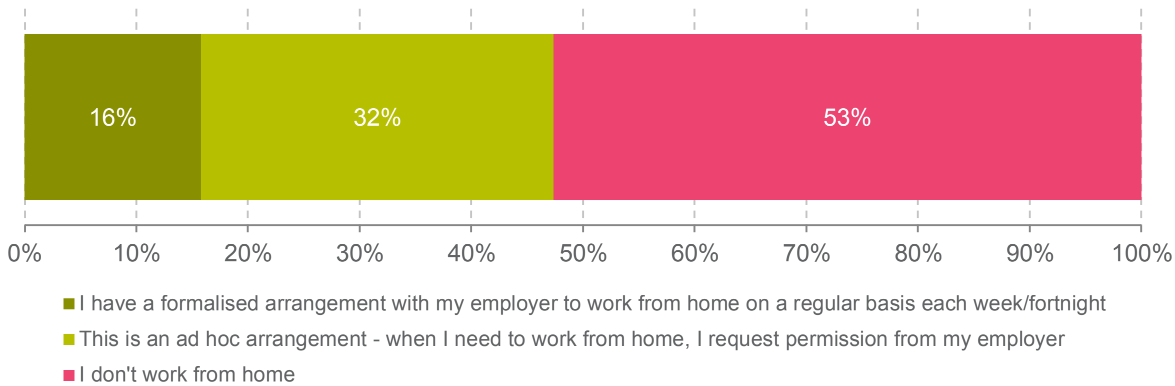
In order to further specify the meaning of working from home, and distinguish this type of work from taking work home from the office and continuing working at home on the same day as being in the office, respondents were asked how they would describe their working from home arrangement with their employer. Overall, 16% of mature workers indicated they have a *formalised arrangement with their employer to work from home on a regular basis each week or fortnight*, and 32% reported an ad hoc arrangement based on requesting permission from their employer.

Of people who indicated they have a formal arrangement with their employer to work from home on a regular basis each week / fortnight (16%), 19% of these people are currently employed in the agriculture, forestry, fishing and hunting industry, followed by 17% employed in education, and 10% employed in communication services. Of respondents who have an ad hoc arrangement with their employer to work from home when they need to (32%), 16% currently work in education, followed by 15% in government administration or defence, and 11% in the construction industry.

Again, of mature workers who have a current formal arrangement with their employer to work from home, the majority are employed at either the management or professional level (77%). Similarly, those who have an ad hoc arrangement are managers or professionals (82%).

Figure 7 **Current arrangements with employer for telework**

The figure shows the proportions of mature workers who indicated they have a formalised arrangement with their employer to work from home on a regular basis each week or fortnight, or an ad hoc arrangement based on requesting permission from their employer, compared with those who do not work from home.



Q29. How would you best describe the circumstances under which you work from home or remotely?
Base: Mature workers (n=400)

<u>Likelihood of telework uptake to delay retirement</u>

Participants nearing retirement were all read the following introduction:

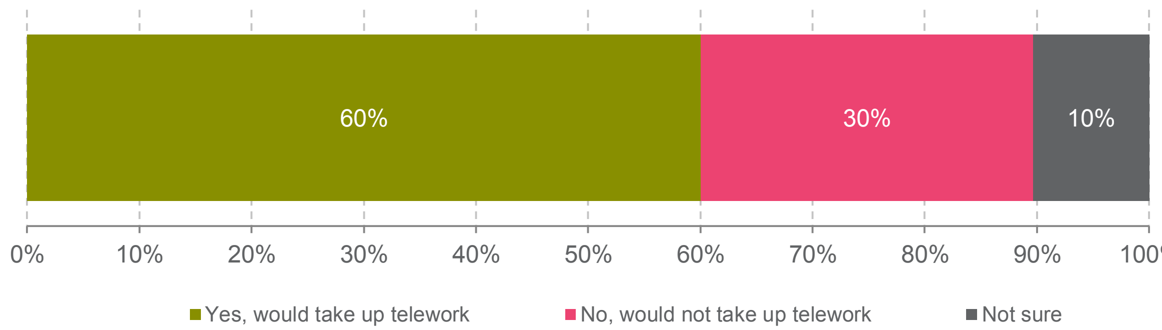
> "The National Broadband Network (NBN) is planned to deliver reliable, high-speed broadband to all Australian premises, giving more employees and employers the confidence to engage in working away from the office and remotely. The NBN will make it easier to share files, collaborate and take part in high-definition video conferencing. The cost for accessing these services is anticipated to remain around the same as current rates for internet."

Mature workers were asked if they would take up telework and remain in the labour force longer than they otherwise would have. Sixty per cent of this group reported that they would take up such an employment opportunity. However, some respondents already undertaking telework reported they would not telework to delay their retirement.

The largest proportion of this subgroup were currently employed in the education industry (14%), followed by government administration and defence (13%), health and community services (10%), and manufacturing (10%). The largest proportions were currently employed as managers or professionals (35% and 28%, respectively).

Figure 8 **Perceived likelihood of taking up telework if available**

The figure shows proportions of mature workers who would take up a telework employment opportunity to delay their retirement.

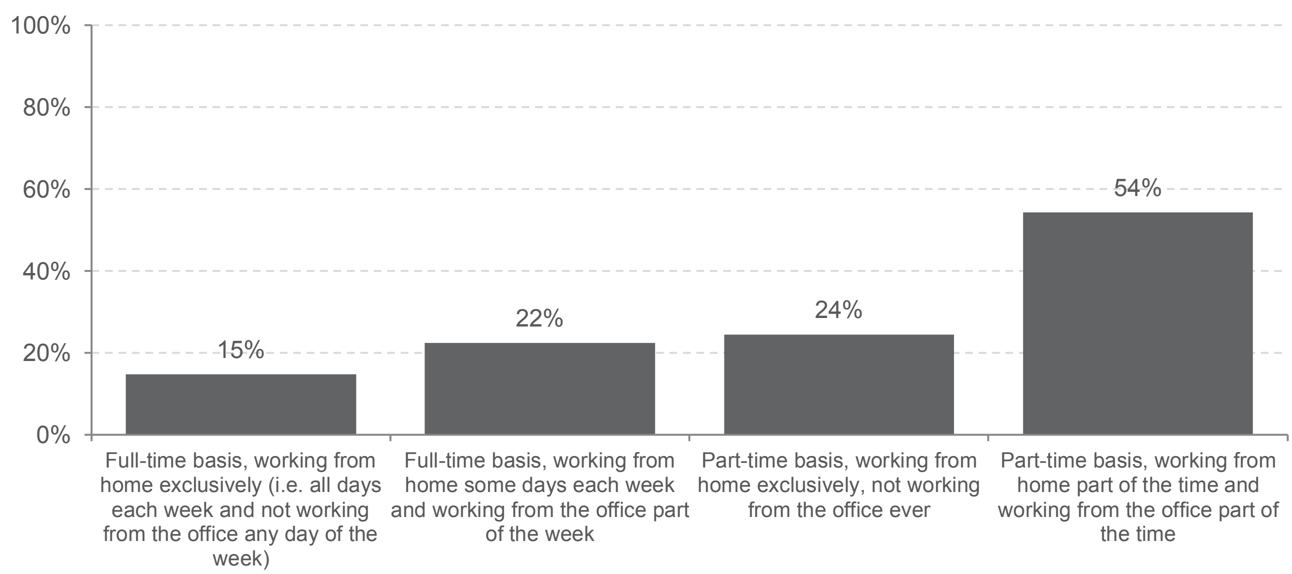


Q42. If this improved technology allowed you to work flexible hours within the working week from home, would you take up such an employment opportunity and remain in the workforce longer than you otherwise would have?
Base: Mature workers (n=400)

Of those who reported that they would delay their retirement by taking up a telework role, the majority reported they would do this on a part-time basis working from home as well as from the office part of the time (54%).

Figure 9 **Perceived likelihood of delaying retirement for a telework position**

The figure shows the breakdowns of mature workers who reported that they would delay their retirement by taking up a telework role, who would telework on a full-time or part-time basis, working solely or partly from home or the office.



Q43. Thinking about retirement as ceasing all paid employment in the workforce, would you be likely to lengthen your employment and delay your retirement…
Base: Mature workers who are receptive to taking up telework (n=230)

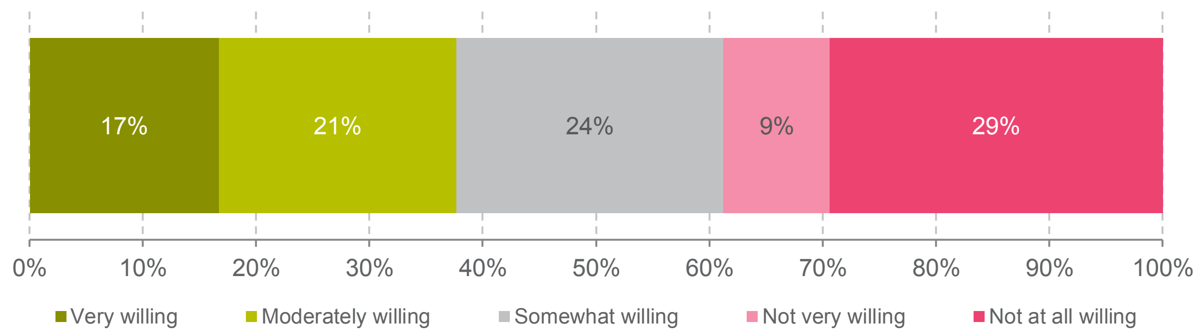
Willingness to change industry or occupation to telework

Participants were asked if they would change industry or occupation in order to be able to telework. This group was split in opinion, such that 38% reported that they would be willing to do this to accept a telework role if available; and 38% reported that they would be unwilling to do this.

When we examine ratings of willingness of 6 or more out of 10, and split this by industry, findings show that of people in mature workers willing to change occupation or industry for a telework role, 13% are currently employed in the manufacturing industry or the government and defence industry, followed by 10% working in education.

Figure 10 **Willingness to change industry for an available telework role**

The figure shows willingness of mature workers to change industry or occupation to take up a telework role.



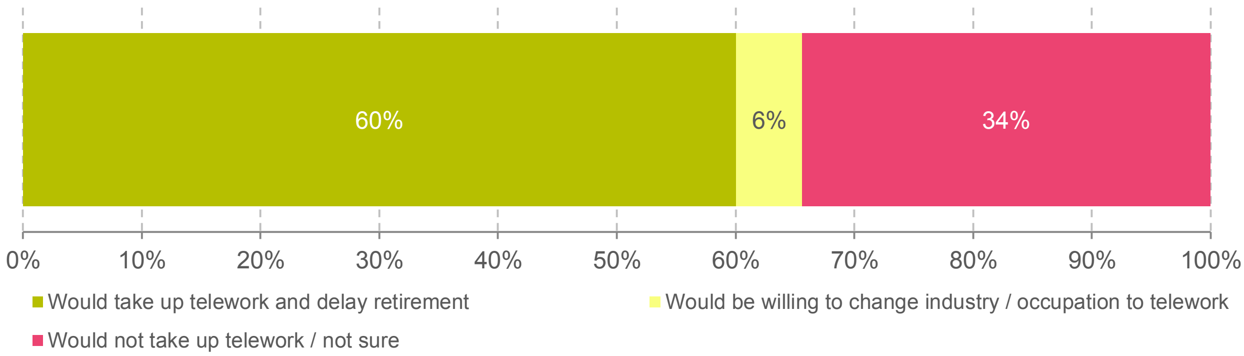
Q44. On a scale of 0-10 where 0 is not at all willing and 10 is very willing, how willing would you be to change your occupation and/or industry if a role working from home was available to you?
Base: Mature workers (n=400)

Future telework intentions

Overall, 60% reported that they would take up telework if available to them and delay their retirement, and an extra 6% would be willing to change industry or occupation to telework if available. Thirty-four per cent of mature workers reported that they would not take up telework and delay their retirement, and were not willing to change industry to do so (or were unsure).

Figure 11 **Future telework intentions**

The figure shows proportions of mature workers would take up telework and delay their retirement, those willing to change industry or occupation to telework, and those who would not take up telework and delay their retirement (or were not sure).



Q44. On a scale of 0-10 where 0 is not at all willing and 10 is very willing, how willing would you be to change your occupation and/or industry if a role working from home was available to you?
Q42. If this improved technology allowed you to work flexible hours within the working week from home, would you take up such an employment opportunity and remain in the workforce longer than you otherwise would have?
Base: Mature workers (n=400)

Delaying retirement

The table below shows the average estimated number of years mature workers anticipated they may delay their retirement and remain in the labour force if they took up a telework position. The average number overall was 6.6 years. The highest average number of years estimated to delay retirement, cut by industry[2], was estimated by respondents currently working in retail (9.0 years) followed by transport and storage industry (8.8 years). The industry that received the shortest average number of estimated years to delay retirement was the agriculture, forestry, fishing and hunting industry (4.0 years).

For people who intended to retire within five years, they estimated that telework could delay their retirement on average an extra 5.9 years. For those who intended to retire in over twenty years from now, they estimated that telework could potentially delay their retirement on average for an additional 8.4 years.

[2] Sample size permitting; sample sizes n<10 not reported.

Table 2 **Estimated years for delaying retirement due to telework**

The table shows the average estimated number of years retirement would be delayed by in order to telework, overall, and split by original retirement intention.

Mature workers receptive to taking up telework or willing to change industry / occupation to telework (n=214)	Mean number of years telework could delay retirement for (SD)
Total	**6.6 years** (4.7 years)
Original retirement intention	
Under 5 years	5.9 years (3.2 years)
5-10 years	6.2 years (4.2 years)
11-15 years	6.2 years (5.1 years)
16-20 years	6.6 years (3.2 years)
Over 20 years	8.4 years (7.2 years)

Q45. If you found a suitable arrangement working from home, how many years do you estimate you may delay your retirement?
Q10. How many years do you think it will be until you retire? (“not sure” and “not anticipating retiring” responses excluded)
Base: Mature workers who are receptive to taking up telework or willing to change industry / occupation to telework (n=214)

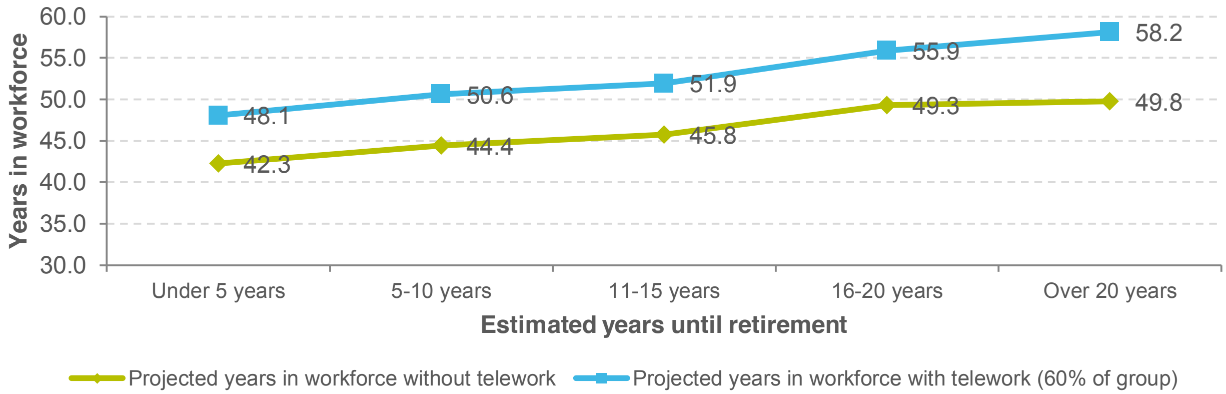
The figure below shows the projected number of years mature workers may be in the labour force for. These figures are based on the existing mean number of years already spent in the labour force, estimates of retirement and the influence of telework on delaying retirement, split by the original estimated number of years until retirement (Q10).[3]

Estimates show that telework could have the potential to retain people in the labour force between 5.9 and 8.4 additional years (when broken down by original retirement intention), resulting in working lives of up to 58.2 years (compared with 49.8 years) for those planning to retire in over 20 years.

[3] For each subgroup, the maximum estimate of years until retirement were used; such that if respondents reported intentions to retire in less than 5 years, 4 years was used for the basis of this calculation; if respondents reported an intention to retire in 5-10 years, 10 years was used in this calculation, and so on to gain a measure of projected years in workforce without telework. To project the effect of telework, the estimate of years that retirement may be delayed was added, based on the figure for each subgroup.

Figure 12 **Projected maximum estimates of years in the labour force – telework vs no telework**

The figure shows estimated projections of years in the labour force, broken down by the estimated time until retirement, for a workforce without telework, and a workforce with telework.

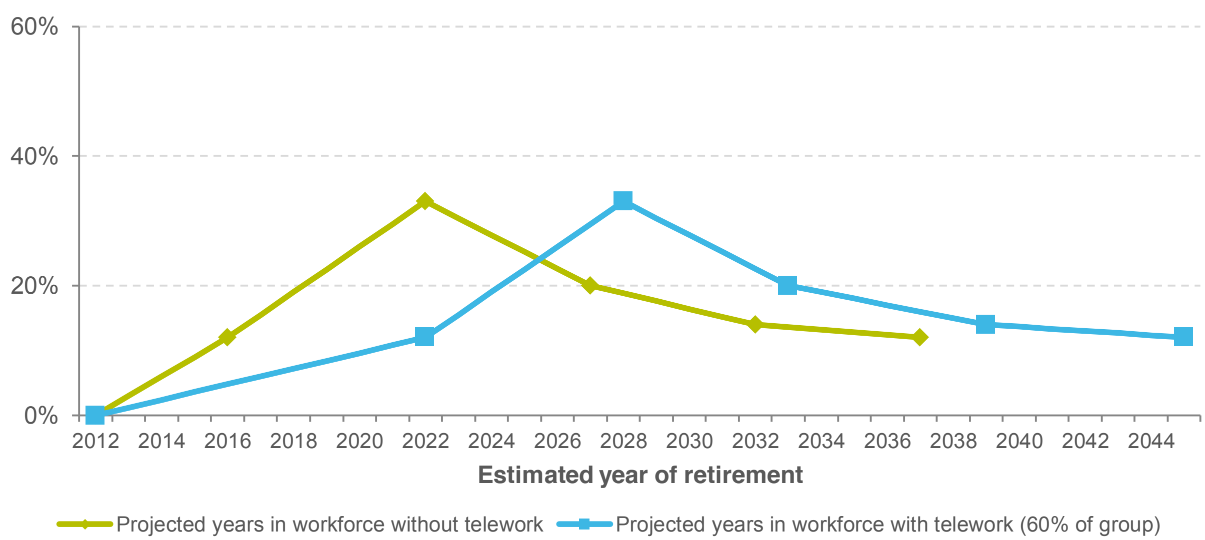


Q45. If you found a suitable arrangement working from home, how many years do you estimate you may delay your retirement?
Q9. How many years have you been in the workforce?
Q10. How many years do you think it will be until you retire?
Base: Mature workers who are receptive to taking up telework or willing to change industry / occupation to telework and who could estimate when they would retire (n=205)

The figure below shows projections of retirement year for mature workers, with and without the inclusion of telework as an influencing factor. This demonstrates that telework has the potential to delay retirement for this group of people, such that they remain in the workforce longer than their original estimates (of when they would retire). For example, for people originally planning on retiring close to 2016 (i.e. less than five years), this could be potentially shifted to retiring around 2022 with the introduction of telework. For people planning to retire around the year 2037, this could potentially be delayed until around 2045.

Figure 13 **Projected estimates for retirement year – telework vs no telework**

The figure shows projections of retirement year for mature workers participants, with and without the inclusion of telework as an influencing factor.



Q45. If you found a suitable arrangement working from home, how many years do you estimate you may delay your retirement?
Q9. How many years have you been in the workforce?
Q10. How many years do you think it will be until you retire?
Base: Mature workers who are receptive to taking up telework or willing to change industry / occupation to telework and who could estimate when they would retire (n=205)

Benefits and disadvantages of telework

Respondents were asked (unprompted) what they perceived the benefits to employees are of telework. The key benefits to employees of telework were perceived to be the minimised travel time to and from the office (28%), and the ability to work flexible hours (27%).

Table 3 **Perceived benefits of telework to the employee**

The table presents the key perceived benefits to employees of telework.

	Mature workers (n=400)
Minimised travel time to and from the office	28%
Flexible hours	27%
Minimised travel costs	16%
None / No benefits	14%
Flexible environment	11%
Ability to continue caring responsibilities while working	10%
Increased motivation and productivity	9%
Flexibility to take breaks on own schedule	9%
Work life balance (spend more time with family/children)	8%
Financial benefits (less expenses / more income)	3%
Less stress / more relaxed	3%
Self-management/autonomy/control/independence/freedom	2%
Convenience	2%
No traffic causing unscheduled lateness to work	2%
Don’t want to work from home / can’t work from home / not applicable	2%
Not sure / Don’t know	5%
Other	16%

Q30. What do you believe could be the potential benefits of working from home to YOU as an employee?
Base: Mature workers (n=400)

Other responses included:

- Access to a better computer / networking system;
- Health benefits due to less stress;
- Wouldn't have to take work equipment to and from work;
- Reduced pollution due to not driving;
- Less manual labour work required if at home – different type of work;
- Not having to get dressed up;
- Easier transition to retirement.

Respondents were asked (unprompted) what they perceived the benefits to employers are of telework. The most common response was in relation to lower office overheads, saving money from smaller physical premises, and potentially being able to hire more employees (25%). Other common responses were made with reference to staff satisfaction and productivity, and loyalty and retention.

Table 4 **Perceived benefits of telework to the employer**

The table presents the perceived benefits to employers of telework.

	Mature workers (n=400)
Lower office overheads - therefore able to employ more staff, e.g. Smaller physical premises, less electricity	25%
None / no benefits	12%
Flexible hours / longer work hours of employees	9%
Happier employees / less employee stress	8%
More productive / efficient employees	7%
Increased loyalty and retention	4%
More recruitment opportunities: allowing access to more workers currently unable to work	4%
Less employee sick days	4%
Less travel time / travel expenses	4%
Employees who are carers still being productive	3%
Quicker distribution of information (i.e. everyone is at a computer)	1%
Lower paper wastage due to increased use of email and online technology	1%
Other	14%
Not sure / Don't know	14%

Q31. What do you believe could be the potential benefits of working from home to employers? Base: Mature workers (n=400)

Other responses included:

- Less congestion on roads;
- Management does not need to supervise as closely;
- Able to accommodate people with a disability;
- Workplace doesn't have to be a permanent set-up; can be more flexible and dynamic;
- Less insurance needed on behalf of employer, e.g. workers' compensation;
- Decentralisation of the workforce;
- Avoid need for office OH&S effort and costs;
- Better relationship between management and staff;
- Ability to have staff working during under-resourced periods;
- Ability to access and recruit highly specialised staff.

All were asked (unprompted) what they felt the disadvantages of telework may be. The most common response was the loss of social interaction (26%), followed by a concern about increased distractions at home potentially leading to decreased productivity (17%).

Table 5 Perceived disadvantages of telework

The table presents the perceived disadvantages of telework.

	Mature workers (n=400)
Loss of social interaction / the need to still have some degree of interpersonal interaction	26%
Increased distractions / interruptions at home leading to a decrease in productivity	17%
Difficulties with communication	8%
None / no disadvantages	6%
Lack of motivation / become lazy / become unhealthy / unproductive	4%
Difficulties maintaining skills due to working in isolation	4%
Work extra hours	4%
Inability to separate work life and family / personal life	3%
Lack of a cohesive team	3%
Limits in the type of work that can be done remotely	2%
Lack of supervision	2%
Internet access / computer issues	2%

Issues such as power failures and IT issues across multiple locations	1%
Additional work in separating personal from business use of resources (such as two internet accounts etc.)	1%
The need to justify time and productivity to employer	1%
More costs incurred at home for electricity, heating, cooling etc.	1%
Loss of snowballing ideas and learning from others questions	1%
Not sure / Don’t know	1%
Other	15%

Q32. Can you think of any potential disadvantages to you working from home?
Base: Mature workers (n=400)

Other responses included:

- May always be on call – work boundaries can be shifted;
- Working from home may annoy the neighbours;
- Lack of trust from wider team;
- Clients ringing home phone all the time;
- May be left out of decisions made in the office;
- Miss out on processes and what may be happening in the company / office / office politics;
- May not have access to appropriate tools / equipment;
- Less access to phone messages if left at work;
- Reduced privacy as co-workers would know where you live;
- Concern about less time off / less holidays.

Part-time workers

Employment background

The table below shows that the average number of years that part-time workers had been in the labour force was 17.4 years. The greatest average number of years, split by current industry, was 25.5 years in agriculture, forestry, fishing and hunting, followed by government administration and defence (23.1 years), and communications services (22.7 years). The least number of years spent in the labour force was 11.6 years, reported by respondents currently employed in the accommodation, cafes and restaurants industry.[4]

On average, respondents indicated that they work on average 20.9 hours per week. The greatest number of hours was worked by people in the construction industry (26.2 hours), followed by agriculture, forestry, fishing and hunting (26.0 hours), and communications services (25.7 hours). The least number of hours worked per week was in personal and other services (16.1 hours).

Table 6 Average number of years worked in the labour force and average number of hours currently worked per week, by industry

The table shows the average number of years in the labour force, and average number of hours worked per week for part-time and casual workers.

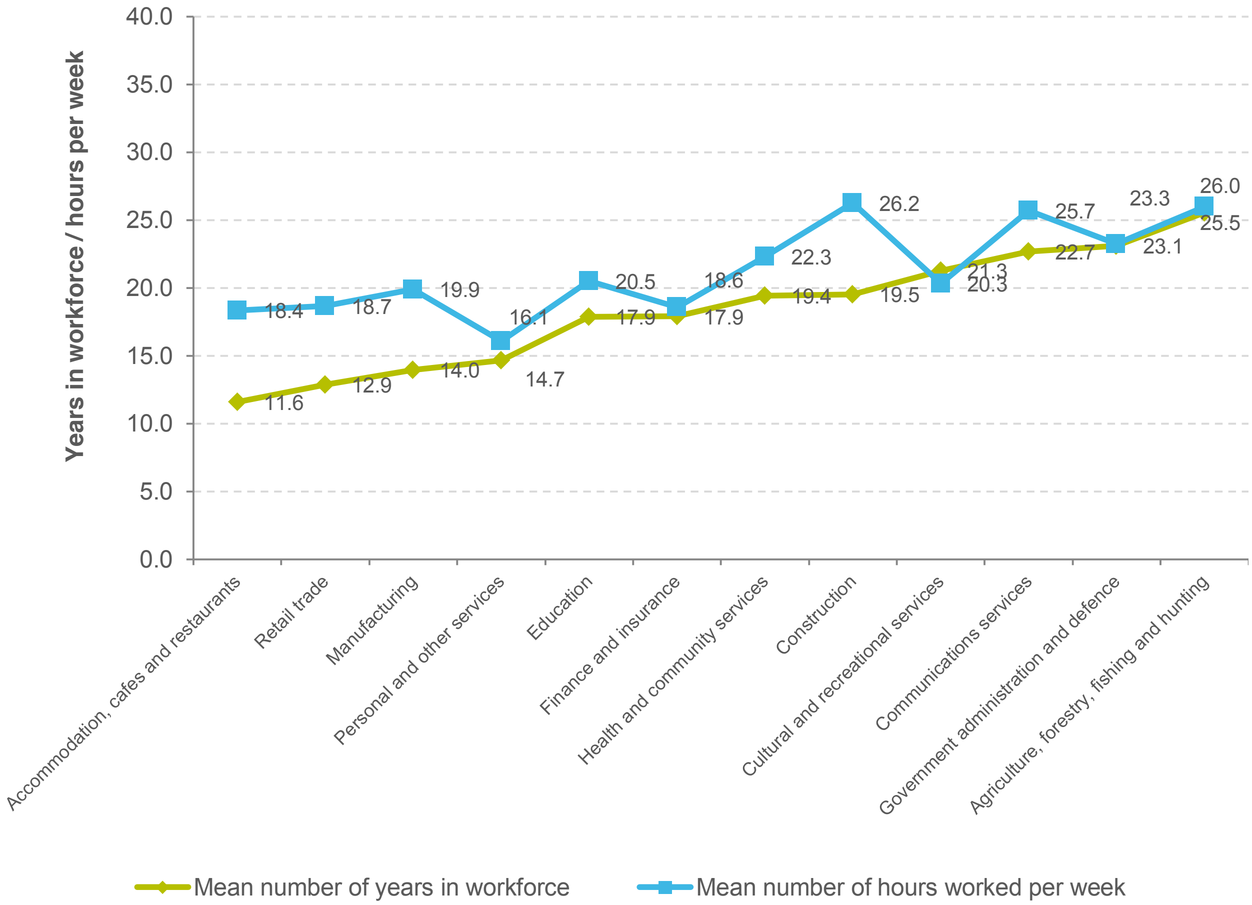
Part-time workers (n=419)	Mean number of years in labour force (SD)	Mean number of hours worked per week (SD)
Total	**17.4 years** (13.1 years)	**20.9 hours** (10.1 years)

Q12. How many years have you been in the workforce?
Q13. How many hours do you work per week?
Q7a. Which best describes the industry or business of your current employer?
Base: Part-time workers (n=419)

[4] Mean number of years in the workforce denotes time overall in workforce, not in particular industry.

Figure 14 **Average number of years worked in the labour force and average number of hours currently worked per week, by industry**

The figure shows the average number of years in the labour force, and average number of hours worked per week for part-time and casual workers, by industry.

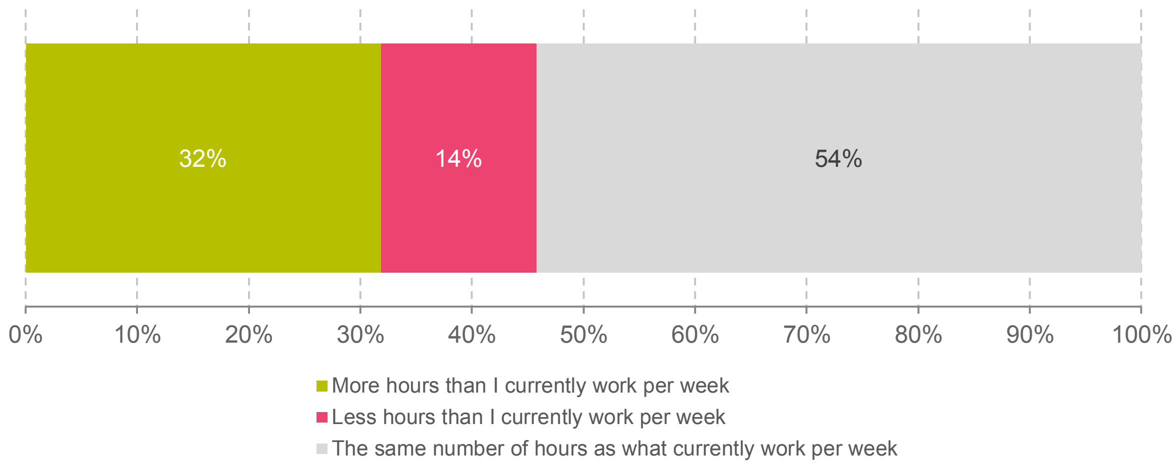


Q12. How many years have you been in the workforce?
Q13. How many hours do you work per week?
Q7a. Which best describes the industry or business of your current employer?
Base: Part-time workers (n=419)

The majority of part-time workers indicated they were content in working the same number of hours as they currently work (54%); whereas almost a third of this group reported wanting to work more hours (32%). This suggests that this group of people may be underemployed, providing scope for them to increase their weekly hours if this was enabled by their employer.

Figure 15 **Preferences to work more, the same or less hours per week**

The figure shows preferences of part-time and casual workers in number of hours worked per week.



Q14. In order to support your current lifestyle, would you prefer to be working more, the same, or less hours than what you currently work per week?
Base: Part-time workers (n=419)

In terms of preferences for the number of hours worked per week, those who would prefer to work more hours per week were currently working on average 17.3 hours, and indicated they could work 32.5 hours. Those who reported a preference for working less hours per week, currently worked on average 27.3 hours per week, and indicated they would like to work on average 15.4 hours per week instead.

Table 7 **Preferences for number of hours worked per week**

The table shows the preferences for the number of hours worked per week and average number of hours worked per week currently.

Part-time workers preferring to work **more** or **less** hours per week (n=180)	Mean number of hours **desired** per week (SD)	Mean number of hours **currently worked** per week (SD)
Prefer work MORE hours per week (n=130)	**32.5 hours** (12.2 hours)	**17.3 hours** (8.3 hours)
Prefer work LESS hours per week (n=50)	**15.4 hours** (10.5 hours)	**27.3 hours** (11.4 hours)

Q14. In order to support your current lifestyle, would you prefer to be working more, the same, or less hours than what you currently work per week? How many?
Base: Part-time workers who would prefer to work more, or less hours per week than currently (n=180)

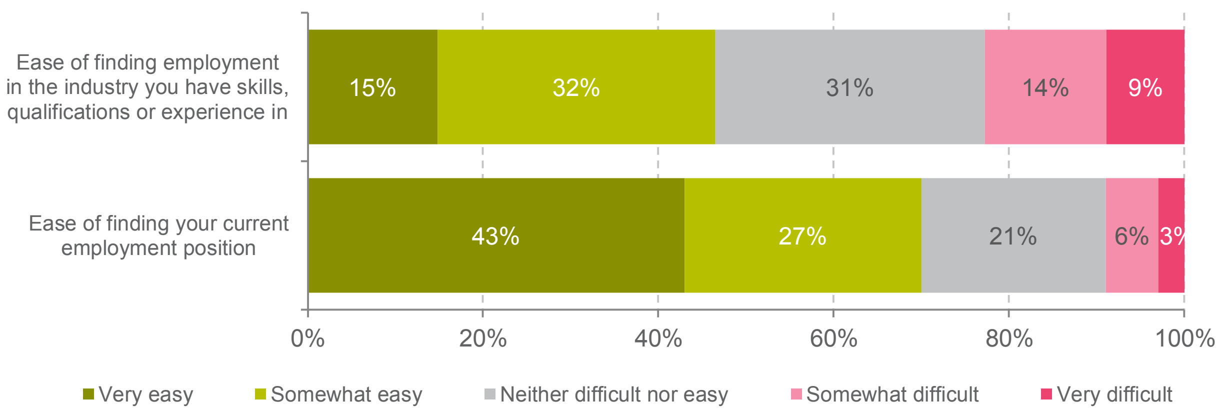
Perceived ease of finding employment

Almost half of part-time workers indicated that overall it would be (very) easy for them to find employment in their industry (47%), while 23% indicated this would be (very) difficult. This moderately large proportion of respondents who indicated this would be easy suggests there may be a solid degree of confidence in the availability of work in relevant industries suitable to the skills and experience of this group. Of these respondents, the largest proportion were currently employed in the health and community services sector (25%), followed by the retail industry (20%), and education sector (16%).

Overall 70% of this group indicated that it was easy to find their current employment position, while 9% indicated this was difficult. Again, the largest proportion were currently employed in the health and community services sector (20%), followed by the retail industry (18%), and education sector (15%).

Figure 16 **Perceived ease of finding employment overall, and ease of finding current position**

The figure shows part-time workers' perceptions of ease in finding employment in their industry, and ease of finding their current employment position.



Q15a. On a scale of 0-10 where 0 is very difficult and 10 is very easy in general how easy is it for you to find employment in the industry you have skills, qualifications or experience in?
Q15b. On a scale of 0-10 where 0 is very difficult and 10 is very easy, how easy was it to find your current employment position?
Base: Part-time workers (n=419)

Employment challenges

Part-time workers were asked (unprompted) about the challenges they face in their current work situation. The most common response reported by 7% of this group was the desire to work more hours but a lack of hours available to accommodate this. Six per cent of respondents in this group reported challenges including: balancing work and family life; extensive travel to and from the workplace, and the lack of flexibility with hours worked. These challenges highlight several circumstances that telework could potentially address, directly and indirectly.

Table 8 **Challenges faced in current role**

The table presents the challenges faced by part-time workers participants in their current employment position.

	Part-time workers (n=419)
Nothing / no challenges / not sure	23%
Want to work more hours, but there are not enough hours available to work	7%
Balancing work and family life (children)	6%
Extensive travel to workplace from home	6%
Lack of flexibility in types of hours worked	6%
Required to work too many hours	5%
Dealing with public / customers	5%
Fatigue, stress and anxiety from work	4%
Issues with management / supervisor	3%
The physical demand of the work	3%
Not paid enough / managing cash flow	3%
High workloads and staff shortages	3%
Difficulty finding employment to suit availability and/or requirements	2%
Dislike the type of work	2%
Difficulty negotiating suitable hours	2%
Role is not in my desired industry / not my desired position	2%
Lack of professional development and training in role	1%
Inconsistent or unstable workflow	1%
Other	36%

Q16. What are some of the challenges you face in your current role?
Base: Part-time workers (n=419)

Other responses included:

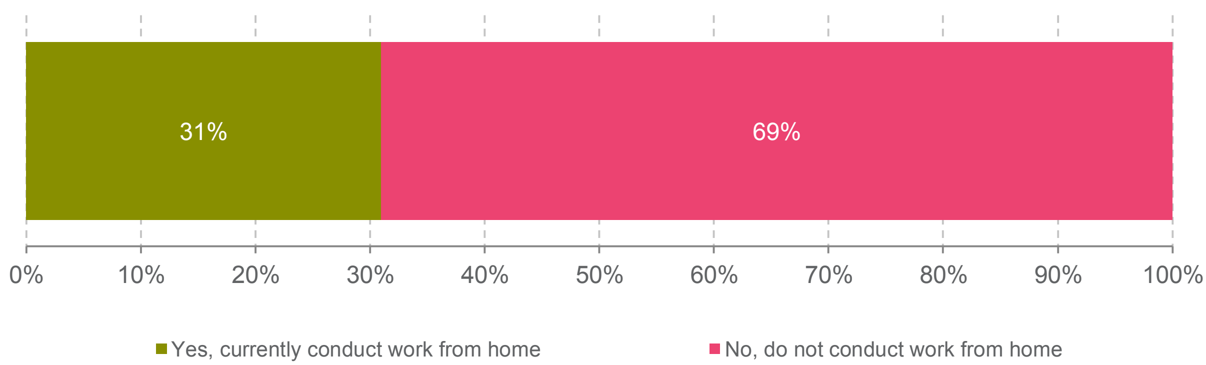
- Dislike of working with clients / co-workers;
- Lack of career advancement opportunities;
- Overqualified for role;
- Too many policies to adhere and conform to;
- Gender inequality;
- Age bias and inequality;
- Issues travelling to work depending on weather and traffic;
- Keeping up to date with technology;
- Internal changes, e.g. changes in management;
- Struggling with motivation from day to day / repetition of role;
- Lack of staff, resources and budget to hire new staff;
- Difficulty meeting deadlines;
- Difficulties with marketing, advertising, financing;
- Occupational health and safety issues;
- Office politics (general);
- Costs of running business.

Current telework arrangements

Almost a third of part-time or casual workers (31% of part-time workers) indicated that they currently conducted work from home or remotely, out of the office.[5]

Figure 17 **Current telework, as permitted by employer**

The figure shows the proportion of part-time workers who indicated that they currently conducted work from home or remotely, out of the office.



Q25. Do you currently conduct any work in your current position from home or remotely (out of the office)?
Base: Part-time workers (n=419)

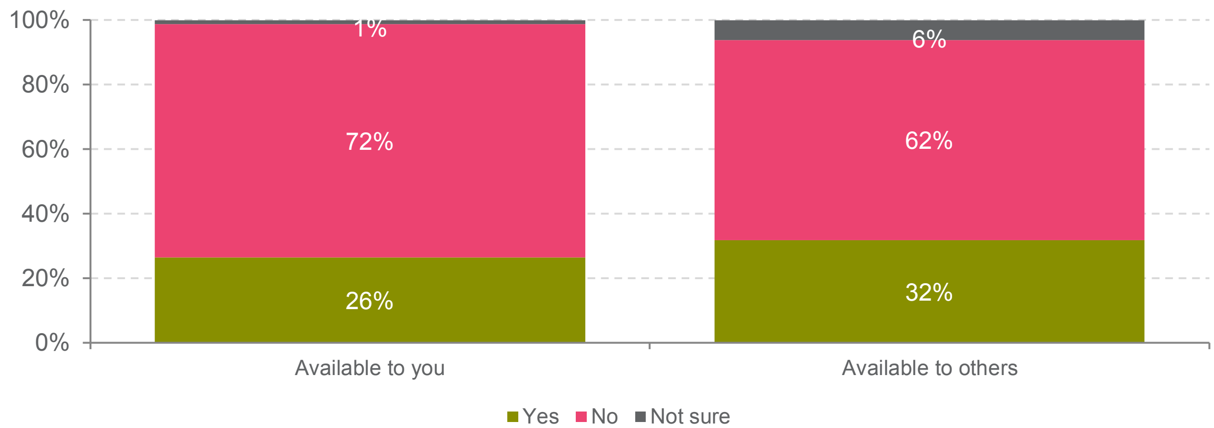
[5] Respondents however may have been referring to work conducted from home *in addition* to work conducted at the workplace, *on the same day*. Caution when interpreting this result.

When asked if telework was available to them on a regular basis from their employer, around a quarter indicated that it was (26%), and almost a third indicated that it was available to their colleagues (32%).

When looking at industry breakdowns for part-time workers, and permissions for telework from employers, the table below shows that of people working in the finance and insurance sector, telework is available to 69%; and is available to 67% of respondents in the agriculture, forestry, fishing and hunting industry.

Figure 18 **Availability of telework permission in current employment position**

The figure shows the availability of telework to part-time workers, and their colleagues.

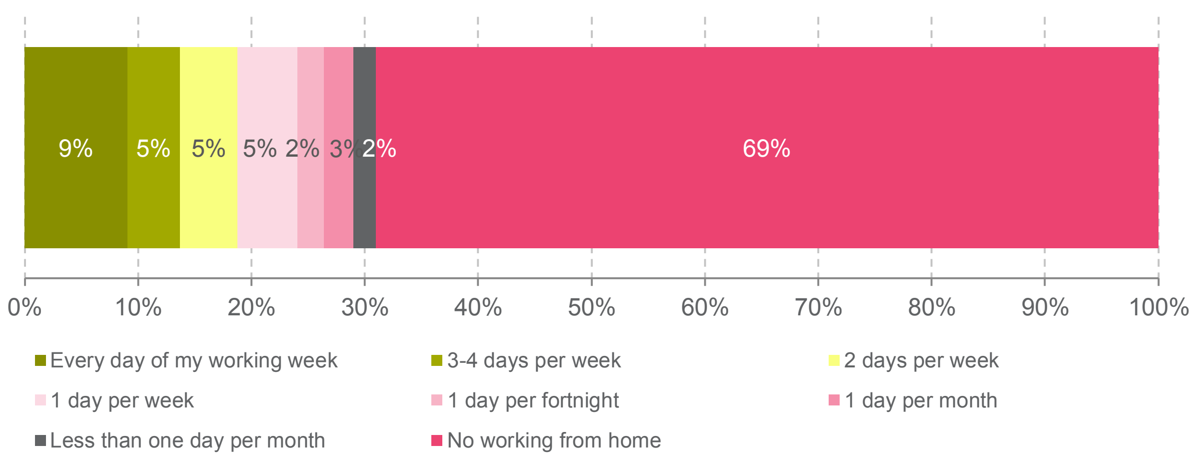


Q26. Is working from home on a regular basis currently available to you as an option?
Q27. Is working from home on a regular basis currently available to others in your organisation?
Base: Part-time workers (n=419)

When looking at the regularity of telework (of the entire group), 24% reported undertaking telework on a weekly basis (9% indicated they engaged in telework every day of their working week).

Figure 19 **Frequency of telework**

The figure shows the regularity of telework for part-time workers.



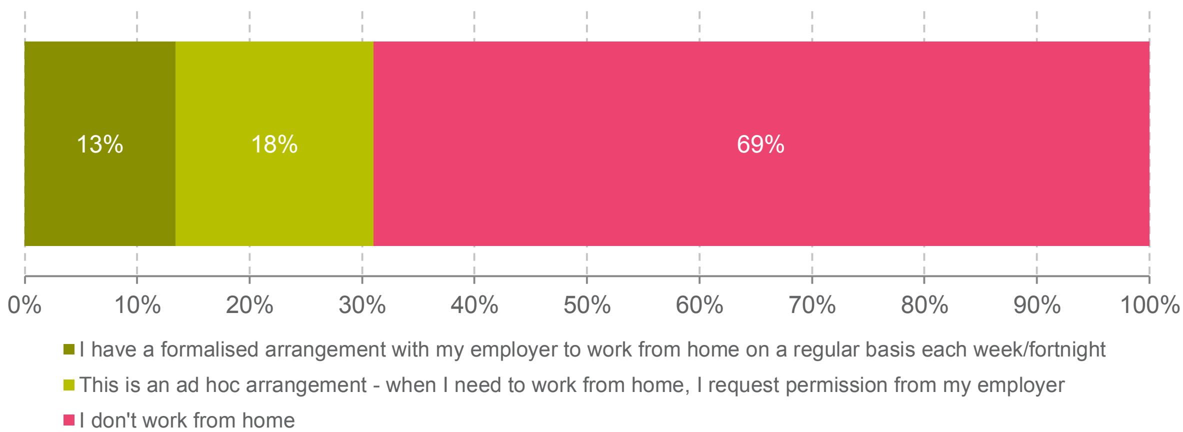
Q28. How regularly do you work from home or remotely?
Base: Part-time workers (n=419)

When asked about telework arrangements at work, 13% of part-time workers indicated they had a formalised arrangement with their employer to work from home on a regular basis, weekly or fortnightly, and 18% had an ad hoc arrangement to work from home when needed.

By industry, the largest proportion of respondents indicating they have a formalised agreement with their employer to telework on a regular basis were currently employed in the communications services sector (20%), followed by the education sector (18%). They were most commonly employed at a professional level (46%), or at a management level (18%).

Figure 20 **Current arrangements with employer for telework**

The figure shows breakdowns of part-time workers who have a formalised arrangement with their employer to work from home on a regular basis, weekly or fortnightly, those who have an ad hoc arrangement to work from home when needed, and those who do not work from home.



Q29. How would you best describe the circumstances under which you work from home or remotely?
Base: Part-time workers (n=419)

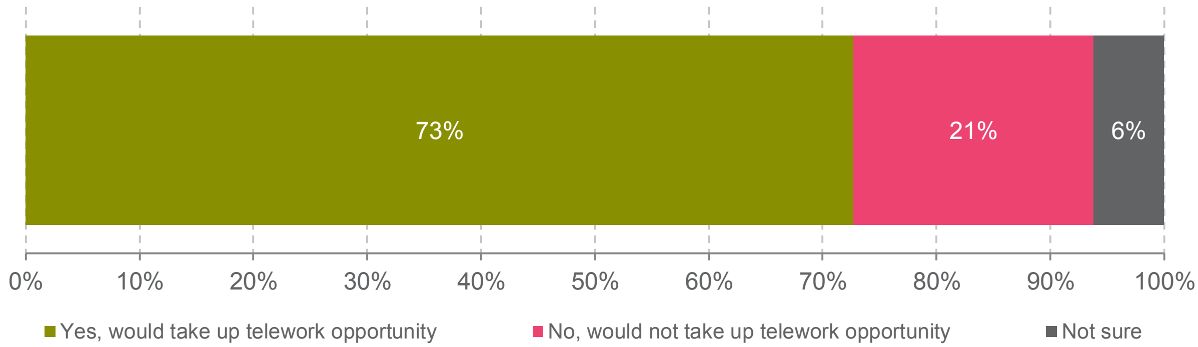
<u>Likelihood of telework uptake</u>

Overall, 73% of part-time workers indicated that they would take up a telework opportunity if one was available to them, whereas 12% would not. When looking at likelihood to take up telework broken down by industry, the largest proportion of people in part-time workers who reported they would take up a telework position if they could were currently working in the retail sector (22%), followed by the health and community services sector (17%), and the education sector (13%).

Part-time workers who would take up a telework opportunity were most likely to be professionals (24%), or clerical or administrative workers (23%).

Figure 21 **Perceived likelihood of taking up telework if available**

The figure shows proportions of part-time workers who indicated that they would take up a telework opportunity if one was available to them.



Q33. If this improved technology opened up opportunities for you to work flexible hours within the working week from home using a computer, would you take up such an employment opportunity?
Base: Part-time workers (n=419)

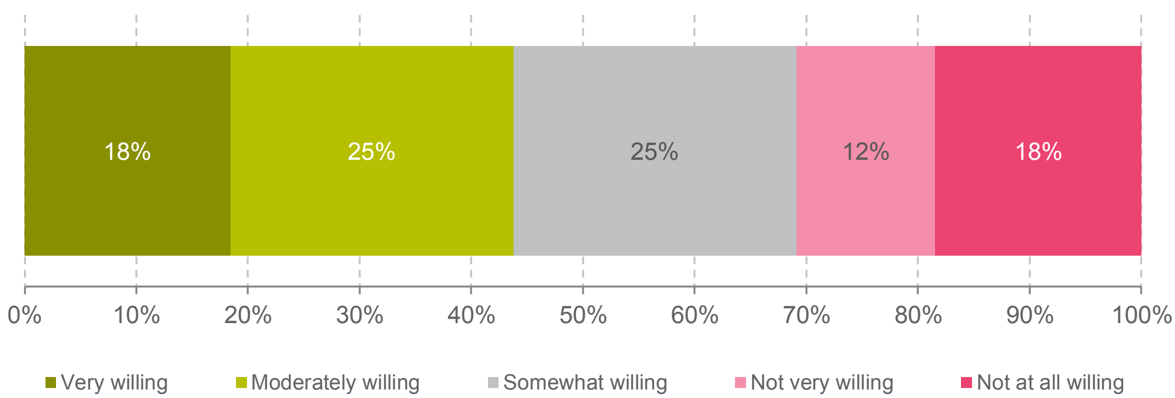
Willingness to change industry or occupation to telework

When asked their level of willingness to change industry or occupation to telework, 43% reported they would be (very) willing to do this, 25% reported they would be somewhat willing, and 30% said they were not willing.

Of part-time workers willing to change industry, the largest proportion was currently employed in the retail sector (22%), followed by the health and community services sector (15%), and education sector (12%).

Figure 22 **Willingness to change industry for an available telework role**

The figure shows part-time workers' willingness to change industry or occupation for an available telework role.



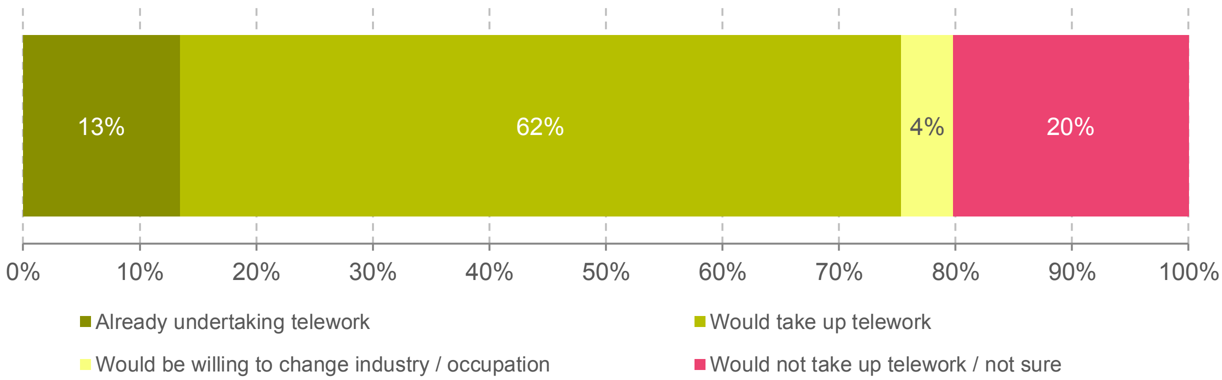
Q37. On a scale of 0-10 where 0 is not at all willing and 10 is very willing, how willing would you be to change your occupation and/or industry if a role working from home was available to you?
Base: Part-time workers (n=419)

Future telework intentions

Of part-time workers, 13% were already engaging in telework in a formalised arrangement with their employer. Sixty-two per cent of the group indicated that they would take up telework if available to them, and an additional 4% would be willing to change industry or occupation to telework. Twenty per cent of part-time workers reported that they would not take up telework if a role became available, nor change industry / occupation to do so (or were unsure).

Figure 23 **Telework uptake and willingness to change industry / occupation to telework**

The figure shows existing teleworkers, those willing to take up telework if available to them, those willing to change industry or occupation to telework, and those unwilling to telework or unsure.



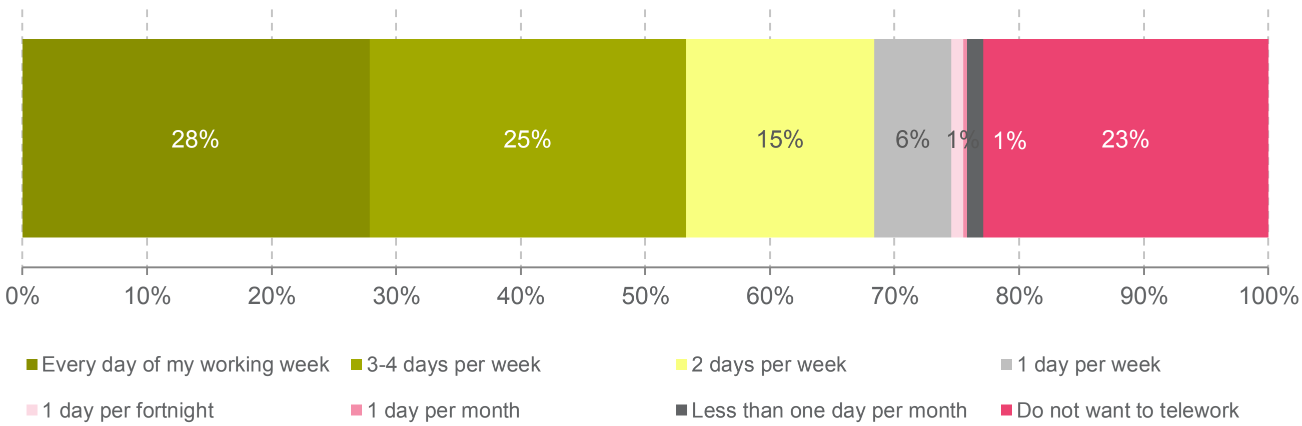
Q33. If this improved technology opened up opportunities for you to work flexible hours within the working week from home using a computer, would you take up such an employment opportunity?
Q37. On a scale of 0-10 where 0 is not at all willing and 10 is very willing, how willing would you be to change your occupation and/or industry if a role working from home was available to you?
Base: Part-time workers (n=419)

Telework preferences

A large proportion of part-time workers indicated they would want to telework the majority of the week (69%), with more than two thirds (36%) indicating they would want to telework every day of the working week.

Figure 24 **Preferences for telework regularity**

The figure shows part-time and casual workers' preferences for telework regularity.



Q40. How regularly would you prefer to work from home or work remotely?
Base: Part-time workers (n=400)

Part-time workers currently work on average 20.9 hours per week. With the introduction of a telework employment opportunity, respondents indicated they could work on average 24.1 hours per week from home, and 29.4 hours per week in total. The figure below shows the additive effect of mean working hours enabled by telework.

Table 9 **Estimated hours worked per week if telework was available**

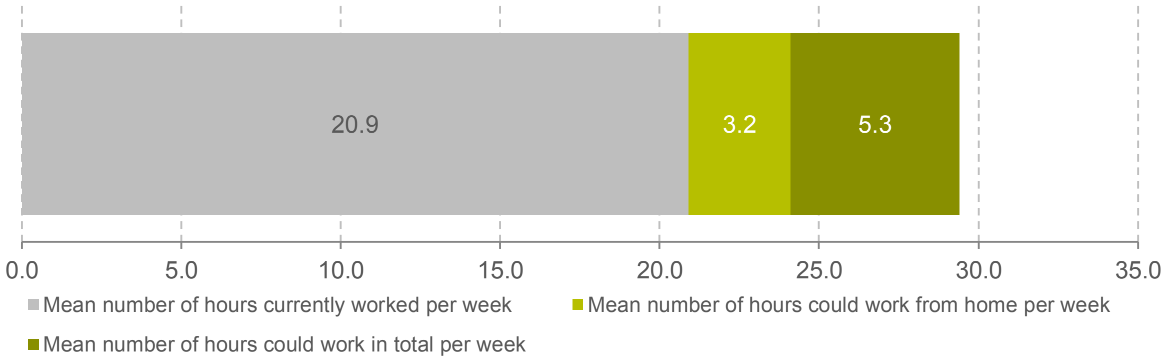
The table shows the average number of hours of work per week that telework could enable, compared to the average number of hours currently worked.

	Mean (SD) number of hours currently worked in total per week	Mean (SD) number of hours could work from home per week	Mean (SD) number of hours could work in total per week
Part-time workers who would telework or be willing to change industry to telework (n=314)	20.9 hours (10.1 hours)	24.1 hours (23.6 hours)	29.4 hours (12.2hours)

Q39. If such home-based work was available to you, how many hours per week (on average) would you be able to work in total per week? … from home per week?
Q13. How many hours do you work per week?
Base: Part-time workers who would telework or be willing to change industry to telework (n=314)

Figure 25 **Estimated hours worked per week if telework was available**

The figure shows the additive effect of mean working hours enabled by telework.



Q39. If such home-based work was available to you, how many hours per week (on average) would you be able to work in total per week? … from home per week?
Q13. How many hours do you work per week?
Base: Part-time workers who would telework or be willing to change industry to telework (n=314)

Benefits and disadvantages of telework

Benefits of telework perceived by part-time workers included flexible hours (39%), followed by minimised travel time to and from the office (23%), minimised travel costs (16%), and the ability to continue caring responsibilities while working (16%).

Table 10 **Perceived benefits of telework to the employee**

The table presents the perceived benefits of telework to employees.

	Part-time workers (n=419)
Flexible hours	39%
Minimised travel time to and from the office	23%
Minimised travel costs	16%
Ability to continue caring responsibilities while working	16%
Flexible environment	14%
None / No benefits	9%
Flexibility to take breaks on own schedule	8%
Work life balance (spend more time with family/children)	7%
Increased motivation and productivity	5%
Less stress / more relaxed	5%

No traffic causing unscheduled lateness to work	5%
Don't want to work from home / can't work from home / not applicable	3%
Self-management/autonomy/control/independence/freedom	2%
Convenience	2%
Financial benefits (less expenses / more income)	1%
Other	12%
Not sure / Don't know	4%

Q30. What do you believe could be the potential benefits of working from home to YOU as an employee?
Base: Part-time workers (n=419)

Other responses included:

> Access to a better computer / networking system / better internet;
> Better facilities for disability at home;
> Increased ability to multi-task if working from home;
> Less traffic congestion on roads;
> Less outdoor work and health risks from sun – different type of work;
> Wouldn't have to pay for uniform.

Benefits to the employer were perceived to be primarily related to lower office overheads and savings associated with smaller physical premises (22%), followed by flexible office hours and the ability of staff to work longer hours if undertaking telework (10%).

Table 11 Perceived benefits of telework to the employer

The table presents the key perceived benefits to employers of telework.

	Part-time workers (n=419)
Lower office overheads - therefore able to employ more staff, e.g. Smaller physical premises, less electricity	22%
Flexible hours / longer work hours of employees	10%
None / no benefits	9%
Happier employees / less employee stress	7%
More productive / efficient employees	5%
Increased loyalty and retention	5%
More recruitment opportunities: allowing access to more workers currently unable	5%

to work	
Employees who are carers still being productive	5%
Less travel time / travel expenses	4%
Less employee sick days	3%
Quicker distribution of information (i.e. everyone is at a computer)	2%
Lower paper wastage due to increased use of email and online technology	1%
Other	18%
Not sure / Don't know	16%

Q31. What do you believe could be the potential benefits of working from home to employers?
Base: Part-time workers (n=419)

Other responses included:

- Ability to employ more young mothers who currently care for their children instead of working;
- Less supervision for employers;
- Less conflict between staff;
- Reduced late arrivals to work;
- Less insurance needed on behalf of employer;
- Reduce overall time away from work.

Disadvantages of telework perceived by part-time workers included a loss of social interaction (28%), followed by increased distractions and interruptions at home (27%). Other disadvantages were perceived by less than 10% of the group.

Table 12 **Perceived disadvantages of telework**

The table presents the perceived disadvantages of telework.

	Part-time workers (n=419)
Loss of social interaction / the need to still have some degree of interpersonal interaction	28%
Increased distractions / interruptions at home leading to a decrease in productivity	27%
Lack of motivation / become lazy / become unhealthy / unproductive	8%
Difficulties with communication	6%
Inability to separate work life and family / personal life	6%
None / no disadvantages	4%

Work extra hours	3%
Lack of a cohesive team	3%
More costs incurred at home for electricity, heating, cooling etc.	3%
Difficulties maintaining skills due to working in isolation	1%
Limits in the type of work that can be done remotely	1%
Internet access / computer issues	1%
Issues such as power failures and IT issues across multiple locations	1%
The need to justify time and productivity to employer	1%
Loss of snowballing ideas and learning from others questions	1%
Limits the type of employment and industry in which working from home is possible	1%
Not having an appropriately set up home office	1%
Out-of-pocket expenses prior to reimbursement	1%
Not sure / Don't know	2%
Other	9%

Q32. Can you think of any potential disadvantages to you working from home?
Base: Part-time workers (n=419)

Other responses included:

- Blurred starting and finishing times of work;
- Mistakes may occur more frequently if no one to run work past in person / less feedback;
- Lack of trust from wider team;
- Lack of support;
- More time indoors on the computer, less time outside / being mobile;
- OH&S is harder to control and monitor;
- Routine would become monotonous each day.

Reasons for not wanting to telework

The main reasons for not wanting to telework, provided by part-time workers was that they preferred social interaction, or a job requiring physical or outdoor work (16%), followed by a concern about distractions at home compromising productivity (13%).

Table 13 **Reasons for not wanting to telework**

The table shows the reasons provided by part-time workers in opposition of telework for not wanting to telework.

	Part-time workers (n=419)
Prefer social interaction / physical job / outdoors	16%
Distractions / unproductive	13%
Not interested / no need to work	9%
No skills/training in work that could be done on a computer	9%
Current job doesn't enable working from home	9%
Lack of computer literacy	8%
Don't believe NBN will be available in area / won't make a difference	4%
No computer / internet connection	2%
Disability barriers/Carer barriers/Availability/health issues	1%
Loss of income support benefits	0%
Not sure / Don't know	5%
Other	5%

Q41. You said you would not take up an employment opportunity to work from home after the rollout of the NBN. Why is that?
Base: Part-time workers who do not want to telework (n=118)

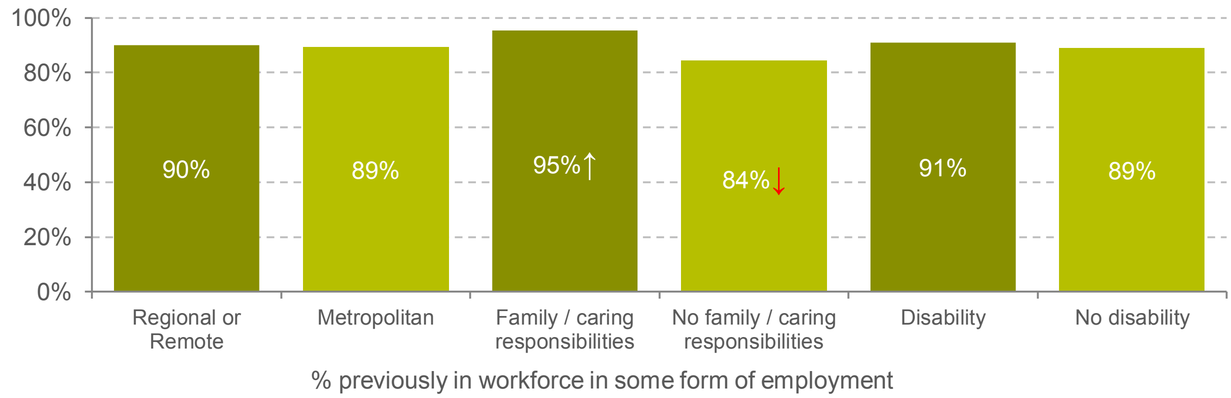
Not in the labour force

Employment background

The vast majority of those not in the labour force had previous experience in the paid workforce. Statistically significantly more people with family or caring responsibilities had prior work experience (95%) compared with their counterparts (84%).

Figure 26 Previous experience in the labour force, by subgroup

The figure shows proportions of people who have previously been in the paid labour force.

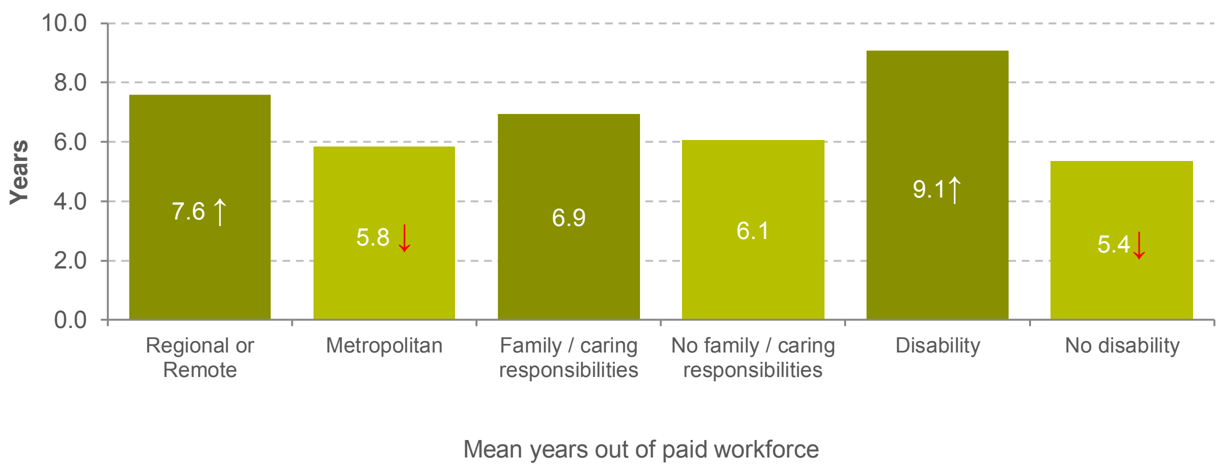


Q17. Have you previously been in the workforce in some form of paid employment?
Q6A. Do you have any limitation, restriction or impairment which restricts your everyday activities and has lasted or is likely to last for at least six months?
Base: Not in the labour force (n=1,025; non-responses excluded) Note: Arrows indicate statistically significant differences.

People in regional or remote areas and people with a disability had been out of the labour force for statistically significantly longer (7.6 years and 9.1 years, respectively) compared to their counterparts in metropolitan areas and people without a disability (5.8 years and 5.4 years, respectively).

Figure 27 Average length of time (years) out of the paid labour force, by subgroup

The figure shows the average number of years people not in the labour force have been out of the labour force.



Q19. How long have you been out of the paid workforce for?
Base: Not in the labour force (n=1,025) Note: Arrows indicate statistically significant differences.

The key reasons behind not being in the labour force given by people located regionally or remotely were caring for children (29%), and home duties (28%), followed by having a disability or handicap (20%). For families and those with caring responsibilities, not surprisingly, the reasons for not being in the labour force were caring for children (61%), home duties (34%), and caring for an ill or disabled person (19%). For people with a disability, the main reasons they were not in the labour force were due to the disability itself (48%), home duties (21%), and/or caring for children (15%).

Table 14 Lifestyle instead of being in the paid labour force

The table presents the key reasons for not being in the paid labour force.

	Regionally / remotely located (n=409)	Family / caring commitments (n=550)	Disability (n=365)
Caring for children	29%	61%	15%
Home duties	28%	34%	21%
Own disability or handicap	20%	9%	48%
Attending an educational institution	13%	6%	7%
Looking after ill or disabled person	10%	19%	9%
Working in unpaid voluntary job	7%	4%	6%
Retired or voluntarily inactive	6%	3%	5%
Own illness or injury	3%	2%	10%
Other benefit / allowance	3%	2%	3%
None / Nothing	3%	0%	1%
Travel, holiday or leisure activity	2%	2%	1%
Other	10%	5%	6%

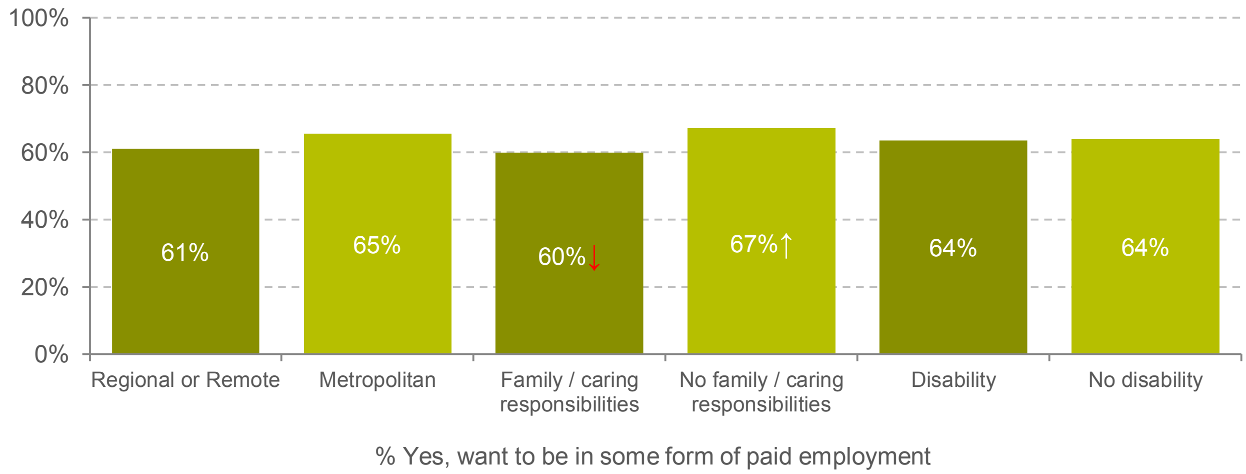
Q18. What do you do instead of paid employment?
Base: Not in the labour force (n=1,114)

Desire to be in paid labour force

Between 61% and 64% of the three targeted subgroups of those not in the labour force indicated that they wanted to be in some form of paid employment. A statistically significantly lower proportion of people with family and caring responsibilities reported wanting to be in paid employment (60%), compared with their counterparts (67%).

Figure 28 **Desire to be in paid employment**

The figure shows the proportions of those not in the labour force who want to be in some form of paid work.



Q20. Do you want to be in some form of paid employment?
Base: Not in the labour force (n=1,114)

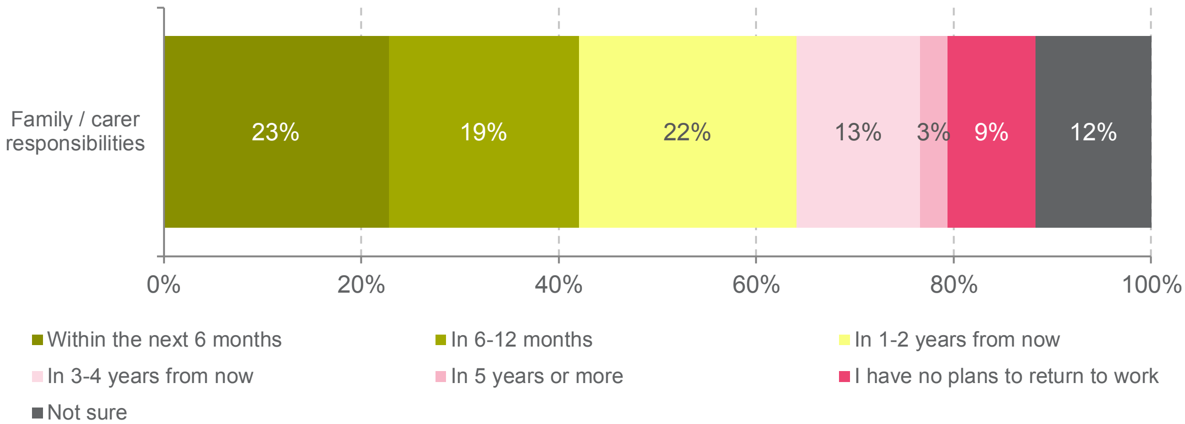
Return to work plans – family / carers

People not in the labour force who had previously been in paid employment and were carers or had family responsibilities and who had a desire to be in paid employment were asked when they were planning to return to work. Overall, 89% had plans to return to the labour force. Forty-five per cent indicated this would likely be within the next 12 months (26% reported within the next 6 months). A quarter of these respondents indicated they did not have any plans to return to the labour force (9%), and 12% were unsure.

Of those who indicated they would return to the labour force in the next 12 months, the mean number of years out of the labour force was 4.3 years. For those who were planning to return to the labour force in more than 12 months, the mean number of years they had been out of the labour force was 5.7 years. Those who had no plans to return to the labour force had been out of the labour force for 10.9 years, and those unsure for 8.1 years.

Figure 29 **Timeframe planned to return to work – family / caring responsibilities**

The figure shows timing intentions for returning to the workforce, of people not in the labour force who had previously been in paid employment and were carers or had family responsibilities (with a desire to be in paid employment).

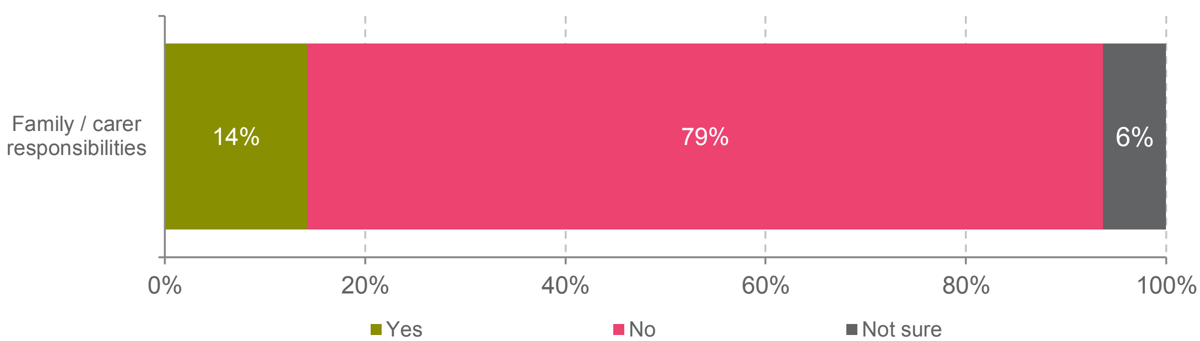


Q21. Do you have plans to return to work?
Base: Not in the labour force who are carers or have family responsibilities but have been previously employed and have a desire to be in paid employment (n=310)

They were also asked if they would seek employment with their most recent employer. This question was asked in order to understand if there may be scope for previous employers to retain staff who take carers leave by offering them telework opportunities. Only 14% of this subgroup who reported a desire to be in paid employment reported they would return to employment with their most recent employer.

Figure 30 **Loyalty to most recent employer – family / caring responsibilities**

The figure shows the intentions to return to work with the most recent employer, of people not in the labour force who had previously been in paid employment and were carers or had family responsibilities (with a desire to be in paid employment).



Q22. Do you intend to seek employment with your most recent employer?
Base: Not in the labour force who are carers or have family responsibilities but have been previously employed and have a desire to be in paid employment (n=310)

Barriers and enablers to entering the labour force

The key barriers to entering the labour force for regionally and remotely located respondents were their own ill health or disability (33%), followed by caring for children (25%). For people with family and caring commitments, the most common barrier unsurprisingly was caring for children (55%), and for those with a disability, their own ill health or disability was an inhibitor to being in the paid labour force (71%).

Table 15 Barriers to entering the labour force

The table presents the key barriers to entering the labour force.

	Regionally / remotely located (n=409)	Family / caring commitments (n=550)	Disability (n=365)
Own ill health, physical disability	33%	18%	71%
Caring for children	25%	55%	9%
Ill health of other than self	10%	16%	9%
Considered too young or too old by employers	8%	4%	4%
Lack of the necessary schooling, training, skills or experience	6%	4%	4%
Attending an educational institution	6%	3%	0%
None / Nothing	6%	3%	1%
No jobs in locality or line of work	6%	2%	3%
Other family considerations	4%	6%	4%
No jobs in suitable hours	2%	4%	0%
No jobs at all	2%	1%	2%
Believes ill health or disability discourages employers	2%	1%	4%
Other personal reasons	2%	1%	3%
Don’t want / need to work	2%	1%	0%
Pregnancy	1%	1%	0%
Receiving a benefit, allowance or pension that makes working unviable	1%	1%	1%
No car or transport / cannot drive	1%	1%	1%

Cost of childcare	0%	3%	0%
Other	9%	5%	6%

Q23. What are the main barriers to you being in the paid workforce?
Base: Not in the labour force (n=1,114)

The key barriers to entering the labour force for people who indicated they did not want to take up a telework employment opportunity were the same as for each group in the sample: own health or physical disability (29%), and caring for children (20%).

Table 16 **Barriers to entering the labour force, for those who would not take up telework**

The table shows the key barriers to entering the labour force for people who indicated they did not want to take up a telework employment opportunity.

	No, would not take up a telework employment opportunity / Not sure (n=351)
Own ill health, physical disability	29%
Caring for children	20%
Attending an educational institution	9%
Ill health of other than self	8%
None / Nothing	7%
Considered too young or too old by employers	6%
Don’t want / need to work	6%
Lack of the necessary schooling, training, skills or experience	4%
Other family considerations	3%
Other personal reasons	3%
No jobs in locality or line of work	2%
Cost of childcare	2%
Believes ill health or disability discourages employers	1%
No car or transport / cannot drive	1%
No jobs in suitable hours	1%

Receiving a benefit, allowance or pension that makes working unviable	1%
No jobs at all	1%
Language or cultural difficulties	1%
Pregnancy	1%
Other	11%

Q23. What are the main barriers to you being in the paid workforce?
Q33. If this improved technology opened up opportunities for you to work flexible hours within the working week from home using a computer, would you take up such an employment opportunity?
Base: Not in the labour force (n=1,114)

Participants were then asked what would enable them to re-enter or enter the labour force. The most common enabling factor for people located regionally or remotely, and those with family or caring commitments was availability and cost of childcare (7% and 16%, respectively). The key enabling factor for people with a disability to re-enter the labour force was appropriate requirements in place to deal with their disability in the workplace (15%).

Table 17 **Enablers to entering the labour force**

The table shows the factors that would enable those not in the labour force back into the labour force.

	Regionally / remotely located (n=409)	Family / caring commitments (n=550)	Disability (n=365)
If childcare was available / not a prohibitive cost	7%	16%	2%
Flexibility regarding the hours worked	7%	11%	6%
If training / re-skilling was an option on/off the job	7%	5%	3%
If office was closer to home / home closer to the office	6%	5%	6%
If the appropriate requirements were in place to assist me deal with my disability in the workplace	6%	3%	15%
If I had a role suited to my skills, experience or qualifications	4%	5%	5%
Finishing concurrent studies	4%	2%	2%
Understanding employer / changed attitude of employer	3%	1%	1%
If I had a job in the industry of my choice	2%	1%	4%
If I didn't have to travel to work	1%	2%	3%

Working from home	1%	2%	2%
Other	36%	35%	36%

Q24. Would any factors enable you to enter the paid workforce?
Base: Not in the labour force (n=1,114)

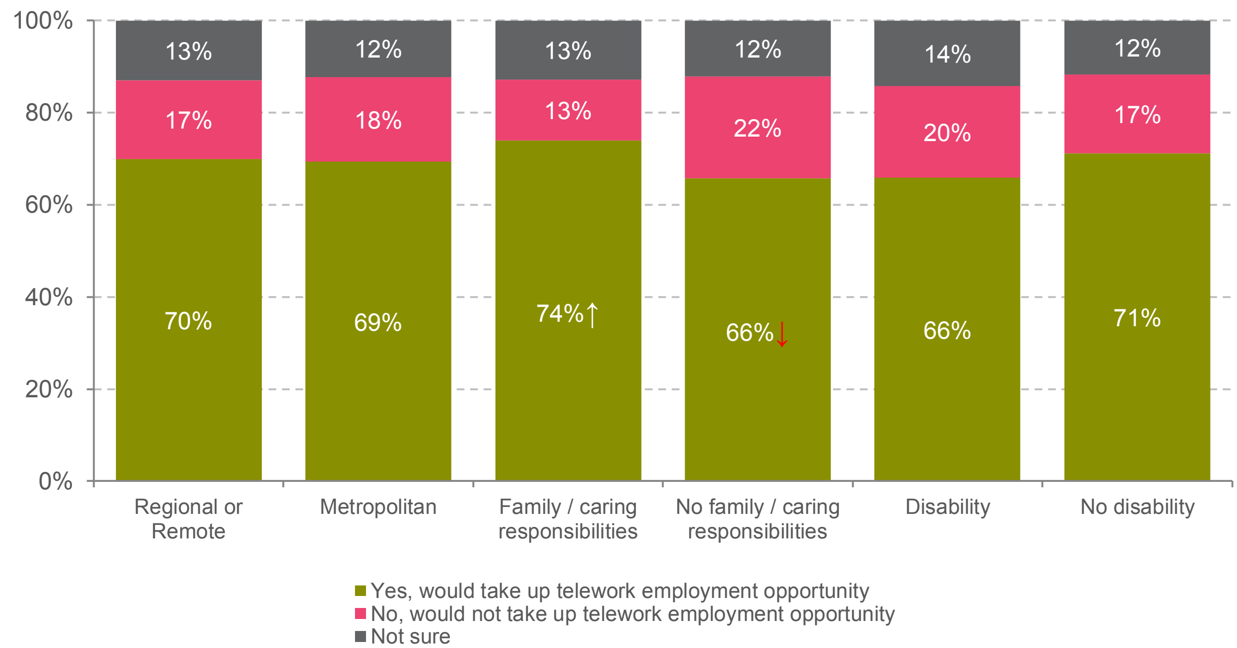
Likelihood of telework uptake

The likelihood of telework uptake was between 66% (people with a disability) and 74% (people with family or caring responsibilities) for the key targeted subgroups of those not in the labour force. A statistically significantly greater proportion of people with family and caring responsibilities indicated they would take up a telework employment opportunity if one was available (74%) compared to their counterparts with no caring or family responsibilities (66%).

Of those living in regional or remote locations who indicated they would take up telework, the largest proportions had experience or skills in retail (11%), and the accommodation, cafes and restaurants industry (11%). Of people with family and caring commitments who would take up a telework role, the largest proportions had skills or experience applicable to the retail industry (17%) and the health and community services sector (12%). Of people with a disability who would take up telework, their skills and experience were also in retail (15%), and the health and community services sector (11%).

Figure 31 Perceived likelihood of taking up telework if available, by subgroup

The figure shows the likelihood of telework uptake for those not in the labour force.



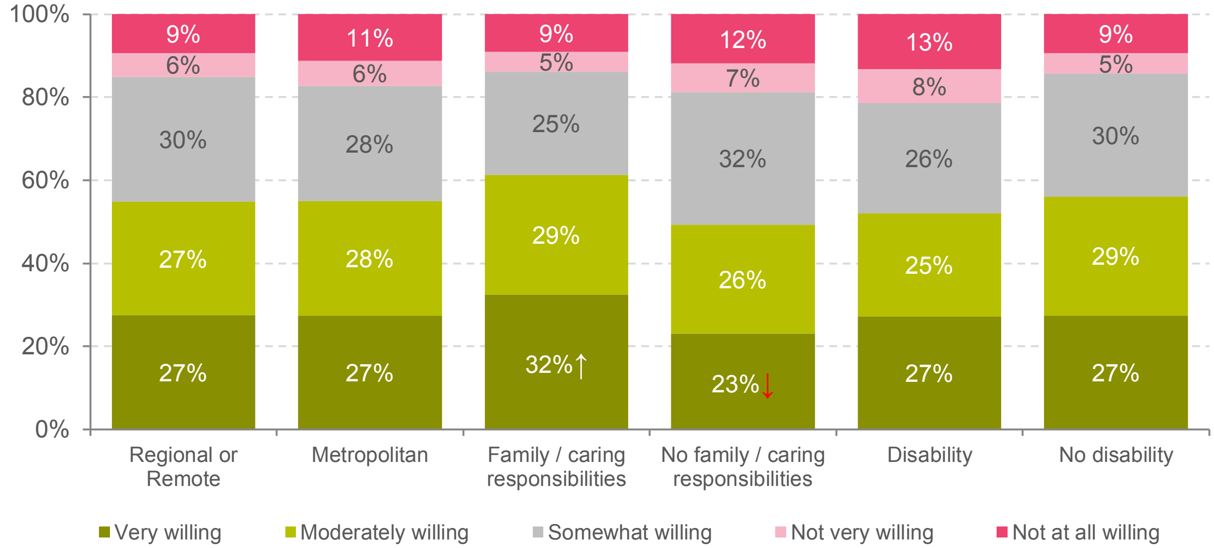
Q33. If this improved technology opened up opportunities for you to work flexible hours within the working week from home using a computer, would you take up such an employment opportunity?
Base: Not in the labour force (n=1,114)
Note: Arrows indicate statistically significant differences

Willingness to change industry or occupation for telework

Just over 50% of each subpopulation indicated they would be willing to consider a telework role in an occupation or industry different to that of their skills, qualifications and/or experience. A statistically significantly higher proportion of people with family and caring responsibilities were very willing to do this (32%), compared to people without family and caring responsibilities (23%).

Figure 32 **Willingness to change industry for an available telework role, by subgroup**

The figure shows willingness of those not in the labour force to consider a telework role in an occupation or industry different to that of their skills, qualifications and/or experience.



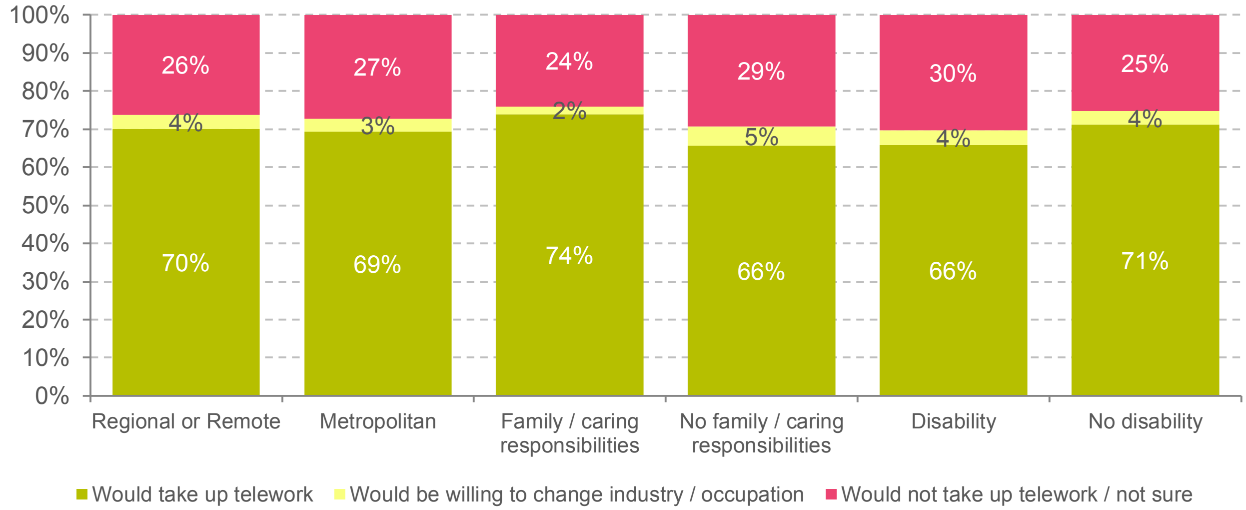
Q38. On a scale of 0-10 where 0 is not at all willing and 10 is very willing, how willing would you be to consider a role working from home in an occupation or industry different to that of your experience or skills / qualifications?
Base: Not in the labour force (n=1,114)
Note: Arrows indicate statistically significant difference

Future telework intentions

When looking at future telework intentions, the figure below demonstrates that of the targeted subgroups of respondents not in the labour force, between 66 and 74% would take up telework, and an additional 2-4% would be willing to change industry to accept a telework role if available. Overall, 74% of people residing in regional or remote areas, 76% of people with family or caring responsibilities, and 70% of people with a disability would take up a telework role in the same or different industry they have skills or experience in.

Figure 33 **Future telework intentions**

The figure shows telework intentions of people not in the labour force.



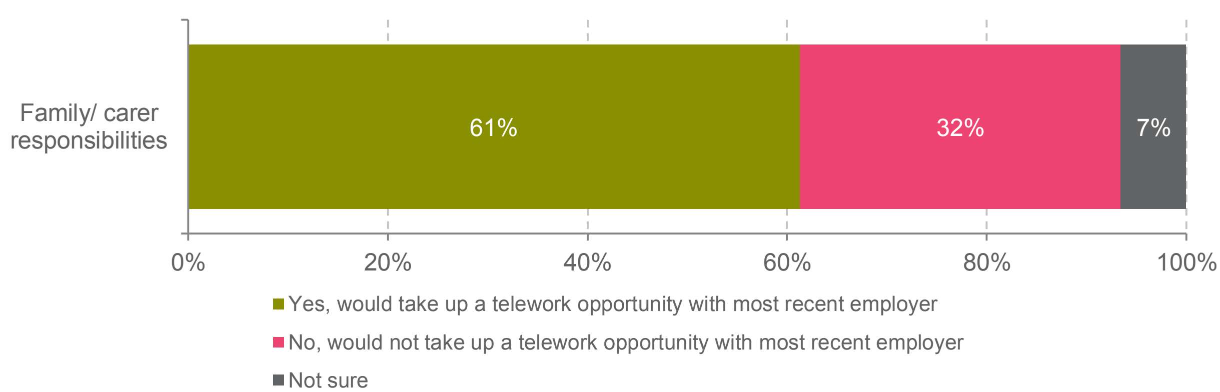
Q33. If this improved technology opened up opportunities for you to work flexible hours within the working week from home using a computer, would you take up such an employment opportunity?
Q38. On a scale of 0-10 where 0 is not at all willing and 10 is very willing, how willing would you be to consider a role working from home in an occupation or industry different to that of your experience or skills / qualifications?
Base: Not in the labour force (n=1,114)

Return to work with telework – family / carers

Overall, 61% of people not in the labour force who had caring or family responsibilities and had been employed previously indicated that they would take up an employment opportunity with their more recent employer if telework was available. This is a statistically significantly larger proportion than those who reported that they would seek employment with their most recent employer (no reference to telework: 14%).

Figure 34 **Loyalty to most recent employer if telework role was available – family and caring responsibilities**

The figure shows intentions to take up an employment opportunity with their more recent employer if telework was available, of people not in the labour force who had caring or family responsibilities and had been employed previously.

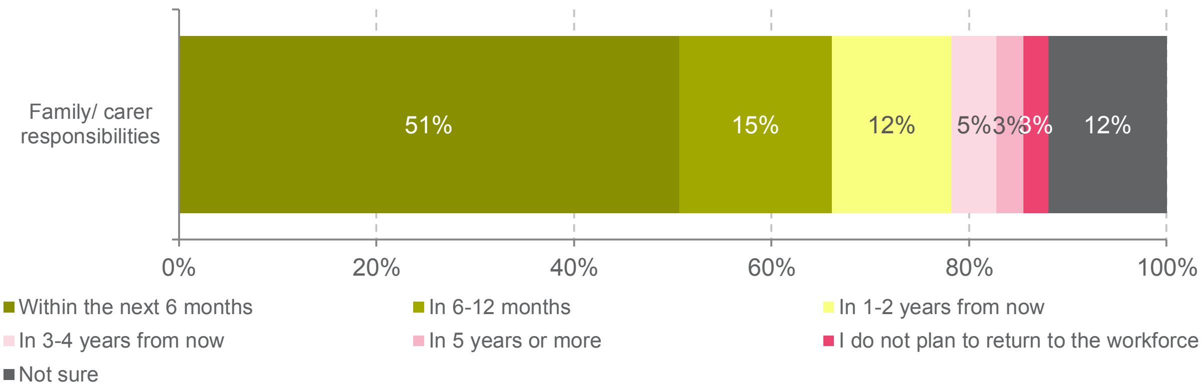


Q34. If your most recent employer enabled you to work from home to do your role, would you take up such an employment opportunity?
Base: Not in the labour force (and who are carers or have family responsibilities) who have been employed previously (n=404)

In terms of returning to work, 66% of people not in the labour force who had caring or family responsibilities and had been employed previously indicated they would return to work within the next 12 months. This is a statistically significantly larger proportion of people who indicated they would return to work within 12 months (without mention of a telework opportunity: 42%).

Figure 35 **Estimated timeframe of taking up a telework role with previous employer**

The figure shows timing intentions to return to work for people not in the labour force who had caring or family responsibilities and had been employed previously.



Q35. When would you be likely to take up such a role if offered to you by your previous employer?
Base: Not in the labour force (and who are carers or have family responsibilities) who have been employed previously, and would be loyal to previous employer (n=322)

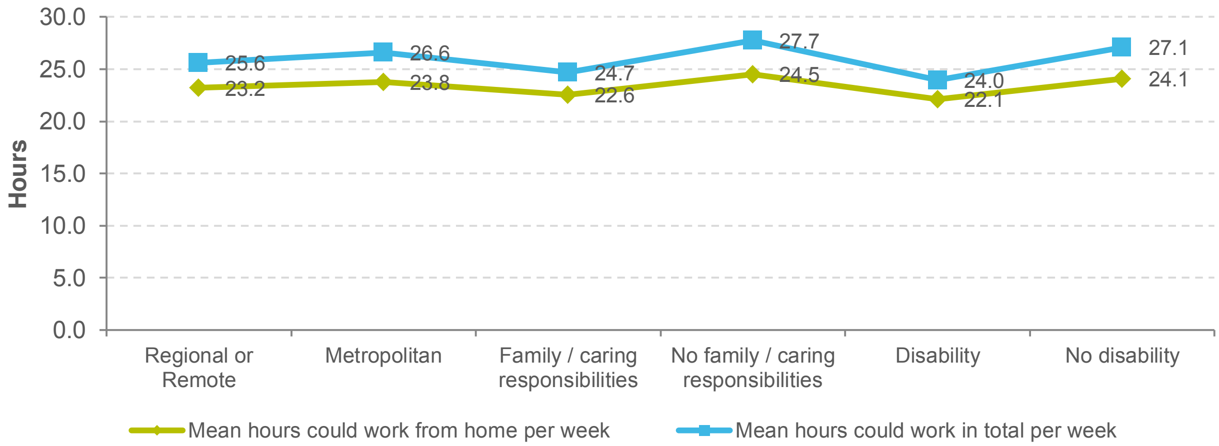
Telework preferences

The figure below shows the preferences of respondents in the subpopulations of interest of those not in the labour force, in terms of projected working hours per week, from home and in total. All respondents indicated they would prefer to work some hours of the week from the office (between 1.8 and 3.2 hours on average per week) with each subgroup of interest indicating they would prefer to work the majority of their week from home (between 22.1 and 23.2 hours per week from home).

Of the three subgroups of interest, the subgroup that indicated they could work the most hours per week (25.6 hours in total; 23.2 hours from home) were people located regionally or remotely, followed by people with family and caring responsibilities (24.7 hours in total; 22.6 hours from home). People with a disability reported being able to work the fewest number of hours per week (24.0 hours in total; 22.1 hours from home).

Figure 36 **Estimated hours worked per week if telework was available, by subgroup**

The figure shows the preferences of respondents not in the labour force, in terms of projected working hours per week, from home and in total.

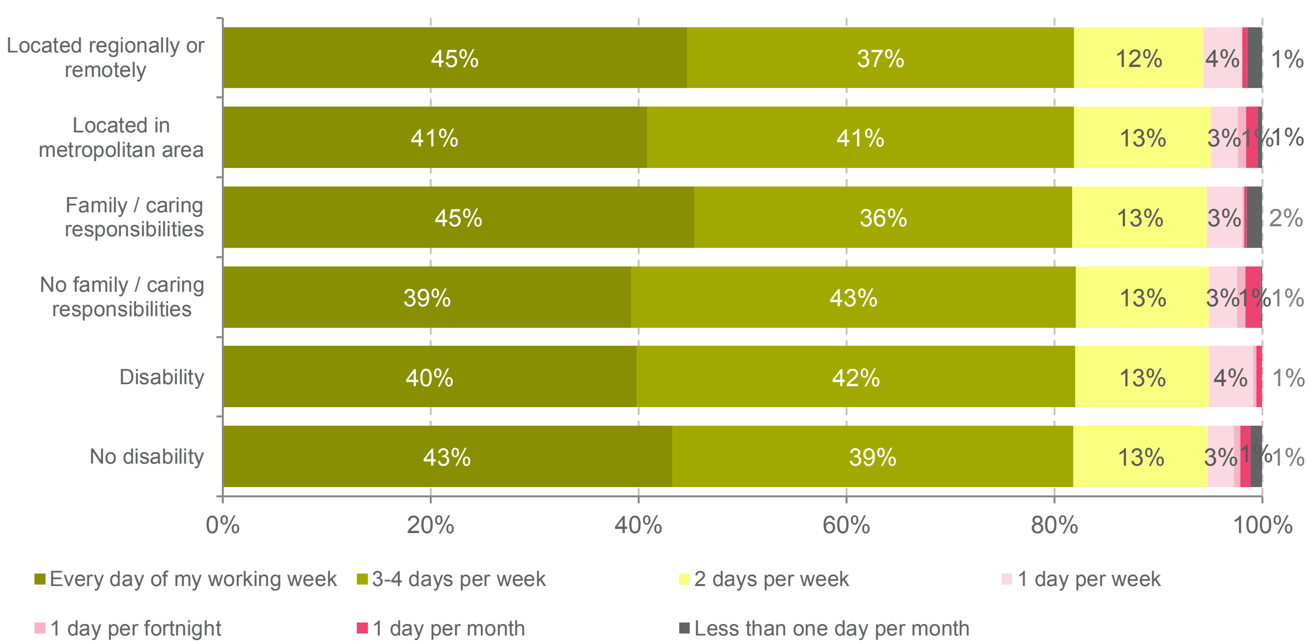


Q39. If such home-based work was available to you, how many hours per week (on average) would you be able to work in total per week? … from home per week?
Q33. If this improved technology opened up opportunities for you to work flexible hours within the working week from home using a computer, would you take up such an employment opportunity?
Base: Not in the labour force who would telework or be willing to change industry to telework (n=772; non-responses excluded)

In terms of regularity of telework, the majority of each subgroup indicated a preference for either 3-4 days per week from home, or every day of the working week from home (82% regional/remote; 81% family/caring commitments; 82% disability).

Figure 37 **Preferences for telework regularity**

The figure shows preferences for regularity of working from home for those not in the labour force.



Q40. How regularly would you prefer to work from home or work remotely?
Base: Not in the labour force who would telework or be willing to change industry to telework (n=856)

Benefits and disadvantages of telework

The key perceived benefits of telework to employees across all subpopulations of interest were flexible hours, and the ability to continue caring responsibilities while working.

Table 18 Perceived benefits of telework to the employee

The table shows the key perceived benefits of telework to employees, for those not in the labour force.

	Regionally / remotely located (n=409)	Family / caring commitments (n=550)	Disability (n=365)
Flexible hours	28%	30%	25%
Ability to continue caring responsibilities while working	27%	50%	19%
Flexible environment	13%	12%	15%
Minimised travel time to and from the office	12%	15%	14%
Minimised travel costs	8%	8%	9%
Financial benefits (less expenses / more income)	7%	7%	8%
None / No benefits	7%	5%	7%
Flexibility to take breaks on own schedule	5%	5%	6%
Increased motivation and productivity	5%	4%	4%
Self-management / autonomy / control / independence / freedom	3%	2%	3%
Don’t want to work from home / can’t work from home / not applicable	3%	1%	3%
Work life balance (spend more time with family/children)	2%	4%	1%
Convenience	2%	2%	1%
Less stress / more relaxed	1%	1%	2%
No traffic causing unscheduled lateness to work	1%	1%	2%
Minimises risk of getting exposed to sickness in the office	0%	0%	1%
Not sure / Don’t know	9%	8%	11%
Other	19%	11%	24%

Q30. What do you believe could be the potential benefits of working from home to YOU as an employee?
Base: Not in the labour force (n=1,114)

Other responses included:

- Access to a better computer / networking system / better internet;
- Better facilities for disability at home;
- A good step for my industry;
- Would enable disabled people to be in the labour force and less reliant on the pension;
- Keep mind occupied, in place of not being in the labour force;
- Wouldn't have to pay for uniform;
- Less office politics;
- Increased confidence and self-esteem getting back into the labour force;
- Healthier lifestyle;
- An advantage for those who are socially challenged;
- Employer would assist with home office costs;
- More financial security if enabled to get back into the workforce via working from home.

The key perceived benefit of telework to the employer, perceived by each targeted subpopulation was lower office overheads.

Table 19 Perceived benefits of telework to the employer

The table shows the key perceived benefits of telework to the employer, for those not in the labour force.

	Regionally / remotely located (n=409)	Family / caring commitments (n=550)	Disability (n=365)
Lower office overheads - therefore able to employ more staff, e.g. Smaller physical premises, less electricity	16%	18%	17%
None / no benefits	12%	8%	9%
More recruitment opportunities: allowing access to more workers currently unable to work	6%	7%	6%
Employees who are carers still being productive	5%	9%	3%
Flexible hours / longer work hours of employees	4%	5%	3%
More productive / efficient employees	4%	5%	7%
Less travel time / travel expenses	3%	4%	3%
Increased loyalty and retention	3%	4%	3%
Happier employees / less employee stress	2%	5%	3%
Less employee sick days	2%	2%	4%

Quicker distribution of information (i.e. everyone is at a computer)	0%	1%	0%
Not sure / Don't know	30%	26%	28%
Other	18%	13%	17%

Q31. What do you believe could be the potential benefits of working from home to employers?
Base: Not in the labour force (n=1,114)

Other responses included:

> Ability to employ more young mothers who currently care for their children instead of working;
> More autonomy for employees and less supervision for employers;
> Able to accommodate people with a disability;
> Reduced late arrivals to work;
> Employer doesn't have to worry about work cover insurance;
> Cheaper labour – employee packages could cost less due to benefit offered of working from home;
> Avoid need for office OH&S effort and costs;
> Have multiple employees covering one position at different times;
> Can over-resource certain work / jobs more cost effectively;
> Ability to access and recruit highly specialised staff;
> Increased employee reliability as all would "turn up" to work.

The key disadvantages of telework mentioned by each of the subpopulations of interest included increased distractions working at home, followed by a loss of social interaction.

Table 20 Perceived disadvantages of telework

The table shows the key perceived disadvantages of telework, for those not in the labour force.

	Regionally / remotely located (n=409)	Family / caring commitments (n=550)	Disability (n=365)
Increased distractions / interruptions at home leading to a decrease in productivity	18%	24%	13%
Loss of social interaction / the need to still have some degree of interpersonal interaction	15%	19%	17%
Inability to separate work life and family / personal life	4%	5%	1%
Lack of motivation / become lazy / become unhealthy / unproductive	4%	4%	4%
Difficulties with communication	4%	3%	3%
None / no disadvantages	1%	1%	1%
Difficulties maintaining skills due to working in	1%	1%	1%

isolation			
Work extra hours	1%	1%	0%
Limits in the type of work that can be done remotely	1%	1%	0%
Issues such as power failures and IT issues across multiple locations	1%	1%	0%
Lack of a cohesive team	1%	0%	2%
Internet access / computer issues	1%	0%	1%
The need to justify time and productivity to employer	0%	1%	1%
More costs incurred at home for electricity, heating, cooling etc.	0%	1%	1%
Lack of supervision	0%	0%	1%
Additional work in separating personal from business use of resources (such as two internet accounts etc.)	0%	0%	1%
Other	9%	9%	11%

Q32. Can you think of any potential disadvantages to you working from home?
Base: Not in the labour force (n=1,114)

Other responses included:

- Too easy to overcommit or under-commit;
- Can't go out when you want to – accountability issues;
- Lack of trust from wider team. One untrustworthy person could ruin it for all;
- Lack of support;
- Disability precludes use of computer for long periods of time;
- Miss out on processes and what may be happening in the company / office / office politics;
- May not have access to appropriate tools / equipment;
- Difficulty communicating if over phone / video – different to face to face;
- Employers may be liable if employee gets hurt while working from home;
- Complicated tax implications of having home office;
- Salaries may be reduced;
- Reduced access to training.

Reasons for not wanting to telework

The key reasons for not wanting to telework across all groups were health and disability issues or caring commitments. This was followed by a lack of computer literacy or skills/training that could be done on a computer, and no need or interest in being in the paid labour force.

Table 21 **Reasons for not wanting to telework**

The table shows the key reasons for not wanting to telework, for those not in the labour force.

	Regionally / remotely located (n=124)	Family / caring commitments (n=148)	Disability (n=123)
Disability barriers / Carer barriers / Availability / health issues	28%	22%	46%
Lack of computer literacy / No skills/training in work that could be done on a computer	21%	20%	37%
Not interested / no need to work	18%	17%	3%
Prefer social interaction / physical job / outdoors	9%	4%	1%
Don't believe NBN will be available in area / won't make a difference	5%	3%	4%
No computer / internet connection	4%	2%	7%
Current job doesn't enable working from home	2%	4%	3%
Prefer not want to work from home / distractions / unproductive	2%	3%	1%
Loss of income support benefits	0%	1%	1%
Other	16%	26%	20%
Not sure / Don't know	7%	4%	3%

Q41. You said you would not take up an employment opportunity to work from home after the rollout of the NBN. Why is that?
Base: Not in the labour force, not wanting to telework (n=351)

Additional telework information required

The main request by all respondents (mature workers, part-time workers, and those not in the labour force) was additional information about the effect of telework on salaries and superannuation, followed by the type of work enabling telework and opportunities available.

Table 22 **Additional information required about telework**

The table shows the main information requests from all participants in the survey.

	Mature workers (n=400)	Part-time workers (n=419)	Not in the labour force (n=1,114)
The wages / salary / superannuation	14%	15%	14%
The type of work available / opportunities available / availability of telework	9%	10%	15%
Not interested / no desire to telework / retired	8%	7%	4%
The job role / description / offer / what is required	8%	12%	12%
Details about the NBN and internet (availability / reliability / speed / costs)	7%	9%	3%
Work conditions (e.g. hours, flexibility, holidays, sick leave)	6%	12%	9%
Set-up requirements and costs/insurance	4%	6%	6%
Details about what is involved / how it works (general)	3%	3%	4%
Job security / reliability / consistency of work	3%	2%	1%
Examples of people it is working for / benefits available versus the costs	3%	1%	1%
Training available / education	2%	3%	6%
Skills or qualifications required / have the skills to perform the job	2%	1%	4%
Details about the company / employer, employer expectations	2%	2%	3%
Support (e.g. technical, administration, mentoring)	1%	2%	2%
Its legitimate / not a scam	0%	1%	1%
Other	14%	8%	12%
Don't know	10%	15%	14%
None / nothing	24%	20%	19%

Q46. What further information do you need to decide if you would take up this kind of employment opportunity?
Base: All respondents (N=1,933)

3.3 Sample profile

Table 23 Gender

	Mature workers (n=400)	Part-time workers (n=419)	Not in the labour force (n=1,114)
Males	61%	28%	37%
Females	39%	72%	63%

Base: All respondents (N=1,933)

Table 24 Family / caring commitments

	Mature workers (n=400)	Part-time workers (n=419)	Not in the labour force (n=1,114)
Yes, have family commitments that limit participation in the workforce	7%	42%	47%
No, do not have family commitments that limit participation in the workforce	93%	58%	53%

Q5. Do you have family commitments or caring commitments that limit your participation in the workforce?
Base: All respondents (N=1,933)

Table 25 Disability

	Mature workers (n=400)	Part-time workers (n=419)	Not in the labour force (n=1,114)
Disability (overall)	**6%**	**13%**	**30%**
Profound disability	0%	1%	3%
Severe disability	1%	2%	10%
Moderate disability	3%	6%	11%
Mild disability	1%	5%	6%
No disability	**94%**	**87%**	**70%**

Q6A. Do you have any limitation, restriction or impairment which restricts your everyday activities and has lasted or is likely to last for at least six months?
Q6B. Would you classify your limitation as profound, severe, moderate, or mild? i.e. restriction or impairment which restricts your everyday activities and has lasted or is likely to last for at least six months?
Base: All respondents (N=1,933)

Table 26 Disability affecting workforce participation

	Not in the labour force: 15-64 yrs, not in labour force (n=1,114)	People with a disability (Not in the labour force) (n=365)
Disability limits workforce participation	28%	93%
Disability does not limit workforce participation	2%	7%
No disability	70%	--

Q6C. Does your disability limit your ability to participate in the workforce?
Base: Not in the labour force: Those not in the labour force (n=1,114)

Table 27 Location

	Mature workers (n=400)	Part-time workers (n=419)	Not in the labour force (n=1,114)
Sydney	24%	18%	19%
NSW other	8%	10%	11%
Melbourne	10%	16%	16%
VIC other	4%	6%	5%
Brisbane	17%	13%	12%
QLD other	7%	6%	7%
Adelaide	3%	4%	5%
SA other	1%	2%	2%
Perth	9%	7%	6%
WA other	4%	3%	3%
Darwin	3%	2%	2%
NT other	2%	1%	0%
Hobart	2%	4%	3%
TAS other	1%	4%	3%
Canberra	4%	4%	4%

ACT other	1%	1%	0%

Q4. What is the postcode of where you live?
Base: All respondents (N=1,933)

Table 28 Industry

	Mature workers (n=400)	Part-time workers (n=419)	Not in the labour force (n=1,114)
Agriculture, forestry, fishing and hunting	6%	2%	4%
Mining	3%	1%	1%
Manufacturing	11%	3%	5%
Electricity, gas and water supply	2%	1%	0%
Construction	7%	4%	5%
Wholesale trade	1%	0%	1%
Retail trade	6%	20%	14%
Accommodation, cafes and restaurants	5%	9%	10%
Transport and storage	6%	2%	3%
Communications services	5%	6%	6%
Finance and insurance	4%	3%	6%
Government administration and defence	12%	5%	5%
Education	13%	14%	7%
Health and community services	11%	20%	10%
Cultural and recreational services	1%	2%	1%
Personal and other services	3%	5%	7%
Other	3%	2%	7%
Not applicable / Haven't ever been in the labour force	-	-	9%

Q7a. Which best describes the industry or business of your current employer?
Q7b. Which best describes the industry you have skills, qualifications or experience in?
Base: All respondents (N=1,933)

Table 29 **Position**

	Mature workers (n=400)	Part-time workers (n=419)	Not in the labour force (n=1,114)
Manager	34%	7%	12%
Professional	26%	24%	14%
Clerical or administrative worker	13%	22%	17%
Technician or trades worker	12%	10%	7%
Community or personal service worker	4%	13%	13%
Sales worker	4%	17%	11%
Machinery operator or driver	4%	2%	4%
Other	3%	1%	3%
Labourer	2%	5%	8%
Not applicable / Haven't ever been in the labour force	-	-	10%

Q8a. How would you best describe your current position in the workforce?
Q8b. How would you best describe the position in the workforce that would most suit your skills, experience and qualifications?
Base: All respondents (N=1,933)

4. Economic modelling: Labour force impacts of telework and the NBN

Telework will make fundamental changes to work practices in the Australian economy. While there could be significant impacts across the labour market, it will especially affect key groups as parents, and mature workers seeking greater work flexibility. While new technology will be part of these changes, research suggests employer attitudes is a significant factor affecting the timing of changes from telework.

Deloitte Access Economics has used the quantitative survey data (above) to analyse labour force changes from telework and the economic impacts. Because it is difficult to be precise about the changes, we have taken a conservative approach. We also recognise that is difficult to isolate the role of the National Broadband Network (NBN) in driving change and have taken into account its rollout in our approach.

Telework will boost employment and increase national income and welfare. While we estimate part of these changes, the total impact will be greater than what is presented here.

By raising labour force participation, telework will play a role in addressing one of the key challenges facing the Australian labour market and economy in coming decades – namely, the decline in labour force participation that will result from population ageing. Because of this, telework policy as not just something of interest to businesses and individuals, but is also an important new dimension to economic policy for policy makers.

4.1 Approach

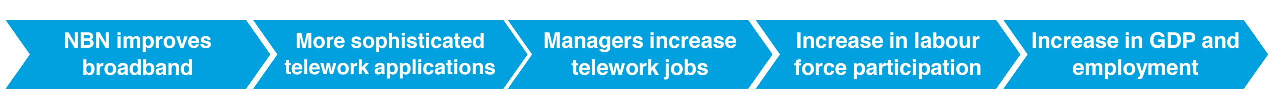
While there are many potential economic impacts of telework, we focus here on the impacts on labour force participation, and how that impacts other economic outcomes such as gross domestic product and employment.

The analysis in this section does not analyse the possible impacts of telework on other economic outcomes. Previous studies have shown that telework can impact labour productivity, and can impact overall business productivity if telework impacts other business costs such as occupancy costs or information and communications technology equipment costs. Further, the travel time savings for teleworkers or the reduced carbon emissions from transport avoided are also not estimated here. The productivity, travel time, and environmental benefits of telework are in addition to those outlined in this Chapter. For further information, see Access Economics (2010a). Conversely, some reports have found negative employer perceptions of impacts on productivity (see Deloitte Access Economics 2011 for details of other studies).

The link between the NBN and economic outcomes via labour force participation requires several logical steps. By increasing broadband speed, capabilities and reach, the NBN will allow more sophisticated telework applications. As managers increase telework opportunities, there will be an increase in labour supply, which will add to GDP and employment.

Figure 38 NBN and labour force participation

This figure shows the links between the NBN rollout and the economic outcomes via labour force participation.



This matter was briefly covered in a previous Access Economics report (2010a), which hypothesized that if 10% of 340,000 adult Australians out of the workforce for reasons partially related to telework were to

work 15 hours per week it would increase labour supply by 0.1% and wages by $380 million. This section provides more detailed analysis of this subject.

Finally, we note that our analysis here is confined to the macroeconomic impacts of the labour force participation benefits of the NBN and telework. We do not estimate the reduced income support benefits from people obtaining employment and the associated social and community benefits of higher levels of participation in the labour force. We do not estimate the impacts on the efficiency labour market supply or impacts on infrastructure throughout Australia. Finally, we do not estimate the business or government costs of telework arrangements and it is not a cost benefit analysis.

4.2 Some background

It has long been recognised that telework may permit more people to enter employment by working from their homes (Visser 2008). As outlined in a Deloitte Access Economics (2011) Next Generation Telework: A Literature Review, some particular groups in society that may have greater potential to be involved in the workforce under telework are:

> People with a disability – most individuals with a disability are quite capable of performing the responsibilities of a job; however, may face accessibility issues with office buildings and transport (Baard 2010, Georgetown Law 2010).

> Those who are providing care for others, including mothers of young children, may have difficulties working full-time hours in an office (Bourke 2011).

> Some individuals who live in regional or remote areas have poor job prospects because of where they live, but for various reasons they may not have the ability to relocate to a larger population centre where their job prospects may be greater. Telework would enable these individuals to work for organisations based in major cities without needing to relocate (Baard 2010).

This scope for telework to allow individuals to participate in the workforce fits in with the assessment in the UN (2011) report that broadband is an economic equaliser which reduces many forms of economic disadvantage when adopted.

Another important context for understanding the role of telework is population ageing. Over the longer term, the ageing of the population is projected to lead to falling total participation rates over the next 40 years. This will have impacts on economic growth and national welfare. The Intergenerational Report 2010 estimates these impacts. By raising labour force participation, telework will play a role in addressing one of the key challenges facing the Australian labour market and economy in coming decades.

4.3 Telework

According to the National Digital Economy Strategy, DBCDE (2012), telework "is broadly defined to include work undertaken at home, use of mobile devices in transit or at a different place of business (telecentres)."

For the purposes of the economic modelling, we are mainly interested in telework that involves work from home (rather than mobile or telecentre work) and uses information and communications technology – because that is the telework that will be most enabled by the NBN.

Other telework statistics and research define telework arrangements with reference to their frequency – such as working from home mostly, one day a week or other time period. The analysis in this chapter, by contrast, does not depend on telework arrangements being of a particular frequency: so long as the arrangements impacts on labour force participation, how they subsequently split their time between the office and home does not impact our results.

4.4 NBN, broadband speeds and applications

The NBN will increase broadband speeds across Australia. It will also enhance other capabilities such as increasing the potential volume of traffic, reducing latency and providing greater symmetry in connections. Along with broadband speed, these other features of the NBN will allow for the development and deployment of more sophisticated telework applications. These innovations are expected to gather momentum through the rollout as businesses discover more productive ways to do their business. Like any process of innovation, changing employment arrangements because of the NBN will involve investments, testing different arrangements and learning across and within businesses.

Whereas telework might have previously relied on telephones and email, future telework will increasingly allow for video conferencing and virtual collaboration tools. There will be greater capacity for transferring large graphics and audiovisual files. It is expected that as telework becomes a higher quality experience for employees and employers, there will be an increase in telework over time. This will occur through both push and pull factors – employers may encourage more telework to achieve the business and productivity benefits it offers; employees will demand more telework for the personal convenience benefits it offers.

The analysis here does not rely on a major change in attitudes to telework, simply that the NBN and better quality telework applications will see the gradual shift over time towards the doubling of telework opportunities in Australia, similar to what is already achieved in some other developed economies. In the US, for example, 11% of employees telework at least one day a month, while eight EU countries report that more than 10% of workers were involved in telework 'a quarter of the time or more' in 2005. It also does not rely on assumptions about the mechanisms of the labour force.

4.5 Telework opportunities

There is no single robust estimate of existing telework arrangement in Australia. ABS Time Use Survey data from 2006 suggested only 6% of employees had a telework arrangement.

Data from the 2009 Household, Income and Labour Dynamics in Australia (HILDA) Survey paints a more complicated picture: while 18% of employees do some work from home each week, only 6% have an arrangement with their employer, and the majority (when self-employed are included) work eight or fewer hours from home each week. This suggests most telework is informal and is done to complete work not done at the office.

Another comparative statistic is provided by the Locations of Work report by the ABS (2009a). It found that of the 764,700 employees who only or mainly worked at home, 599,100 (around 5.9% of people who worked at the time) used information technology to undertake this work from home.

The Government's telework target is to have at least doubled telework by 2020. A 12% telework level will involve 1.5 million teleworkers in Australia's economy by 2020, by which time the total number of employees in the labour market is forecast to grow to almost 13 million. In other words, there will be almost one million extra telework opportunities compared with Australia's level a few years ago.

Table 30 Telework opportunities over time

The table shows the projected increase in telework opportunities over time.

	2006	2020	Change
Telework (no)	599,100	1,545,805	946,705
Labour force (no)	10,101,800	12,881,712	
Telework Rate (%)	6%	12%	

Source: ABS (2009a), Deloitte Access Economics (2012) Employment Forecasts, and DBCDE (2011)

Research suggests that these telework opportunities will not be evenly spread across the economy. For example, a recent survey of Australian businesses (Access Economics, 2010b) revealed that 21% believed the NBN would change their employment model by facilitating increased flexibility in the location of staff and expanding the supply of skilled labour. A further 27% said change was possible but they had considered it. Almost 50% were unsure or thought it unlikely. For employees in those businesses, telework opportunities might not arise for a range of reasons.

There will also be impacts by occupation and industry. According to the ABS (2009a) Locations of Work report, most employees (79%) who mainly work from home and use ICT are managers (30%), professionals (27%), or clerical and administration workers (22%). There are smaller shares of teleworkers in the other occupations: technicians and trades workers, community and personal service workers, sales workers, machinery operators and drivers, and labourers.

We take both of these factors – flexibility of employers and the occupational spread of telework opportunities – into account in our analysis.

4.6 Telework and labour force participation

We begin with the observation that most additional telework opportunities will go to those already employed. Individual and business benefits of telework will be the driver for these arrangements. The most prepared demographic group to take advantage of these opportunities are those who are already participating in the labour force. It is likely that as attitudes change, new technology from the NBN will see more Australians telework.

There will be some labour force impacts of these opportunities:

- for mature workers, the increased flexibility of telework may prompt some to delay retirement, which will increase labour force participation; and
- for part-time workers, the increased flexibility of telework may prompt some to increase their hours of work, which will increase labour force participation.

However, some telework opportunities will go to people currently outside the labour force, as the increased flexibility of telework draws them into employment. Obvious examples of people where not having to be physically present in the office would be beneficial include parents caring for children, disabled people, and people outside the major metropolitan centres. For these groups it may take more preparatory time to take telework opportunities; and is likely to require more innovation from employers to take advantage of the future possibilities for this group.

There are several steps to analysing the size of the impacts of telework on each of these labour force groups. This analysis uses ABS data, the results from the survey as part of this research project, and the results of other research. The methodology for each group is explained below.

Mature workers

There are several steps to estimating the labour market impact for the mature worker group:

> We begin with the total population of this group, as measured by the ABS in its Labour Force publication – there are 2.9 million mature workers aged 45-64 years.

  – We identify the share of this population that would be willing to delay retirement as a result of a new telework opportunity.

  – 212 of the 400 respondents (54%) of this project's survey provided a number of years they would be willing to delay retirement if they could access telework.

  – To isolate those who are additional, we remove those (187 of 400 respondents, 47%) who say they already work from home.

> We note that a lower proportion, 16%, report formal telework arrangements, but remove all those who may have arrangements already providing the flexibility needed to delay retirement. This is a conservative approach.

> We quantify the amount of additional participation in the labour market – mature workers say they will delay retirement by 6.6 years on average.

  – Not all mature workers will delay retirement from the first year, 2012-13. Instead, it is assumed that only one 'tranche' – i.e. one twentieth of the total population – will retire in the first year. Therefore, it is not until the seventh year, 2018-19, that the full delayed retirement factor takes effect.

> We convert the labour force impacts into full-time equivalent (FTE) terms. For each person, we take their increases in teleworked hours and divide by the standard working week of 37.5 hours so we have a fraction of a FTE employee. We calculate that the labour supply increase is 45% of FTE equivalent – that is each person delaying retirement works just under half a full-time job, on average.

Part-time workers

There are several steps to estimating the labour market impact for the part-time worker group:

> We begin with the total population of this group, as measured by the ABS in its Labour Force publication – there are 3.2 million part-time workers.

> We identify the share of the population that would be likely to work more hours if they could telework.

  – 301 of 419 respondents (73%) say they would take up a telework opportunity.

  – To isolate those who are additional, we remove the 31% share (132 of 419 respondents) who said they currently undertake some work from home.

  – We note that a lower proportion, 13%, report formal telework arrangements, but remove all those who may have arrangements that may already provide the flexibility needed to extend hours. This is a conservative approach.

 – We take the 6% share of part-time workers who identified extensive travel, the most telework relevant factor, as a current challenge in their employment.

> We calculate the additional hours they would work by subtracting current hours from potential hours if telework, which equals 8.5 additional hours.

> We convert the labour force impacts into full-time equivalent (FTE) terms. For each person, we take their increases in hours and divide by the standard working week of 37.5 hours so we have a fraction of a FTE employee. We calculate that the labour supply increase is 23% of FTE equivalent – that is each person increases their hours by just under a quarter of a full-time job, on average.

Not in the labour force

There are several steps to estimating the labour market impact for people not in the labour force:

> We begin with the total population of this group, as measured by the ABS in its Labour Force publication – there are 3.7 million people outside the labour force of working age.

> We identify the share of the population that would be likely to enter the labour force if they could telework. While there are many ways this could be estimated, we take the most conservative – those who identify working from home as a labour force enabler without prompting. The survey found 1% of respondents said this. We note that there are other barriers to labour force participation that telework could partially address and we explore these later.

> We calculate the average hours per week they are expecting to work, which equals around 21 hours.

> We convert the labour force impacts into full-time equivalent (FTE) terms. For each person, we take their average hours and divide by the standard working week of 37.5 hours so we have a fraction of a FTE employee. We calculate that the labour supply increase is 56% of FTE equivalent – that is each person works just over half a full-time job, on average.

Table 31 Telework and the labour force

The table shows the projected increases in proportions of mature workers, part-time workers, and those not in the labour force for whom telework will increase labour force participation.

	Mature workers	Part-time workers	Not in the labour force
Population size	2,934,280	3,236,790	3,656,714
% for whom telework will increase participation	6%	3%	1%
% of a full-time equivalent position	45%	23%	56%

Source: ABS (2012), project survey, Deloitte Access Economics calculations

<u>High and low scenarios</u>

We develop a high and a low scenario of the impacts on labour force participation based on two factors: occupations of employees and flexibility of employers to change.

- Occupations. Under a high impact scenario, occupations are not a restriction on telework. This is based on three facts: there are already people in every occupational category who telework, innovation will broaden occupational opportunities over time, and the survey found that around half of the people would change occupations to take up telework opportunities. Under a low impact scenario, we take the share of the groups that are in one of the main telework occupations – managers, professionals, clerical and administration. This is 72% for mature workers, 53% for part-time workers and 43% for those not in the labour force (ABS, 2009). This is a proxy for the fact that not all occupations or jobs will be suitable for telework in the initial stages.

- Employer flexibility. Not all those currently in employment will be offered the telework opportunities they seek – according to Access Economics 2010b, 6% say they will definitely change their employment model because of the NBN, 15% say they are likely to, 27% say possibly but haven't considered and 49% say not sure or unlikely. Under our high scenario, we take the 48% in the first three categories; in our low scenario, we only take the 21% who are definitely or likely to change. While there is considerable uncertainty about how businesses will change in the coming decade, this factor makes our results more conservative by acknowledging their will be cultural and organisational resistance to change.

We note that even with these high and low scenarios, our overall approach is still conservative, in particular because it assumes only a small fraction of those outside the labour force will find employment opportunities through telework. This is explored later.

<u>NBN rollout timing</u>

In analysing the impacts over time, we take into account the timing of the rollout of the NBN. We have used the full network – fibre, but also fixed wireless and satellite components – active premises connections projections from NBN Co's Corporate plan. We show the rise in connections as a per centage of the 2020-21 total.

Table 32 NBN Active Connections

The table shows the rise in NBN connections over time, as a per centage of the 2020-21 total.

	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21
Premises: active connections	92	551	1,615	3,181	4,502	5,785	6,901	7,827	8,745
% of premises	1%	6%	18%	36%	51%	66%	79%	90%	100%

Source: NBN Co (2012) Corporate Plan, p.37

We recognise that the growth of telework will not all be attributable to the NBN. This is accounted for by only including the impact of the share of teleworkers equal to the NBN active connections each year. Of course, this is not perfect: on the one hand, this will understate the impacts if telework rates are higher amongst businesses and individuals with NBN connections; on the other hand, it would overstate the impacts if those with NBN connections would have become teleworkers anyway.

An important implication of our approach to look specifically at the impact of the NBN is that our results therefore do not include the labour market impacts of telework growth that occurs outside of the impact of the NBN.

Economic impact

Our high scenario is for the NBN to increase telework and cause a labour market increase of 38,614 adults by 2020-21. It is estimated to have the following impacts:

> National employment being 36,338 higher in FTE terms from 2020-21.

> GDP being $4.7 billion larger in 2020-21 (in 2011-12 dollars) and, using a discount rate of 7%, having a net present value of $12.2 billion in higher GDP between 2012-13 and 2020-21.

Our low scenario is for the NBN to increase telework and cause a labour market increase of 14,082 adults by 2020-21. It is estimated to have the following impacts:

> National employment being 13,392 higher in FTE terms from 2020-21.

> GDP being $1.7 billion larger in 2020-21 (in 2011-12 dollars) and, using a discount rate of 7%, having a net present value of $4.5 billion in higher GDP between 2012-13 and 2020-21.

Table 33 Economic impacts

The table shows the labour force impacts and economic impacts of NBN-enabled telework for a high scenario and a low scenario.

Scenario	Labour force impact (2020-21)	Employment impact (2020-21)	GDP impact (2020-21, 2012$)	GDP impact (NPV 2020-21)
High scenario	38,614	36,388	$4.7 bn	$12.2 bn
Low scenario	14,082	13,392	$1.7 bn	$4.5 bn

Source: Access Economics (2010b)

The midpoint of these estimates is for the NBN to increase telework and create 25,040 FTE jobs by 2020-21, and a GDP that is $3.2 billion higher in 2020-21 and $8.3 billion in net present value for the period 2012-13 to 2020-21.

We note that the NBN is expected to create 16,000 to 18,000 construction jobs at the peak of the NBN rollout (around 13,000 in FTE terms). The results in this report suggest that through telework, the NBN will create twice many jobs – on an ongoing basis – by increasing the labour force. This is a significant result.

The previous Access Economics (2010a) report on the impacts of telework found that if 10% of people teleworked, the travel time savings would be worth $1.3 billion, and that the (gross) real estate office savings could be worth $210 million to $690 million. This report has some differences – because the impacts accrue over time, is based on general equilibrium modelling, and has a different approach to estimating the telework level. But as a broad comparison, the results in this report suggest that through increasing participation, the impact of telework on GDP will be larger than the office savings or travel time savings for individuals and businesses.

Further information on the Deloitte Access Economics Regional General Equilibrium Model (DAE-RGEM) is provided in the appendix.

Impacts on groups and future change

We conclude with a discussion about the impacts on different groups and how telework might change the labour market over time.

For the purposes of the economic results presented above, we have relied on the survey results and have not completed detailed assessments for each cohort's ability to return to work. Potential hours of work are likely to differ between those with different caring responsibilities or with different levels of disability. However, we can make general estimates of how cohorts will be affected, based on population shares of those not in the labour force (ABS 2009a, 2009b, and 2012). Our midpoint of the estimated increase in employment was 25,040, which implies that:

> Telework will increase regional employment by 10,554 in FTE terms by 2020-21;

> Telework will increase employment for those with family commitments by up to 5,416 in FTE terms by 2020-21; and

> Telework will increase employment for those with a disability – it could be between 3,230 and 14,868 in FTE terms by 2020-21, whether all those with a disability, or only those with a mild or moderate disability are included.

It is difficult to accurately predict how telework will ultimately change the labour market and to what extent. Our assessment has been conservative, to try and isolate the reliable increase in labour supply from telework from the NBN. We recognise that the impacts could be greater and we finish with some discussion of the considerations here.

First, consider the overall potential for change. According to the survey for this project, around two-thirds of those not in the labour force have a desire for paid employment. That represents millions of people who have an at least stated desire to change.

Second, consider how telework could enable labour force participation. While our economic analysis above only considered working from home as an enabler to entering the labour force, there are clearly other enablers partially related to telework. According to the survey:

> 9% of those living regionally identified office closer to home, having a job in industry of choice, or not having to travel as enablers to work;

> 11% of those with family/caring commitments identified flexible hours of work as an enabler to work;

> 9% of those with a disability identified flexible hours of work or not having to travel as enablers to work.

Adding the average of these figures to the 1% who identified working from home as an enabler, the overall proportion potentially enabled by telework could be 11%.

This is only a general estimate because there are also people outside the labour force not in one of the three groups of interest in the survey. There is also overlap between the groups. Nevertheless, it points to a potential pool of telework enabled participants of over 400,000, a figure consistent with the previous Access Economics report (2010a) that was based on 340,000 adults out of the (then smaller) workforce for reasons partially related to telework. Of course, not all these people will obtain employment because of other factors such as lack of skills or because employers do not offer opportunities, but it does suggest that in the longer term, there is a significant pool of potential employees for the Australian economy.

A third factor to consider is that these three sub-groups outside the labour force are different, especially in their non-work experience. While around 90% of those surveyed had previously been in the labour force, the timing is different between groups. Whereas many of those with a disability could be out of the labour

force indefinitely, for many with family commitments, it is a temporary situation. For around two-thirds of the family commitments group, they have plans to return to work in the next two years.

Fourth, we note that overall, each of three groups in the survey is likely to experience greater than average difficulty moving into the labour force – as evidenced by the years out of work. On average, those in regional areas are more likely to be out for longer (7.6 years compared with 5.9 years for those in metropolitan areas). On average, those with no family commitments or caring responsibilities are likely to be out for longer (6.9 years compared with 6.1 years for those without those responsibilities). On average, those with a disability are more likely to be out for longer (9.1 years compared with 5.4 years for those with no disability).

While the timing and process of change is difficult to forecast, there is obviously significant long-term potential for change from telework. Telework will be one of the biggest structural changes to the labour market this decade. It could change the nature of work habits on a scale similar to other big changes like the computerisation of work, or big demographic changes like population ageing. For most employees and businesses, the immediate challenge will be to invest in changes that have significant but imprecise benefits.

5. Appendix A: References

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6. Appendix B: Qualitative research discussion guides

DISCUSSION GUIDE – EMPLOYERS

90 minutes

Introduction (5 mins)

Today we're talking about ideas to lower barriers to workforce participation, currently and in future.

- Seeking open and honest responses, no right or wrong answers
- Respect each member of the group's opinions
- Confidentiality and anonymity statements
- Privacy principles
- Housekeeping – food and drink, bathrooms, mobile phones

1. I'd like to go around the table and for everyone to introduce yourselves and tell the group a little bit about your organisation…

Employment challenges (5 mins)

2. How do we feel about our organisation's employment situation?
   a. Do we have sufficient numbers of employees?
   b. Do we have sufficient expertise amongst our current employees?
   c. What are some of the challenges you faced recruiting and retaining employees?

3. How easy or difficult is it in general to *attract and recruit* suitable employees for your organisation?

Receptiveness to working from home (15 mins)

4. How do we feel about working from home?
   a. For ourselves?
   b. For our employees?

5. Do you currently allow any employees to work from home?

   IF YES:

   a. On what basis? *Ask for descriptions of allowances – hours, days, flexibility, levels of employees*

   IF NO:

   a. Is working from home something we would consider in the future? How come?

6. What is required from an *employer's* point of view in order for an employee to work from home?

   a. What do you / what would you require in order for you to allow a permanent arrangement for a staff member to work from home regularly (say once or more per week)?

   b. How about suitability of occupations? Which occupations are the most suited to working from home?
   c. How about suitability of industry? Which industries are the most suited to employees working from home?

7. What do you require from an *employee's* point of view in order for them to work from home?
   a. For example, Internet (any particular speed?), Phone? Location (e.g. Home office?), Suited to any particular industry or employment type? Employers' support? Employee competence? Trust?

Perceived benefits of working from home (10 mins) **– USE WHITEBOARD**

8. What are the potential benefits of employees working from home **for us as employers**?
   a. How come?

9. What are some of the potential benefits **to our employees** of working from home?
   a. How come?

10. Who else / what **other groups** would benefit from working from home?
    a. Which types of employers would not benefit? How come?
    b. Which types of employees would not benefit? How come?

Perceived disadvantages of working from home (10 mins) **– USE WHITEBOARD**

11. What are the potential disadvantages of employees working from home **for us as employers**?
    a. How come?

12. What are some of the potential disadvantages **to our employees**?
    a. How come?

Drivers and barriers to working from home (10 mins)

13. What are some of the barriers to our employees working from home?
    a. Internal workplace barriers (e.g. type of work)?
    b. External barriers (e.g. home office, access to technology)?
    c. Employer barriers (e.g. trust)?
    d. Personal employee barriers (e.g. self-efficacy, confidence, motivation)?

14. What sorts of systems / structures are required in order for us to be comfortable for our employees to work from home where it might be beneficial?
    a. What could a policy look like that we would be happy with as an employer? i.e. Which employees – at what levels? What level of flexibility?

Impact of working from home on workforce participation (20 mins)

15. **[Show video: Green building council of Australia for Sydney and Adelaide]**

16. Do we think that affording employees the ability to work from home may potentially *increase* participation of some part-time or casual employees in the labour force?
    a. How come? In what ways?

17. Do we think that allowing work from home may encourage stay at home parents or carers to return to work (sooner)?
    a. How come?
    b. Is this a good thing?
    c. Are there any risks?
    d. Is this something we've considered? Is this something we may consider?

18. Do we think that it may be feasible to recruit suitable employees from regional or remote locations who can work remotely and not relocate?
    a. How come?
    b. Is this a good thing?
    c. Are there any risks?
    d. Is this something we've considered? Is this something we may consider?

19. Do we think that it may be feasible to recruit suitable employees who may have a disability that limits their workforce participation (e.g. limited travel to work, time at workplace), if they were enabled to work from home?
    a. How come?
    b. Is this a good thing?
    c. Are there any risks?
    d. Is this something we've considered? Is this something we may consider?

20. Do we think that offering working from home may have the potential to *extend* participation of some of our employees in the labour force, by delaying retirement? How come?
    a. How come?
    b. Is this a good thing?
    c. Are there any risks?
    d. Is this something we've considered? Is this something we may consider?

21. Do we feel that working from home is going to increase in future?
    a. How come?

    IF YES:

    b. Is this likely to be demand driven (i.e. employees requesting it)?
    c. Or is this likely to be a retention and attraction initiative offered by employers?

22. Will you consider allowing more people to work from home if the NBN increases capabilities to work from home?

In-group exercise (5-10 mins)

23. [**Hand out self-complete** relating to working from home policies and current permissions, by industry and employment position.]

Awareness and perceptions of NBN (5-10 mins)

24. What do we know about the National Broadband Network?
25. Who do we think the NBN is for?
26. What do we feel are the main purposes of the NBN?
27. **[Show video – Viocorp COO for Larger employers in Sydney; Ashgrove Cheese in Adelaide]**
28. What are the benefits (or potential benefits) to business and industry of the NBN? How come?
29. Do we believe that the rollout of the NBN will lead to increased working from home?
30. Is there any more information we feel we may need about the NBN or working from home?
31. Any final comments?

Thank you and close

DRAFT DISCUSSION GUIDE – EMPLOYEES

90 minutes

Introduction (5 mins)

Today we're talking about ideas to lower barriers to workforce participation, currently and in future.

- Seeking open and honest responses, no right or wrong answers
- Respect each member of the group's opinions
- Confidentiality and anonymity statements
- Privacy principles
- Housekeeping – food and drink, bathrooms, mobile phones

1. I'd like to go around the table and for everyone to introduce yourselves and tell the group a little bit about you…

Employment challenges (20 mins)

Disability group, carer group, and regional group *(exercise sensitivity)*:

2. How many of us are undertaking some sort of paid employment?

IF IN PAID EMPLOYMENT:

3. How do we feel about our employment situation?
4. Do we want to be working more? Less?
5. How do we feel about our positions in the workplace?
   a. How come?
6. How easy or difficult was it to find employment?
7. What are some of the challenges you faced finding employment?
8. What are some of the challenges you face in your current role?
9. Would you like to be working more, less or the same number of hours per week? How come?
10. How satisfied are we with our jobs? How come?

IF NOT IN PAID EMPLOYMENT:

11. What do we do instead of paid employment?
12. Would we like to be doing some form of paid employment?

   If NOT WANTING TO BE IN PAID EMPLOYMENT:

   b. How come?

   IF WANTING TO BE IN PAID EMPLOYMENT:

   c. Full-time, part-time or casual?
   d. What stops us from being in the paid workforce?
   e. What would enable us to get back into the paid workforce?

Nearing retirement group:

13. How long have we been in the workforce?
14. What are some of the different roles and occupations we've had?
15. What are some of the challenges you face in your current role?
16. Would you like to be working more, less or the same number of hours per week? How come?
17. How satisfied are we with our jobs? How come?
18. How many of us have started thinking about retirement?
19. How long until we think we will retire?
20. Do we want to leave the workforce entirely or just cut back?
21. Do we think we would work longer if we could get right mix of work and life? How come?

Introduction to working from home (5 mins)

22. How do we feel about working from home?
23. Do any of us currently do this?
24. What is required in order to work from home?

    Probes:

    a. Internet (any particular speed?)
    b. Phone?
    c. Location (e.g. Home office?)
    d. Suited to any particular industry or employment type?
    e. What about employers' support?

Perceived benefits of working from home (15 mins) **– USE WHITEBOARD**

25. What are the potential benefits of working from home **for us** as individuals? How come?
26. In what ways do we think working from home could overcome our employment challenges we talked about earlier?

    Moderator to probe extensively for all groups

27. Do we feel that working from home could be a good thing for us as individuals? How come?

28. What do we think are some of the potential benefits **to employers** of their employees working from home? How come?

29. What other groups of people could potentially benefit from working from home? In what ways? How come?

30. What are some of the barriers to us working from home?

31. What sorts of systems / structures are required in order for us to work from home where it might be beneficial?

How working from home could increase participation in the workforce (20 minutes)

32. **[Show video: Online innovations for Coffs Harbour; Green building council of Australia for Sydney and Adelaide]**

33. Would working from home allow us to participate in a *different way* in the workforce?
    a. How could our working lives potentially differ?
        i. Longer / different hours? Longer contracts?
        ii. More days / different days per week?

34. Would working from home increase our connection to our employer or to the workforce?
    a. Could this have an impact on our loyalty and work ethic, if offered by our employer?

35. Do we think that having the ability to work from home could potentially *increase* participation in the workforce?
    a. How come?
    b. In what ways?
    c. Can we think of some examples?

36. Could working from home have the potential to increase working hours for part-time and casual workers?

37. Do we think that having the ability to work from home could *lengthen* our participation in the labour force?
    a. How come?
    b. In what ways?
    c. Can we think of some examples?

Moderator to probe specifically for each group.

Perceived disadvantages of working from home (5 mins) **– USE WHITEBOARD**

38. What are the potential disadvantages of working from home **for us**? How come?

39. What are some of the potential disadvantages **to our employers**? How come?

In-group exercise (5-10 mins)

40. [**Hand out self-complete** relating to desire to work from home and current permission to work from home, by industry and employment position.]

Awareness of NBN (5 mins)

41. What do we know about the National Broadband Network?
42. Who do we think the NBN is for?
43. What do we feel are the main purposes of the NBN?

Perceived benefits of the NBN (5-10 mins)

44. **[Show NBN video – family NBN benefits]**
45. In general, what are some of the benefits of the NBN to the wider community? How come?
46. What are the benefits (or potential benefits) to us individually of the NBN?
47. Is there any more information we feel we may need about the NBN or working from home?
48. Any final comments?

Thank you and close

7. Appendix C: Quantitative research questionnaire

INTRODUCTION

Good afternoon/evening. My name is (interviewer) calling on behalf of the Australian Government. Today we're talking about *how the National Broadband Network may change the way Australians work*.

May I ask you a few questions?

IF they want more info on the survey:

The Department of Broadband, Communications and the Digital Economy is interested in finding out the degree to which participation in the labour force would be increased as the rollout of the NBN to enables more Australians to work from home.

SCREENER QUESTIONS

First let me check that you are one of the people we need to speak to.

Q1 AGE RANGE
Q1. Which one of the following age groups do you fall into? **READ OUT (SR)**

01	Under 15 years	TERMINATE
02	15-24	SKIP TO Q2A
03	25-34	SKIP TO Q2A
04	35-44	SKIP TO Q2A
05	45-54	SKIP TO Q2B
06	55-64	SKIP TO Q2B
07	65 years or older	TERMINATE
99	I prefer not to answer	TERMINATE

Q2a. EMPLOYMENTSTATUS 1
Q2a. What is your current employment status? **READ OUT (SR)**

01	Employed, working full-time (more than 35 hours a week)	TERMINATE
02	Employed, working part-time or casual (less than 35 hours a week)	CONTINUE – ALLOCATE TO PART-TIME WORKERS
03	Unemployed Have you applied for a job with an employer in the last month? IF YES – TERMINATE IF NO – ALLOCATE TO NOT IN THE LABOUR FORCE	
04	Student	GO TO Q2A1
05	Not in the labour force, and not looking for work	CONTINUE – ALLOCATE TO NOT IN THE LABOUR FORCE
06	Retired	GO TO Q2A1
07	Stay at home mum/dad or carer	CONTINUE – ALLOCATE TO NOT IN THE LABOUR FORCE

96	Other – please specify:	GO TO Q2A1
99	I prefer not to answer	TERMINATE

ASK IF 4,6 OR 96 AT Q2a
Q2a1. CLARIFY WORK STATUS
Q2a1. Are you engaging in any paid employment, full-time, part-time or casually? **DO NOT READ OUT (SR)**

01	Yes, full-time	TERMINATE
02	Yes, part-time or casually	CONTINUE – ALLOCATE TO PART-TIME WORKERS
03	No, not currently in the labour force	TERMINATE IF 4 OR 6 AT Q2A (OK IF 96 AT Q2A)

Q2b. EMPLOYMENTSTATUS 2
Q2b. What is your current employment status? **READ OUT (SR)**

01	Employed, working full-time (more than 35 hours a week)	CONTINUE – ALLOCATE TO MATURE WORKERS
02	Employed, working part-time or casual (less than 35 hours a week)	CONTINUE – ALLOCATE TO PART-TIME WORKERS
03	Unemployed Have you applied for a job with an employer in the last month? IF YES – TERMINATE IF NO – ALLOCATE TO NOT IN THE LABOUR FORCE	
04	Student	GO TO Q2B1
05	Not in the labour force, and not looking for work	CONTINUE – ALLOCATE TO NOT IN THE LABOUR FORCE
06	Retired	GO TO Q2B1
07	Stay at home mum/dad or carer	CONTINUE – ALLOCATE TO NOT IN THE LABOUR FORCE
96	Other – please specify	GO TO Q2B1
99	I prefer not to answer	TERMINATE

ASK IF 4,6 OR 96 AT Q2b
Q2b1. CLARIFY WORK STATUS
Q2b1. Are you working in any paid employment, full-time, part-time or casually? **DO NOT READ OUT (SR)**

01	Yes, full-time	CONTINUE – ALLOCATE TO MATURE WORKERS
02	Yes, part-time or casually	CONTINUE – ALLOCATE TO PART-TIME WORKERS
03	No, not currently in the labour force	TERMINATE IF 4 OR 6 AT Q2B (OK IF 96 AT Q2B)

QUOTA TABLE:

	TARGET	INSTRUCTIONS	TARGET REQUIRED
GROUP 1	45-64 full-time workers	If Q1=5-6 **AND** Q2B=1 (OR Q2B=4 OR 6 AND Q2B1=1) (OR Q2B=96 AND Q2B1=3)	N=400
GROUP 2	15-64 part-time workers	**If Q1=2-6** **AND** (either) Q2A/B=2,4,5,6,96 (AND Q2A1/B1=2)	N=400
GROUP 3	15-64 not in labour force	**If Q1=2-6** **AND** (either) Q2A/B=4,6,7 OR 96 (AND Q2A1/B1=3	N=1200

Q3 Gender
Q3. **DO NOT READ – RECORD**

01	Male
02	Female

CHECK QUOTAS

Q4 POSTCODE
Q4. What is the postcode of where you live? _____ [SR]
NO MORE THAN 4 NUMBERS

DO NOT ASK, QUOTA VARIABLE:
CALCULATED FROM Q4 POSTCODES USING AUSTRALIA POST CLASSIFICATION PROVIDED BY YOUR SOURCE

Code	
1	Sydney
2	NSW other
3	Melbourne
4	VIC other
5	Brisbane
6	QLD other
7	Adelaide
8	SA other
9	Perth
10	WA other
11	Darwin
12	NT other
13	Hobart
14	TAS other
15	Canberra
16	ACT other

DO NOT ASK, QUOTA VARIABLE:
REGION – CALCULATED FROM Q4 POSTCODES USING AUSTRALIA POST CLASSIFICATION PROVIDED BY YOUR SOURCE

Code		Quotas
1	Major Cities of Australia	70%
2	Inner Regional Australia	30%
3	Outer Regional Australia	
4	Remote Australia	
5	Very Remote Australia	
6	Not able to be classified	

DO NOT ASK, QUOTA VARIABLE:
QHIDREGIONQUOTA

Code		Instruction	Quota
1	Metropolitian	REGION = Major cities of Australia	70%
2	Regional or Remote	REGION = Inner Regional Australia or Outer Regional Australia or Remote Australia or Very Remote Australia	30%

Q5 FAMILY/CARER
Q5. Do you have family commitments or caring commitments that limit your participation in the workforce?

01	Yes
02	No

CHECK QUOTAS FOR FAMILY / CARERS

Q6A LIMITATION
Q6A. Do you have any limitation, restriction or impairment which restricts your everyday activities and has lasted or is likely to last for at least six months?

01	Yes	**CONTINUE**
02	No	**SKIP TO Q7a FOR GROUPS 1 AND 2** **SKIP TO Q7b FOR NOT IN THE LABOUR FORCE**

Q6B MODERATE OR MILD LIMITATION
Q6B. Would you classify your limitation as profound, severe, moderate, or mild? i.e. restriction or impairment which restricts your everyday activities and has lasted or is likely to last for at least six months? **DO NOT READ OUT (SR)**

01	Profound
02	Severe
03	Moderate
04	Mild

DEFINITIONS – READ OUT TO CLARIFY:
Profound: the person is unable to do, or always needs help or supervision with, a core activity task.

Severe: the person sometimes needs help or supervision with a core activity task; has difficulty understanding or being understood by family and friends; can communicate more easily using sign language or other non-spoken form of communication.

Moderate: the person needs no help or supervision but has difficulty with a core activity task.

Mild: the person needs no help and has no difficulty with any of the core activity tasks, but uses aids and equipment; cannot easily walk 200 metres; cannot walk up and down stairs without a handrail; cannot easily bend and pick up an object from the floor; cannot use public transport; can use public transport, but needs help or supervision; needs no help or supervision but has difficulty using public transport.

Q6C DISABILITY
Q6C. Does your disability limit your ability to participate in the workforce?

01	Yes
02	No

IF 1 AT Q6C, ALLOCATE TO DISABILITY QUOTA
IF 2 AT Q6C, ALLOCATE TO CATEGORY OTHER THAN DISABILITY

CHECK QUOTAS FOR DISABILITY

ASK OF GROUPS 1 & 2

Q7a. INDUSTRY
Q7a. Which *best describes* the industry or business of your current employer? **READ OUT (SR)**

01	Agriculture, forestry, fishing and hunting
02	Mining
03	Manufacturing
04	Electricity, gas and water supply
05	Construction
06	Wholesale trade
07	Retail trade
08	Accommodation, cafes and restaurants
09	Transport and storage
10	Communications services
11	Finance and insurance
12	Government administration and defence
13	Education
14	Health and community services
15	Cultural and recreational services
16	Personal and other services
96	Other, please specify : ____________________

CONTINUE

ASK OF NOT IN THE LABOUR FORCE

Q7b. INDUSTRY
Q7b. Which best describes the industry you have skills, qualifications or experience in? **READ OUT (SR)**

01	Agriculture, forestry, fishing and hunting
02	Mining
03	Manufacturing
04	Electricity, gas and water supply
05	Construction
06	Wholesale trade
07	Retail trade
08	Accommodation, cafes and restaurants
09	Transport and storage
10	Communications services
11	Finance and insurance
12	Government administration and defence
13	Education
14	Health and community services
15	Cultural and recreational services
16	Personal and other services
96	Other, please specify : ____________________
99	Not applicable / haven't ever been in the labour force

CONTINUE

ASK OF GROUPS 1 & 2

Q8a. POSITION
Q8a. How would you best describe your current position in the workforce? **READ OUT (SR)**

01	Manager
02	Professional
03	Technician or trades worker
04	Community or personal service worker
05	Clerical or administrative worker
06	Sales worker
07	Machinery operator or driver
08	Labourer
96	Other – please specify: _________________
99	Not applicable / haven't ever been in the labour force

CONTINUE

ASK OF NOT IN THE LABOUR FORCE

Q8b. POSITION
Q8b. How would you best describe the position in the workforce that would most suit your skills, experience and qualifications? **READ OUT (SR)**

01	Manager
02	Professional
03	Technician or trades worker
04	Community or personal service worker
05	Clerical or administrative worker
06	Sales worker
07	Machinery operator or driver
08	Labourer
96	Other – please specify: _________________

CONTINUE

MAIN BODY OF QUESTIONNAIRE

ASK THIS SECTION OF MATURE WORKERS – NEARING RETIREMENT

Q9. YEARS IN WORKFORCE

Q9. How many years have you been in the workforce? ______ years

READ OUT: FOR THE PURPOSE OF THIS SURVEY, IF WE *THINK ABOUT RETIREMENT AS CEASING ALL PAID EMPLOYMENT IN THE WORKFORCE…*

Q10. RETIREMENT INTENTIONS

Q10. How many years do you think it will be until you retire? **READ OUT (SR)**

01	Under 5 years
02	5-10 years
03	11-15 years
04	16-20 years
05	Over 20 years
06	Not sure
07	Don't anticipate retiring from the workforce / Can't afford to retire from the workforce

Q11. RETIREMENT PLANS

Q11. Which of the following best describes you plans for retirement? **READ OUT (SR)**

01	When I retire I plan to cease all paid work
02	I plan to remain in the workforce in some paid capacity post-retirement, e.g. part-time, casual, ad hoc consultation work
03	Other, specify:
97	Don't know / haven't decided yet

ASK THIS SECTION OF PART-TIME WORKERS – PART-TIME / CASUAL WORKERS

Q12. YEARS IN WORKFORCE

Q12. How many years have you been in the workforce? _______ years

Q13. ACTUAL WORKING HOURS

Q13. How many hours do you work per week? ______ hours

Q14. DESIRED WORKING LEVEL

Q14. In order to support your current lifestyle, would you prefer to be working more, the same, or less hours than what you currently work per week? **READ OUT (SR)**

01	More hours than I currently work per week - HOW MANY HOURS PER WEEK? _________
02	Less hours than I currently work per week - HOW MANY HOURS PER WEEK? _________
03	The same number of hours as what currently work per week

Q15. EASE OF FINDING EMPLOYMENT

Q15. On a scale of 0-10 where 0 is very difficult and 10 is very easy…

	Rating (0-10)
… in general how easy is it for you to find employment in the industry you have skills, qualifications or experience in?	
…how easy was it to find your current employment position?	

Q16. CHALLENGES

Q16. What are some of the challenges you face in your current role? **DO NOT READ OUT (MR)**

01	Want to work more hours, but there are not enough hours available to work
02	Required to work too many hours
03	Lack of flexibility in types of hours worked
04	Difficulty finding employment to suit availability and/or requirements
05	Difficulty negotiating suitable hours
06	Extensive travel to workplace from home
07	Lack of professional development and training in role
08	Role is not in my desired industry / not my desired position
09	Issues with management / supervisor
10	Dislike the type of work
96	Other, specify:

ASK THIS SECTION OF NOT IN THE LABOUR FORCE – NOT IN THE LABOUR FORCE

Q17. PREVIOUSLY IN WORKFORCE

Q17. Have you previously been in the workforce in some form of paid employment? **(SR)**

01	Yes
02	No

Q18. INSTEAD OF WORK

Q18. What do you do instead of paid employment? **DO NOT READ (MR)**

01	Retired or voluntarily inactive
02	Home duties
03	Caring for children
04	Attending an educational institution
05	Own disability or handicap
06	Own illness or injury
07	Looking after ill or disabled person
08	Travel, holiday or leisure activity
09	Working in unpaid voluntary job
96	Other, specify:

ASK IF 1 AT Q17

Q19. TIME SINCE LAST EMPLOYMENT

Q19. How long have you been out of the paid workforce for? ________ months __________ years

Q20. DESIRE TO WORK

Q20. Do you want to be in some form of paid employment? **(SR)**

01	Yes
02	No
03	Not sure

ASK IF 1 AT Q17 AND (2,3,7 AT Q18, OR 7 AT Q2A OR Q2B, OR 1 AT Q5) (ALL CARERS AND THOSE WITH FAMILY RESPONSIBILITIES WITH PREVIOUS EMPLOYMENT)

Q21. RETURN TO WORK

Q21. Do you have plans to return to work? **READ OUT (SR)**

01	Within the next 6 months
02	In 6-12 months
03	In 1-2 years from now
04	In 3-4 years from now
05	In 5 years or more
06	I do not plan to return to the workforce
07	Not sure

ASK IF 1 AT Q17 AND (2,3,7 AT Q18, OR 7 AT Q2A OR Q2B, OR 1 AT Q5) (ALL CARERS AND THOSE WITH FAMILY RESPONSIBILITIES WITH PREVIOUS EMPLOYMENT)

Q22. SAME EMPLOYER

Q22. Do you intend to seek employment with your most recent employer? **(SR)**

01	Yes
02	No
03	Not sure

ASK ALL

Q23. BARRIERS TO PAID WORK – UNPROMPTED

Q23. What are the main barriers to you being in the paid workforce? **DO NOT READ OUT (MR)**

01	Considered too young or too old by employers
02	Lack the necessary schooling, training, skills or experience
03	Language or cultural difficulties
04	No jobs in locality or line of work
05	No jobs at all
06	Believes ill health or disability discourages employers
07	No jobs in suitable hours
08	Own ill health, physical disability
09	Pregnancy
10	Attending an educational institution
11	Other personal reasons
12	Ill health of other than self
13	Caring for children
14	Other family considerations
15	Receiving a benefit, allowance or pension that makes working unviable
96	Other, specify:

Q24. WORKFORCE ENABLERS – PROMPTED

Q24. Would any of the following factors enable you to enter the paid workforce? **DO NOT READ OUT (MR)**

01	If I had flexibility from my employer regarding the hours I work
02	If office was closer to home / home closer to the office
03	If I didn't have to travel to the workforce
04	If I had a role suited to my skills, experience or qualifications
05	If I had a job in the industry of my choice
06	If I could continue to receive the benefits and allowances I currently receive
07	If childcare was not a prohibitive cost
08	If the appropriate requirements were in place to assist me deal with my disability in the workplace
96	Other, specify : ___________________________

ASK OF GROUPS 1 & 2

Q25. CURRENT TELEWORK

Q25. Do you currently conduct any work in your current position from home or remotely (out of the office)? **(SR)**

01	Yes
02	No

Q26. AVAILABILITY OF TELEWORK TO YOU

Q26. Is working from home on a regular basis currently *available* to you as an option? **(SR)**

01	Yes
02	No
03	Not sure

Q27. AVAILABILITY OF TELEWORK TO OTHERS

Q27. Is working from home on a regular basis currently *available* to others in your organisation? **(SR)**

01	Yes
02	No
03	Not sure

IF 1 at Q25 (CURRENTLY TELEWORKS)

Q28. TELEWORK REGULARITY

Q28. How regularly do you work from home or remotely? **DO NOT READ OUT (SR)**

01	Every day of my working week
02	3-4 days per week
03	2 days per week
04	1 day per week
05	1 day per fortnight
06	1 day per month
07	Less than one day per month

IF 1 at Q25 (CURRENTLY TELEWORKS)

Q29. TELEWORK AGREEMENT

Q29. How would you best describe the circumstances under which you work from home or remotely? **READ OUT (SR)**

01	This is an ad hoc arrangement. I don't work from home every week or fortnight, only when I need to.
02	I have a formal arrangement where I work from home on regular basis each week/fortnight

NOTE TO INTERVIEWER: ANY LESS THAN PER FORTNIGHT SEEN AS AD HOC ARRANGEMENT

Perceived benefits of working from home

ASK ALL

Q30. TELEWORK BENEFITS TO EMPLOYEE– UNPROMPTED

Q30. If you had a job that enabled you to work from home, what do you believe could be the potential benefits of working from home to YOU as an employee? **DO NOT READ OUT (MR)**

01	Flexible hours
02	Flexible environment
03	Minimises risk of getting exposed to sickness in the office
04	Minimised travel time to and from the office
05	Minimised travel costs
06	No traffic causing unscheduled lateness to work
07	Flexibility to take breaks on own schedule
08	Ability to continue caring responsibilities while working
09	Increased motivation and productivity
96	Other, specify:

Q31. TELEWORK BENEFITS TO EMPLOYER– UNPROMPTED

Q31. If you had a job that enabled you to work from home, what do you believe could be the potential benefits of working from home to employers? **DO NOT READ OUT (MR)**

01	More recruitment opportunities; allowing access to more workers currently unable to work
02	Lower office overheads – therefore able to employ more staff, e.g. Smaller physical premises, less electricity
03	Lower paper wastage due to increased use of email and online technology
04	Employees who are carers still being productive
05	Increased loyalty and retention
06	Quicker distribution of information (i.e. everyone is at a computer)
07	Increased staff productivity
96	Other, specify:

Q32. TELEWORK BARRIERS – UNPROMPTED

Q32. If you had a job that enabled you to work from home, can you think of any potential disadvantages to you working from home? **DO NOT READ OUT (MR)**

01	Loss of social interaction / the need to still have some degree of interpersonal interaction
02	Increased distractions / interruptions at home leading to a decrease in productivity
03	Issues such as power failures and IT issues across multiple locations
04	Difficulties with communication
05	Difficulties maintaining skills due to working in isolation
06	Loss of snowballing ideas and learning from others questions
07	Limits in the type of work that can be done remotely
08	Limits the type of employment and industry in which working from home is possible
09	Out-of-pocket expenses prior to reimbursement
10	Greater problems replacing or sourcing replacement consumables (toner, paper etc.)
11	More costs incurred at home for electricity, heating, cooling etc.
12	Not having an appropriately set up home office
13	Additional work in separating personal from business use of resources (such as two internet accounts etc.)

14	The need to justify time and productivity to employer
15	Lack of a cohesive team
96	Other, specify: _________
97	Don't know / cannot think of any disadvantages

How working from home could increase participation in the workforce

ASK OF GROUPS 2 AND 3 – PART-TIME WORKERS AND NOT IN LABOUR FORCE

READ OUT TO ALL
The National Broadband Network (NBN) is planned to deliver reliable, high-speed broadband to all Australian premises, giving more employees and employers the confidence to engage in working away from the office and remotely. The NBN will make it easier to share files, collaborate and take part in high-definition video conferencing. The cost for accessing these services is anticipated to remain around the same as current rates for internet.

Q33. TELEWORK UPTAKE 1
Q33. If this improved technology opened up opportunities for you to work flexible hours within the working week from home using a computer, would you take up such an employment opportunity? **(SR)**

01	Yes
02	No
03	Not sure

FOR NOT IN THE LABOUR FORCE: ASK IF 1 AT Q17 AND (2,3,7 AT Q18, OR 7 AT Q2A OR Q2B, OR 1 AT Q5) (ALL CARERS AND THOSE WITH FAMILY RESPONSIBILITIES WITH PREVIOUS EMPLOYMENT)

Q34. EMPLOYER TELEWORK PERMISSION
Q34. If your most recent employer enabled you to work from home to do your role, would you take up such an employment opportunity? **(SR)**

01	Yes
02	No
03	Not sure

IF 1 AT Q34 ABOVE
Q35. TIMELINE FOR TELEWORK OFFERED BY EMPLOYER
Q35. When would you be likely to take up such a role if offered to you by your previous employer? **READ OUT (SR)**

01	Within the next 6 months
02	In 6-12 months
03	In 1-2 years from now
04	In 3-4 years from now
05	In 5 years or more
06	I do not plan to return to the workforce
07	Not sure

Q36. EASE OF FINDING TELEWORK EMPLOYMENT

Q36. On a scale of 0-10 where 0 is very difficult and 10 is very easy…

	Rating (0-10)
… how easy would it be for you to find employment in your industry if working from home was an option?	

ASK OF PART-TIME WORKERS
Q37. WILLINGNESS TO CHANGE OCCUPATION
Q37. On a scale of 0-10 where 0 is not at all willing and 10 is very willing…

	Rating (0-10)
… how willing would you be to change your occupation and/or industry if a role working from home was available to you?	

ASK OF NOT IN THE LABOUR FORCE
Q38. WILLINGNESS TO CHANGE OCCUPATION
Q38. On a scale of 0-10 where 0 is not at all willing and 10 is very willing…

	Rating (0-10)
… how willing would you be to consider a role working from home in an occupation or industry different to that of your experience or skills / qualifications?	

IF 1 AT Q33 OR 6-10 at Q37 or Q38 (YES TO TELEWORK UPTAKE OR WILLING TO CHANGE OCCUPATION)
Q39. POTENTIAL HOURS TELEWORK
Q39. If such home-based work was available to you, how many hours per week (on average) would you be able to work:

a. IN TOTAL PER WEEK?	__________ hours
b. FROM HOME PER WEEK?	__________ hours

IF 1 AT Q33 OR 6-10 at Q37 or Q38 (YES TO TELEWORK UPTAKE OR WILLING TO CHANGE OCCUPATION)

Q40. TELEWORK REGULARITY LIKELIHOOD

Q40. How regularly would you prefer to work from home or work remotely? **DO NOT READ OUT (SR)**

01	Every day of my working week
02	3-4 days per week
03	2 days per week
04	1 day per week
05	1 day per fortnight
06	1 day per month
07	Less than one day per month

IF 2 OR 3 AT Q33 AND (0-5 AT Q37 OR Q38) (NO / NOT SURE RE TELEWORK UPTAKE AND UNWILLING TO CHANGE OCCUPATION)
Q41. REASON NOT TELEWORK
Q41. You said you would not take up an employment opportunity to work from home after the rollout of the NBN. Why is that? **DO NOT READ (MR)**

01	Disability barriers/Carer barriers/Availability
02	Loss of income support benefits
03	Lack of computer literacy
04	No skills/training in work that could be done on a computer
05	No computer/internet connection
06	Current job doesn't enable working from home
96	Other, specify:

ASK OF MATURE WORKERS – NEARING RETIREMENT

READ OUT TO ALL

The National Broadband Network (NBN) is planned to deliver reliable, high-speed broadband to all Australian premises, giving more employees and employers the confidence to engage in working away from the office and remotely. The NBN will make it easier to share files, collaborate and take part in high-definition video conferencing. The cost for accessing these services is anticipated to remain around the same as current rates for internet.

Q42. TELEWORK UPTAKE 2

Q42. If this improved technology allowed you to work flexible hours within the working week from home, would you take up such an employment opportunity and remain in the workforce longer than you otherwise would have?

01	Yes
02	No
03	Not sure

THINKING ABOUT RETIREMENT AS CEASING ALL PAID EMPLOYMENT IN THE WORKFORCE…

IF 1 AT Q42 (YES TO TELEWORK UPTAKE)

Q43. LENGTHENING EMPLOYMENT

Q43. Would you be likely to lengthen your employment and delay your retirement… **READ OUT (MR)**

01	…on a full-time basis, working from home *exclusively* (i.e. *all days each week* and not working from the office any day of the week)
02	…on a full-time basis, working from home *some days each week* and working from the office part of the week
03	…on a part-time basis, working from home *exclusively,* not working from the office ever
04	…on a part-time basis, working from home part of the time and working from the office part of the time

Q44. WILLINGNESS TO CHANGE OCCUPATION

Q44. On a scale of 0-10 where 0 is not at all willing and 10 is very willing…

	Rating (0-10)
… how willing would you be to change your occupation and/or industry if a role working from home was available to you?	

IF 1 AT Q42 OR 6-10 at Q44 (YES TO TELEWORK UPTAKE OR WILLING TO CHANGE OCCUPATION)

Q45. DELAYING RETIREMENT

Q45. If you found a suitable arrangement working from home, how many years do you estimate you may delay your retirement? _______ years

ASK OF ALL

Q46. FURTHER TELEWORK INFO

Q46. What further information do you need to decide if you would take up this kind of employment opportunity?

8. Appendix D: Deloitte Access Economics – Regional General Equilibrium Model

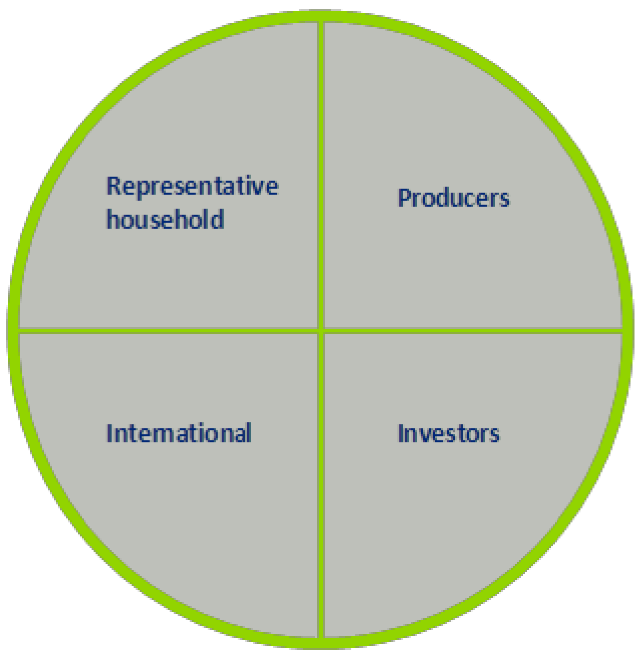
The Deloitte Access Economics – Regional General Equilibrium Model (DAE-RGEM) is a large scale, dynamic, multi-region, multi-commodity computable general equilibrium model of the world economy. The model allows policy analysis in a single, robust, integrated economic framework. This model projects changes in macroeconomic aggregates such as GDP, employment, export volumes, investment and private consumption. At the sectoral level, detailed results such as output, exports, imports and employment are also produced.

The model is based upon a set of key underlying relationships between the various components of the model, each which represent a different group of agents in the economy. These relationships are solved simultaneously, and so there is no logical start or end point for describing how the model actually works.

Figure 39 shows the key components of the model for an individual region. The components include a representative household, producers, investors and international (or linkages with the other regions in the model, including other Australian States and foreign regions). Below is a description of each component of the model and key linkages between components. Some additional, somewhat technical, detail is also provided.

Figure 39 Key components of DAE-RGEM

The figure shows the key components of the DAE-RGEM for an individual region.



DAE-RGEM is based on a substantial body of accepted microeconomic theory. Key assumptions underpinning the model are:

> The model contains a ‘regional consumer’ that receives all income from factor payments (labour, capital, land and natural resources), taxes and net foreign income from borrowing (lending).

> Income is allocated across household consumption, government consumption and savings so as to maximise a Cobb-Douglas (C-D) utility function.

> Household consumption for composite goods is determined by minimising expenditure via a CDE (Constant Differences of Elasticities) expenditure function. For most regions, households can source consumption goods only from domestic and imported sources. In the Australian regions, households can also source goods from interstate. In all cases, the choice of commodities by source is determined by a CRESH (Constant Ratios of Elasticities Substitution, Homothetic) utility function.

- Government consumption for composite goods, and goods from different sources (domestic, imported and interstate), is determined by maximising utility via a C-D utility function.
- All savings generated in each region are used to purchase bonds whose price movements reflect movements in the price of creating capital.
- Producers supply goods by combining aggregate intermediate inputs and primary factors in fixed proportions (the Leontief assumption). Composite intermediate inputs are also combined in fixed proportions, whereas individual primary factors are combined using a CES production function.
- Producers are cost minimisers, and in doing so, choose between domestic, imported and interstate intermediate inputs via a CRESH production function.
- The model contains a more detailed treatment of the electricity sector that is based on the 'technology bundle' approach for general equilibrium modelling developed by ABARE (1996).
- The supply of labour is positively influenced by movements in the real wage rate governed by an elasticity of supply.
- Investment takes place in a global market and allows for different regions to have different rates of return that reflect different risk profiles and policy impediments to investment. A global investor ranks countries as investment destinations based on two factors: global investment and rates of return in a given region compared with global rates of return. Once the aggregate investment has been determined for Australia, aggregate investment in each Australian sub-region is determined by an Australian investor based on: Australian investment and rates of return in a given sub-region compared with the national rate of return.
- Once aggregate investment is determined in each region, the regional investor constructs capital goods by combining composite investment goods in fixed proportions, and minimises costs by choosing between domestic, imported and interstate sources for these goods via a CRESH production function.
- Prices are determined via market-clearing conditions that require sectoral output (supply) to equal the amount sold (demand) to final users (households and government), intermediate users (firms and investors), foreigners (international exports), and other Australian regions (interstate exports).
- For internationally-traded goods (imports and exports), the Armington assumption is applied whereby the same goods produced in different countries are treated as imperfect substitutes. But, in relative terms, imported goods from different regions are treated as closer substitutes than domestically-produced goods and imported composites. Goods traded interstate within the Australian regions are assumed to be closer substitutes again.
- The model accounts for greenhouse gas emissions from fossil fuel combustion. Taxes can be applied to emissions, which are converted to good-specific sales taxes that impact on demand. Emission quotas can be set by region and these can be traded, at a value equal to the carbon tax avoided, where a region's emissions fall below or exceed their quota.

Households

Each region in the model has a so-called representative household that receives and spends all income. The representative household allocates income across three different expenditure areas: private household consumption; government consumption; and savings.

Going clockwise around Figure 39, the representative household interacts with producers in two ways. First, in allocating expenditure across household and government consumption, this sustains demand for production. Second, the representative household owns and receives all income from factor payments (labour, capital, land and natural resources) as well as net taxes. Factors of production are used by producers as inputs into production along with intermediate inputs. The level of production, as well as supply of factors, determines the amount of income generated in each region.

The representative household's relationship with investors is through the supply of investable funds – savings. The relationship between the representative household and the international sector is twofold. First, importers compete with domestic producers in consumption markets. Second, other regions in the model can lend (borrow) money from each other.

- The representative household allocates income across three different expenditure areas – private household consumption; government consumption; and savings – to maximise a Cobb-Douglas utility function.
- Private household consumption on composite goods is determined by minimising a CDE (Constant Differences of Elasticities) expenditure function. Private household consumption on composite goods from different sources is determined is determined by a CRESH (Constant Ratios of Elasticities Substitution, Homothetic) utility function.
- Government consumption on composite goods, and composite goods from different sources, is determined by maximising a Cobb-Douglas utility function.
- All savings generated in each region is used to purchase bonds whose price movements reflect movements in the price of generating capital.

Producers

Apart from selling goods and services to households and government, producers sell products to each other (intermediate usage) and to investors. Intermediate usage is where one producer supplies inputs to another's production. For example, coal producers supply inputs to the electricity sector.

Capital is an input into production. Investors react to the conditions facing producers in a region to determine the amount of investment. Generally, increases in production are accompanied by increased investment. In addition, the production of machinery, construction of buildings and the like that forms the basis of a region's capital stock, is undertaken by producers. In other words, investment demand adds to household and government expenditure from the representative household, to determine the demand for goods and services in a region.

Producers interact with international markets in two main ways. First, they compete with producers in overseas regions for export markets, as well as in their own region. Second, they use inputs from overseas in their production.

- Sectoral output equals the amount demanded by consumers (households and government) and intermediate users (firms and investors) as well as exports.
- Intermediate inputs are assumed to be combined in fixed proportions at the composite level. As mentioned above, the exception to this is the electricity sector that is able to substitute different technologies (brown coal, black coal, oil, gas, hydropower and other renewables) using the 'technology bundle' approach developed by ABARE (1996).
- To minimise costs, producers substitute between domestic and imported intermediate inputs is governed by the Armington assumption as well as between primary factors of production (through a CES aggregator). Substitution between skilled and unskilled labour is also allowed (again via a CES function).
- The supply of labour is positively influenced by movements in the wage rate governed by an elasticity of supply is (assumed to be 0.2). This implies that changes influencing the demand for labour, positively or negatively, will impact both the level of employment and the wage rate. This is a typical labour market specification for a dynamic model such as DAE-RGEM. There are other labour market 'settings' that can be used. First, the labour market could take on long-run characteristics with aggregate employment being fixed and any changes to labour demand changes being absorbed through movements in the wage rate. Second, the labour market could take on short-run characteristics with fixed wages and flexible employment levels.

Investors

Investment takes place in a global market and allows for different regions to have different rates of return that reflect different risk profiles and policy impediments to investment. The global investor ranks countries as investment destination based on two factors: current economic growth and rates of return in a given region compared with global rates of return.

> Once aggregate investment is determined in each region, the regional investor constructs capital goods by combining composite investment goods in fixed proportions, and minimises costs by choosing between domestic, imported and interstate sources for these goods via a CRESH production function.

International

Each of the components outlined above operate, simultaneously, in each region of the model. That is, for any simulation the model forecasts changes to trade and investment flows within, and between, regions subject to optimising behaviour by producers, consumers and investors. Of course, this implies some global conditions must be met such as global exports and global imports are the same and that global debt repayments equals global debt receipts each year.

Limitation of our work

General use restriction

This report is prepared for the use of the Department of Broadband, Communications and the Digital Economy. This report is not intended to and should not be relied upon by anyone else and we accept no duty of care to any other person or entity. The report has been prepared for the purpose of investigating the degree to which participation in the labour force would be increased with the rollout of the National Broadband Network (NBN) and the increased telework opportunities it will provide. You should not refer to or use our name or the advice for any other purpose.

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