

E-change and remote work in Australia





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Authored by Andrew Glover, Tania Lewis, and Julian Waters-Lynch.

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RMIT University

Website: www.rmit.edu.au

Email: julian.waterslynch@rmit.edu.au

Australian Communications Consumer Action Network

Website: www.accan.org.au

Email: grants@accan.org.au

Telephone: 02 9288 4000

If you are deaf, or have a hearing or speech impairment, contact us through the National Relay Service: <https://www.communications.gov.au/what-we-do/phone/services-people-disability/accesshub/national-relay-service>.

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1

Executive summary

What is the report about?

This report is about ‘e-changers’, a significant and growing segment of the population who have chosen to move from the city to regional and coastal areas while maintaining their city jobs.

Through online ethnography with e-change households and interviews with other stakeholders, we sought to understand and document the telecommunications experiences and needs of this distinctive and growing segment of the Australian population.

With evidence of an increasingly mobile workforce in Australia and in particular significant migration from cities to rural areas, it is imperative that we understand the drivers behind these shifts, along with the challenges it presents.

The key findings of the report involve a range of issues related to the growth of remote work in regional areas. These include new work practices and the capacity to work from home; shifts in values around the place of work and lifestyle; the importance of digital services as essential infrastructure for remote work, the role of domestic design and infrastructure in supporting remote work; the impact of choice of location on access to affordable and diverse housing; and the role and impact of long commuting in relation to public transport options and mobile digital connectivity.



Who should read this report?

The e-change phenomenon has potentially widespread implications for Australia, a country whose population has until recently been primarily centred around major coastal cities. Improvements in digital provisioning and shifts in workplace practices associated with the pandemic have seen many households relocate away from major cities. As a result, there will be a significant impact on a range of spheres, from technology adoption, pressures on telecommunications networks, transport and other infrastructure, and urban and regional planning. The findings of this study are relevant to the concerns of a broad range of stakeholders.

First and foremost, this report will be of interest to **communications consumer advocacy groups**. The e-change migration trend highlights the importance of equitable and easy access to digital services for those outside city areas. With fast, reliable, and affordable data connections being so critical to the performance of remote work, advocates will benefit from understanding how and where this work is being performed in regional and coastal communities and what the challenges and potentials might be. With growing numbers of Australians choosing to live and work remotely, the rights and needs of digital consumers across the country become even more pressing.

Those working in the **telecommunications industry** will find value in this report as it describes important new and emergent trends in how individuals, households, and organisations in Australia are using digital technology to perform their work from homes in regional and remote locations. While telecommunications infrastructure and service providers are likely to have already observed some early changes in patterns of internet use as a result of the e-change phenomenon, the rich information gleaned here

from fieldwork and interviews with e-changers themselves provides fine grained insights into the day-to-day practices associated with remote work. As such, this study provides a crucial understanding of changing and emerging patterns in telecommunications use, information highly relevant to where and how service and infrastructure investment might be directed in the future.

Importantly, this report also draws attention to a range of non-telecommunication infrastructure and services, such as regional public transport, regional coworking spaces and affordable housing, that are emerging as necessary support systems for e-change Australians and the communities in which they reside.

Thus, **policymakers** at a range of levels will also be interested in how the e-change movement is changing the landscape of regional development. For local councils, understanding the basis for recent migration flows of professional workers will be important for the provision of local services, including a range of affordable housing options. For those areas experiencing an influx of e-changers, the report will give important insights into the experiences of these migrants, and the potential opportunities and challenges that might emerge when accommodating urban migrants into regional and rural settings. Policymakers at the state and federal level will benefit from an increased depth of understanding about the nature of domestic regional migration, and how the digital economy is dispersing employment opportunities outside the major cities.

Businesses, NGOs, and other organisations will also find this report useful for understanding the benefits and challenges of working remotely outside the city. It offers insights into why their employees might be considering an e-change move, and how they can best manage and retain productive employees who will not be in the office as frequently. These insights can help guide company and industry policies for hybrid and remote work, maximising the benefits of work life balance afforded by e-change.

The report will also provide value for those working in the **co-working** and shared office space industries. While these markets have traditionally been located in larger cities, the migration of professionals to regional and coastal areas potentially signals an emerging market for co-working spaces elsewhere. The widely discussed social isolation of working from home, and the need for productive local work spaces suggests that there may be opportunities for enhancing networking opportunities and business growth through e-changers co-working in their local areas. Co-working spaces can also obviate the need for the significant and costly digital and domestic infrastructure (heating/cooling) provisioning required to sustain a professional worker based primarily at home.

This report will appeal to **academics** with a range of research interests. The findings presented here have implications for research on the future of work, digital inclusion, lifestyle migration, urban planning, housing, transport, and organisational studies. With insights into how households are re(organising) themselves to prioritise work life balance, as well as broader insights into how these changes are playing out at the population level, the report will be of interest to a broad swathe of the academic community.

Finally, we have also oriented the report to **consumers** and anyone considering an e-change themselves. Drawing on a range of household interviews with people and families who have undertaken an e-change, it will give any prospective e-changer valuable insights into what they can expect should they make such a move. It will provide advice on how to e-change successfully, so that people's hopes of a digitally connected regional life have the best chance of being fulfilled.

Report structure

This report begins by introducing the phenomenon of e-change as a regional and coastal migration trend away from cities, enabled by widespread growth of telecommunications services and remote work. After discussing our research approach based primarily around household interviews with e-changers and relevant stakeholders, we outline a taxonomy of different e-change types. We find that e-changers fall into three broad household types - younger singles or couples, families with dependent children, and older couples without dependent children. These groups have different but overlapping expectations of e-change, based on priorities that align with their household composition and life stage.

The report then moves on to discussing e-changers' interactions with digital services in regional and coastal areas, describing the varied experiences of connectivity they encountered. We describe how these demands for data and telecommunications services might change in the future, based on changing patterns of work and life. We discuss how e-changers are performing work remotely using a range of digital technologies, and how this work has changed over time - particularly since the COVID-19 pandemic. The report describes people's remote work arrangements, including both home offices and other local working spaces, to understand the settings in which online work is being performed.

We then discuss how these remote work arrangements sit within broader patterns of everyday life, how they contribute to work-life balance, and some of the challenges e-changers encounter in living this type of lifestyle. The report highlights some of the common factors that lead e-changers to choose a given regional or coastal location, such as the presence of natural amenities and greenspace, or to be close to family.

From these insights from household participants the report then shifts towards the broader migration flows that are intertwined with the e-change phenomenon. It highlights how e-change is not affecting all regional and coastal communities equally, and that there are distinct e-change 'hotspots' that are experiencing rapid growth, changing character, increased pressure on digital and other services, and declining affordability as a result of this new influx of professional workers.

Drawing on these findings, the report then makes a series of recommendations for a range of stakeholders affected by the e-change. These highlight important future priorities that arise from the growth of e-change in Australia. These include a need to understand internal migration flows of knowledge workers, providing resilient regional telecommunications systems and internet connectivity, affordable housing in e-change hotspots, fostering social cohesion, and the provision of productive workspaces outside the home. It is hoped that these will provide guidance for developing policies and practices at a range of levels, to ensure people and organisations are able to capitalise on the e-change phenomenon going forward.

We conclude by discussing the broader impacts of e-change for Australian society. Digital inclusion is an emerging issue for universal access to high quality digital services and the opportunities they provide. The growing potential to work from anywhere for a select group of employees is currently re-shaping Australia's economic and socio-cultural landscape. E-change is likely to create new inequalities of access to not just digital infrastructure, but to other essential services such as affordable housing. This report will hopefully serve as a platform for further research and policy development in this area to ensure that Australia is able to capitalise on the opportunities and minimise the challenges that e-change presents.



2

Introduction

A growing number of Australians have decided to move away from capital cities to work remotely from smaller regional, rural or coastal towns, a shift that has been accelerated by the impacts of the COVID pandemic. This cohort of internal migrants has been called ‘e-changers’, in reference to past similar regional population movements such as ‘treechangers’ and ‘seachangers’ (Salt 2016, Salt 2015). Given the Australian population has traditionally been largely centred in large cities on the coast this rural shift is a significant trend, with potentially major implications for policy and planning across a range of domains.

This qualitative study of e-changers was conducted in partnership with, and funded by, the Australian Communications Consumer Action Network (ACCAN), the peak advocacy group for Australian communications consumers. The focus of our study was thus primarily on questions of telecommunications access and infrastructure in relation to this growing group of rural and regional knowledge workers. However, a range of other infrastructure and amenities issues have been raised by our study from housing and employment to transport and health. Thus, the findings of this report and the extended discussion below touch upon the broader socio-cultural and planning issues raised by the e-change phenomenon.

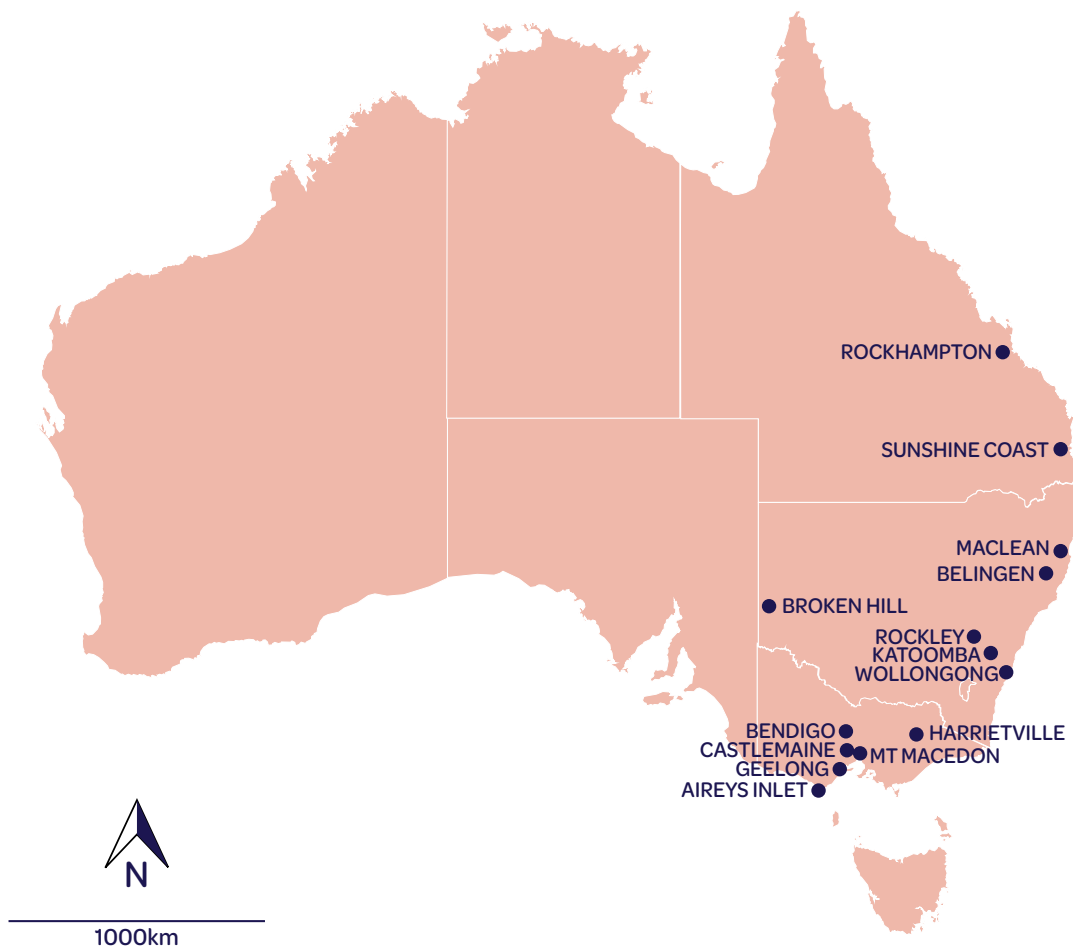
Although the seeds of an e-change movement were sown before COVID-19, it was greatly amplified by government and corporate policy responses to the pandemic, such as the widespread adoption of remote work practices and restrictions on commercial and social interactions within major cities during this period. NSW and Victoria, particularly Melbourne, experiencing some of the longest and strictest lockdown conditions in the world.

The growing number of people expected to work at least part of their week from home, enabled through the wider adoption of digital work practices such as video conferencing, has seen many people with work ties to major cities expand the geographical range in which they're prepared to reside. Consequently, 2020 and 2021 recorded the greatest migration from capital cities to regional towns since 2001, the year this data began to be recorded (ABS 2021a). The findings presented in this report suggest a significant cohort of the Australian population will continue to pursue an e-change lifestyle by migrating to and working remotely from small and medium regional towns.

The capacity for Australian households to undertake an e-change is underpinned by developments in telecommunications infrastructure and the digital technologies that make remote work viable. However the trend raises issues around Australia's ability to adequately support the high level communications needs of growing numbers of regionally and rurally based professional workers. It also raises important questions for a range of different stakeholders, service and policy areas. For example, how are population growth differences occurring between different towns and regions? What are the telecommunications needs of remote workers, and what requirements do they raise for telecommunications infrastructure and service providers? How are people adapting their homes to accommodate remote work? How are organisations adapting their technology and management practices, and what new skills and routines are workers learning to adjust to adjust to this phenomenon? Is there demand for new local workplace infrastructure in public libraries or private coworking spaces to service remote workers? How do these changes impact the housing and rental markets in these towns? How do recent e-change migrants affect social sentiment and cohesion in these towns? How often will hybrid e-change workers commute to capital cities and what are the road and public transport service requirements of these new patterns? These are some of the questions addressed by this report.

Approach and sites chosen

This research project has approached such questions through investigating the lived experiences of a diverse cohort of e-change workers. There has been little research to date on the experiences of these households, the challenges they face and the emerging culture of remote work in regional hubs and 'lifestyle' towns.



Map 1: E-change locations of project household participants

The main focus of this project was on the experiences and practices of e-change by those who were living the lifestyle itself. We conducted 21 interviews with household participants, as well as follow up interviews to see how their experiences were playing out in the long term. Interviews focused on their decisions to undertake an e-change move, their day-to-day experience of working remotely in regional and coastal areas, and their use of digital communications services. Interviews took place on Zoom or Teams in a semi-structured format, and were recorded and transcribed. All participant names appearing in this report are pseudonyms.

We also conducted interviews with 10 stakeholders who were broadly involved in, or affected by, the e-change movement. This included local government and planning personnel, small

businesses, and proprietors of regionally based co-working spaces in order to gain different perspectives on the impact of these communities.

The majority of our household participants came from several 'e-change hotspot' areas across NSW and Victoria – the central Victorian Goldfields from Castlemaine to Bendigo; the Victorian Surf Coast, from Geelong through to Aireys Inlet; and the NSW coast, from Bellingen to Illawarra. These hotspots were places known to have attracted many e-changers in recent years, partly because they are within commuting distance from Australia's two major cities Melbourne and Sydney. We also recruited households from outside of these areas, such as Broken Hill, Rockhampton and the Sunshine Coast, which offered interesting points of contrast and comparison.



3

Background – The e-change movement in Australia

Until recently Australian knowledge workers have been located in major coastal cities with the standard model of work characterised by commuting to and from a central CBD workplace five days a week. Remarkably, the widespread availability of digital technologies had until recently seen little change in this urban, commuter-centric model of work, despite predictions regarding the wider adoption of ‘telecommuting’ dating back as early as the 1970s. While household uptake of digital devices for leisure and communicative practices has hugely increased in the Global North at least, within the realm of work, the 21st century has been marked by a surprising lack of change in terms of the location of labour practices. In Australia, for instance, the proportion of remote workers has remained flat at around 6% despite Australian government policy drives to stimulate it (Productivity Commission, 2021).

However in recent years, major capital cities have been experiencing significant challenges. Record property prices are making housing increasingly unaffordable, with major Australian cities ranking among the worst in the world affordability wise (Duncan, 2022). As cities expand outward and become more dense, traffic congestion is intensifying despite significant investments in road construction and, in some cases, public transport provisioning. Against the backdrop of these growing challenges in Australian cities, we had started to see some degree of internal, 'lifestyle' migration in Australia over the past decades, though there has been little quantitative data on the types of households that have made these shifts (Western Alliance 2017).

Following the 'tree change' (migration to the country) and 'sea change' (migration to coastal towns) movements of the 1990s and early 2000s, demographer Bernard Salt predicted a similar movement in the late 2010s and early 2020s that he referred to as 'e-change' (NBN Co, 2016). This e-change movement consists of a cohort that migrates away from major cities to nearby regional and coastal 'lifestyle' towns, but maintains work connections with the city through remote or hybrid work practices. Salt argues that information and communication technology is now capable of making lifestyle migration possible for more and more working city dwellers whose occupations primarily require high quality digital connectivity, rather than routine physical presence. This has increased the potential for ICT enabled remote work to be performed in regional and rural areas, providing potential employment opportunities to parts of the country that have seen less of them (Davies, 2021).

While some workers were starting to make the shift towards remote work in rural and regional settings before 2020, the COVID-19 pandemic markedly amplified the trend. The direct

impact of COVID-related policies on how Australians worked was dramatic. The Australian Bureau of Statistics has tracked numbers of people working from home since the 1970s. Unsurprisingly, the 2020 and 2021 figures are the highest on record, with 41% of the entire workforce and 64% of managers and professionals claiming to regularly work from home (ABS 2021b). The lockdowns people experienced during this time were particularly acute for those living in small apartments and townhouses with limited space, especially households with children that were also forced to accommodate home schooling. Surveys of workers however indicate that overwhelmingly there is a preference for the option of working from home, despite some of the associated drawbacks (Pew 2020, Productivity Commission 2021).

The practice of working remotely has been found to carry with it a range of positive aspects for work life balance (Charalampous, Grant, Tramontano, & Michailidis, 2018; Sullivan 2012). The lifestyle benefits of remote work do not merely accrue to the individual employee. Remote work, or so called 'work from anywhere' work, has also been found to increase worker productivity by 4.4% (Choudhury, Foroughi, & Larson, 2020), as well as being associated with great job satisfaction and well being (Felstead & Henseke, 2017). The growing trend of 'digital nomadism' - working remotely from desirable lifestyle locations while travelling - speaks to the popularity of digitally enabled work that can be performed outside an office environment (Hermann & Paris, 2020).

Employers are more ambivalent about the structural shift in working arrangements that might be needed to enable working from home in the longer term. Social isolation and threats to professional career progression are a potential downside to the practice. Employees working remotely may become more siloed, making fewer new professional connections and reducing the number of collaboration links within their organisations (Yang et al. 2022).

While some companies have embraced the opportunity to allow employees to work completely remotely from any location (Smith, 2020), most are planning variations on a more ‘hybrid’ working arrangements, where the majority of workers continue to commute to a central workplace on a more flexible basis, often only two or three days a week instead of five (Koehn & Irvine, 2021; Productivity Commission, 2021; PwC, 2021; Robinson, 2021). Regardless of the uncertainty surrounding future work arrangements in relation to remote work, a significant number of city dwellers have taken the opportunity provided by the pandemic crisis to pursue a longer term dream of living rurally or regionally while continuing to hold professional jobs.

An Australian survey comparing statistics from mid 2021 to the previous year showed an 11% increase in people moving from the cities to live in rural areas, resulting in the launch of the Regional Movers Index in June 2021, a new index to monitor movements between Australia’s regions and capital cities (Regional Australia Institute 2021). In the next section, we discuss the findings from our qualitative research with a number of e-change households supplemented by interviews with other stakeholders, including local councillors, regional planners and policymakers and managers of co-working spaces in regional settings.





4

Taxonomy of e-changers

The e-change households that we interviewed can be loosely classified into distinct types based on attributes such as life stage and family structure, and work arrangements, including the internet speed and reliability requirements associated with the type of work they undertake and the commuting expectations of their employees. In this section we describe how these features often came together in a number of observed, though sometimes overlapping, patterns.

Lifestage and family structure

The clearest attribute that distinguished e-change households was stage of life and the family structure of the household. These can be classified into three broad categories:

Younger singles or couples with no children

In general, participants without dependent children tended to cite proximity to natural amenities such as beaches, forests or mountains as the primary motivations for their move. Sometimes desire for a slower pace of life in a smaller community was also mentioned and escape from the negative aspects of life in larger cities, such as crime and congestion. Sometimes participants also cited fond memories of living in regions as children. Reduced cost of living was mentioned by some but not all of this cohort. The restrictions on urban life brought about by the pandemic also featured strongly among this cohort, and some participants in this group moved only temporarily, and either returned or planned to move back to a major city after the pandemic related restrictions in major cities ended.

“For us it was about having greater access to the outdoors, we both enjoy biking, hiking, running and climbing. Getting out of Melbourne on a Friday night was a nightmare and we wanted a better lifestyle in terms of recreation, being closer to nature and a bit more of a quieter lifestyle too.”

–IRENE, MOUNT MACEDON

Families with dependent children

In general, families with young children tended to cite access to more affordable and larger homes with more space for their children to play and spend time outdoors as a primary motivation. Many actually mentioned their own childhood experiences spent in rural areas as an influence, and these factors were often entwined with other lifestyle considerations, such as spending less

time commuting for both work, school drop offs and recreational activities. Often deteriorating life conditions of major cities were also mentioned, such as increasing commute times, pollution, the frenetic pace of urban life and even the perceived growing dangers of digital device addiction for children that can accompany more time spent indoors. Most in this group also envisaged a permanent or at least long-term relocation to the regional area.

“When we had our second child...we wanted to buy a family house but were priced out of Sydney, so we cast our net around remote and regional areas - the Blue Mountains, the Central Coast, but Wollongong came top of the list based upon distance to my office. [It also] had a lot of...tick boxes for a more relaxed lifestyle - being closer to beach and bush. Good schools, good health care, wasn't too small, wasn't too large.”

—KEVIN, WOLLONGONG, NSW

Older couples without dependent children

The third category of participants included older couples without dependent children, who desired a lifestyle change outside of the major cities. Commonly cited motivations were to obtain easier access to natural amenities, have more space and time for gardening or hobby farming, and seek out a slower pace of life amid smaller, more open and amiable communities. Sometimes the move also enabled them to be closer to family, such as caring responsibilities for elderly parents.

“We moved up here irrespective of COVID, it was a lifestyle change. I'm about 10-12 years from retirement, [my wife] has already retired. This is our long term plan. We wanted to find the right place for our little hobby farm. It's about five acres, we've got alpacas and sheep and all that sort of thing...there's a fantastic little pub about two kilometres from our place.... a real social hub...we've met people through there....”

—PETER, CASTLEMAINE

Couples in this later stage of life were generally able to sell their capital city house and purchase a new regional home in their chosen location. These e-changers generally had well established careers in roles that were either remote by nature, or that they had negotiated to be performed from home. They were generally less concerned than younger e-changers about physical presence in the workplace and associated relationship building that is perceived to support career progression.

Work arrangements

The other distinguishing feature of different e-changing households was the type of work arrangements they were in, or were anticipating being in. This was an important factor in shaping where they would locate themselves outside the city.



Commuting expectations: hybrid or fully remote

Although most participants were working from home throughout 2020 and 2021 due to COVID restrictions, many anticipated hybrid work arrangements post-COVID, where they would commute into a capital city one or two days a week. This expectation strongly influenced the geographical areas they considered as e-change destinations, with towns within roughly 150km along major regional rail networks such as the Bendigo, Geelong-Warrnambool and Ballarat-Horsham in VIC, or the Blue Mountains and Wollongong networks in NSW.

“It’s totally doable. And I think two days a week was okay”

—IRENE ASSESSES HER REGIONAL COMMUTE FROM MT MACEDON TO MELBOURNE.

Participants that had fully remote work arrangements could consider a much wider geographical arc, less dependent on regional public transport infrastructure. Four of the households in our sample were in these circumstances, and were located the furthest from capital cities (Broken Hill, Rockley, Rockhampton and Bellingen). Two of these participants worked for companies located in different Australian states.

Occupation and internet requirements

We found an important distinction in the needs of different classes of knowledge workers in terms of their internet speed and reliability requirements and the solutions they sought to address these issues.

Specialist knowledge work

Some occupations, such as architects, engineers or video producers, require specialist software that works with large files. The data transfer and speed requirements for these professions is much higher, and sometimes drove demand to access Coworking Spaces or shared work hubs:

“Coworking [is] selling internet speed. That’s why people want to come in and work, apart from a community to talk around the water station, with what drives them in initially... is a really good NBN to the node system and good fibre. So architects or people that worked overseas could come in and know that they weren’t going to have a drop out.”

—SURF COAST SHIRE COUNCIL REPRESENTATIVE



In other cases, COVID restrictions on travel and in person meetings had forced companies to experiment with new, digitally mediated ways of completing tasks, some of which involved data intensive processes. Participants often noted that the substantial cost savings of some of these processes, particularly air travel, indicated they were likely to remain beyond the pandemic in some form.

General knowledge work

In general, standard home broadband internet plans appeared sufficient for most 'generic' knowledge work tasks such as emails, working on online documents and video conferencing. Moreover, we didn't find a general pattern that all regional participants experienced inferior internet speeds or reliability than their prior service experiences in major cities. In fact some participants noted that their internet connection speeds and reliability had actually improved since moving:

"We've got fibre to the curb, the same connection we had in Melbourne. I think if we had fibre to the node, we would be a little bit concerned. [I]n Heidelberg, West [Melbourne]... I think we had a worse internet connection there than we do here in Bellingen [NSW]..."

—DAVID, BELLINGEN

Temporary e-changers

The majority of our household participants anticipated that their e-change move would be permanent, or at least a long term change in lifestyle and location. However, a subset saw e-change as a more temporary change, and were less committed to staying in their regional homes. These participants had often made the decision to move regionally during pandemic related restrictions in capital cities, and tended to be renters in the younger category without dependent children.

Irene, for instance, moved from inner Melbourne to Mt Macedon in Victoria when we interviewed her in early 2021, but has since moved back to Melbourne. Anticipating the end of COVID restrictions – prematurely as it turned out – she and her partner returned to the city in August of that year. She described the e-change experience as a “fun break from the city and an experience of regional life”, but they were committed to their careers and having a presence in the office. While she was able to work remotely for much of the time, her role ended up requiring her to attend in-person meetings more regularly than she had planned:

“it was fine for that brief period that we were commuting, [but] it did make for really big days and really kind of exhausting days.”

–IRENE, MT MACEDON

The COVID pandemic restrictions were particularly difficult for people that lived in city apartments, especially those in Melbourne, given the length of the lockdown periods.

Natalie and her partner were living on the 24th floor of an apartment building in central Melbourne when the first lockdowns were announced. She talked about the stress of having to take an elevator up and down to her apartment at that time, where it was difficult to social distance in a cramped indoor environment.

“It just really felt like a prison... I was like ‘I need to get fresh air’, and the mental toll just to get fresh air could take 15 minutes, right?...Now, conversely, I open the door and I’m outside.”

After a period they moved to their investment property in Bendigo, largely to escape the restrictions during lockdowns. However, in our follow up interview Natalie revealed that she had subsequently taken a job in Canberra, thereby returning to living in a major city after a relatively brief e-change. With some in our sample having moved back into cities after a stint in the regions, it’s important to recognise that e-change is not necessarily a permanent shift for everyone making such a move.



5

Experiences with telecommunication services

When Bernard Salt coined the term e-change, he had in mind a movement spurred by the spread of high speed digital connectivity, conjuring images of smart, savvy, connected households popping up across Australia (Salt, 2016). The reality for e-changers, as we discovered through our study, does not quite live up to this ideal. Whether conducted from urban or rural locations, digital infrastructure in Australia remains a key challenge for digital remote work.

Australia lags behind many countries in relation to internet speeds (Australia ranks 57th globally for fixed broadband speeds in June 2019) while access is far from universal (Thomas et al. 2020). Australia is a vast country and despite the roll out of the NBN there are still large areas of remote and rural Australia that have less access to high quality broadband while other regional and rural areas are served well. Not surprisingly then, the e-change experience can be quite varied in terms of access, connectivity and speed.

We classified the experiences of our e-change households into several categories and prominent themes to provide some sense of the breadth and complexity of people's experiences around internet access when they move from the city to rural or regional areas. We have also included examples of how households attempted to resolve the access issues they encountered. These are described in detail in the following sections:

-  **Equal to or better than the city**
-  **Slower speeds than the city but workable**
-  **Initially problems, but improved over time**
-  **Accessing internet outside the home**
-  **Fibre alternatives: satellites, dongles and hotspotting**
-  **Environmental disruptions to digital access**
-  **Emerging patterns of network congestion**



Equal to or better than the city

For many of our participants, especially those that moved to larger regional centres, the transition from office-based work in a major city to home-based work in the regions has been relatively seamless in terms of internet service. Several participants explicitly attributed these positive experiences to the NBN service in their area, and sometimes demonstrated detailed knowledge of the distance of their premises from the nearest NBN connection node.

Kevin, for instance, is an engineer and project manager for a major infrastructure company who moved from Sydney to Wollongong with his family in 2014. The technical component of his work is highly dependent on having access to fast, dependable broadband; a 50 meg download and 25 meg upload connection:

“The [NBN] box is literally at the end of the road... videoing or moving large files over SharePoint goes very quickly. Being on NBN, going over from ADSL2, has been fantastic and really helped me working from home... some of the CAD models we are working with go into the hundreds of megabytes. So I can actually still work...off a server remotely if I need to, and work on those models. So the internet connection lets me do what I need to do.”

However, sometimes these positive experiences appeared to be the result of significant time spent carefully searching for information on local internet access quality, paying additional costs, and sometimes even utilising access to specialist information, to inform the selection of their properties.

David, a project manager that moved from Melbourne to Bellingen (NSW) in 2020 with his wife Danny, a graphic designer, describes the process of accessing information about the quality of internet

service to their home before they relocated, and what the additional expenses they were willing to incur to secure high quality access:

“So we were quite lucky in a sense because my father in law was [Telecommunications Company]’s state manager for the NBN rollout...he was the main liaison with NBN Co...so we had a really good awareness of what was going to be available to us, not just in Bellingen, but also in a number of other towns...We would have considered buying a place without fibre to the curb, but if the node was a couple of kilometres away from our house, we would have paid the five or six grand to connect it as a business expense.”

Michael, a service designer that relocated from inner urban Melbourne to Castlemaine in 2020, noted that the timeline of the NBN roll out in the region was a factor that influenced their decision to move:

“When I was looking in the Dandenongs actually, a couple of houses weren’t yet connected [to the NBN], and that was a problem...I inquired into the rollout of the NBN. And the expected timeline for delivery. And if it was really in short enough time, that was manageable...it’s always a balancing act when you have criteria to consider [in choosing a property]...but that criteria was pretty high on the list.

Similarly, while Mathew had moved from Melbourne to an unrenovated minor’s cottage in a very small historic Victorian town, he was aware the town had good internet infrastructure and low usage:

“Basically we were kind of moving into a 19th century kind of lifestyle but the internet was the saving grace. We had really good 4G... So it’s okay, right now you’re plugged right into the network. But then we’ve also got a they call it a fibre to the... it’s a special node, it’s like some juiced up node where there’s only like 100 households hanging off it. So we had excellent speeds.”

Finally, Natalie, a consultant for a major professional services firm, and her partner moved from a small inner city Melbourne apartment to a house they already owned in Bendigo at the end of 2020, where they experienced better internet connectivity.

“Oddly enough, we were surprised. I would say our internet connection is better here...when we moved we got a new NBN box because the other one was old. Okay we tested it. And we had the same package. And actually it is better here.”



Slower speeds than the city but workable

Others, especially those who moved to smaller towns or more remote areas, experienced poorer internet speeds compared with the city, but were largely able to continue to work despite the difference.

Steve, a university library consultant and his partner moved from an inner Melbourne suburb to a town of less than 1000 people on Victoria’s Surf Coast in early 2020. Although Steve noted a decline in his internet performance, he has been able to work remotely without major impediments.

“We certainly made sure there was NBN, but probably didn’t do as much research as we should have. Because the download speeds are not that flash. Although it’s fine for this sort of thing [videoconference calls], but it’s around 16 or 17 [Mbps] as compared to 50, or 35, or what you get in the city. So that’s okay.”





Initial problems but improved over time

Even in cases where internet services eventually became functional for work, several e-changers experienced significant problems when their connection was first installed. When Yannick and Annie moved to Katoomba from their inner Sydney apartment, they initially used their mobile data connections to work remotely, as there was no internet connection in their new home. Annie worked for the first few weeks by tethering the internet through her existing mobile phone plan, including paying for additional data when required, but it wasn't suitable long term. After a week they decided to transfer their NBN connection from their Sydney home to their new Katoomba home, but they experienced significant disruptions in the first few weeks after it was connected.

“For the first three weeks, the internet was so slow for me that I would drop out perhaps six times in one hour meeting... I'd have to get my staff to talk for me, or present slides for me. Sometimes I had to use the telephone to dial into the call because the internet wasn't working.”

Steve from the Victorian Surf Coast had a similar experience:

“There were initially some significant problems here - the internet just kept dropping out...”

Participants had different approaches and experiences in resolving these issues. Annie's colleagues told her this was a standard experience with new NBN connections, and that it would improve with time:

“Interestingly, my colleagues said to me, for three weeks the NBN will be bad, and then it'll just fix up. And it kind of happened. I don't know how, but the internet got better.”

Steve's connection issues were resolved due to an unusually personalised level of service provision he received, which he contrasted with his experience in the city.

"But I've got to say, it's a different experience with the internet down here. I'm actually on a first name basis with the NBN chap. He said to me, don't worry about calling your provider, just call me if you have a problem - I service this area, I can just drop in. It's unbelievable, in the city I...struggled to get the NBN to come and sort things out...[But here] he visited a number of times, spent a lot of time trying to find the node in Ayres Inlet. But then I continued to have dropouts, and he came back a number of times, the last time he ended up replacing a data point connection in the house that hadn't been installed properly by the electrician."

—STEVE, AIREYS INLET



Accessing internet outside the home

E-changers, like urban-based knowledge workers, often complete some tasks outside of the home by accessing the internet through their mobile phones. While some like to break up the monotony of working from home with short, ad-hoc periods working from cafes, others find a regular workspace outside of their homes, such as a private coworking space or even a public library to work remotely. Faster, more reliable and secure internet are a major part of the value proposition of these external workspaces, alongside other benefits such as a physical boundary to separate work and home and making social and professional connections with other workers in the local community. High quality internet is especially important for specialist, more data intensive, forms of knowledge work.

One difference between regional and urban based knowledge workers is the length of time spent working while travelling, most notably on the regional train lines but, for some, also taking calls or participating in meetings from their mobile phones while driving.

Many participants described the poor infrastructural support for these experiences, such as ‘blackspots’ where mobile reception drops out, and the lack of design features on regional trains, such as appropriate tables, powerpoints for laptops, and wifi.

Working from rail and roads

Michael, a designer, and his partner moved from a small apartment in inner urban Melbourne to a house in Castlemaine. While he often works from home, he describes his experiences of internet access outside of the home by hotspotting through his mobile in regional areas:

“And so when I go to a cafe to work for a few hours, I’ll hotspot the whole time. Or if I’m on the train, [which is] an hour and a half into Melbourne. And there isn’t WiFi on the train, so I’ll hotspot the whole time. The connection isn’t ideal, it’s not consistent the whole time...Faster trains and WiFi on trains would make a world of difference to regional living and remote work accessibility.”

Several e-changers reinforced this point about the suboptimal designs of regional trains to support knowledge work, and often made unfavourable international comparisons here, even though many still worked as best they could. Here Helen describes her experience working from the regional train in NSW:

“The train is dreadful compared to Europe. We really need to do something about improving high speed rail infrastructure if we’re going to grow regional areas. Ten and a bit hours, no Wi-Fi in the train – digital hotspot dropping in and out, but I could still work on the train and not having to drive.”

William describes the frustration of regional blackspots on the roads while attempting to take calls:

“I think the big one is blackspots, it’s a perennial issue. Everyone knows about it...[If it weren’t for Blackspots] I can take a call hands free while I’m driving, or participate in a meeting, like a virtual conference, from anywhere - pull over on the side of the road type stuff, you know, because I’ve got tyranny of distance issues now. if I actually have to be somewhere, like a doctor’s appointment, or whatever, and I don’t want to miss a call...But I think the black spot issues are the big one.”

William suggested that transport infrastructure should embed telecommunications service into the planning and design process:

“We need to...think about the way we implement telecommunications infrastructure alongside any other infrastructure projects. So...not just thinking about building a new road or a new school, but thinking about building a new road that’s telecommunications enabled, building and thinking about telecommunications, around the way we look at school infrastructure, hospital infrastructure, don’t treat them as kind of a separate line item.”

Working from public libraries

Audrey and her husband are both Spanish teachers and together operate a language teaching school. They moved with their young child from Canberra to Rockhampton once classes moved online during the pandemic. Although they purchased a home in Rockhampton, they’ve had to rent a property with no internet access while waiting for the settlement on their new home. They both regularly work from the public library during this time to access the internet.

“I’ve worked from home most of the time that I’ve been working, or internet cafes, hostels and in libraries – I’ve worked in a lot of libraries before. If I have to do invoices, or emails or things like that, any place is fine. But to do lessons I really need to be in my home or the library, because zoom needs more data. [My husband] works from the library as well. We come here everyday [from 9am to 2pm]...they know my name...we sit in the same corner, we have lunch together... I have a locker....we walk by the river after lunch. We do our admin things - like going to the bank or the post office and things during our breaks.”



Fibre alternatives: satellites, dongles and hotpotting

Some e-changers moved to locations that either had no existing internet connection or were connected to the older, ADSL copper infrastructure. These households needed to search for alternative internet solutions, from installing NBN satellite services, purchasing USB modems, or even working from computers while hotspotting through their mobile phone plans.

Satellite NBN

Peter, a business analyst, moved with his retired partner Madeline, from the Dandenong Ranges on the outskirts of Melbourne to a five acre farm outside of Castlemaine, in central Victoria in 2020. After his initial experience of poor ADSL service he signed up for the NBN satellite service.

“When we got here, [the house] had a really crappy ADSL connection because the people we bought it off were in their late 70s. So it wasn’t a massive priority for them. So I immediately had wireless NBN installed... because there is no cable NBN where I am, we’re about five kilometres outside of Castlemaine. So it’s wireless NBN, [but] it’s pretty good. I can probably get about 30 megabits a second.”

Mobile USB modems

Brooke is an organisational psychologist for a major corporation who moved from a capital city to a remote town and worked from home. She initially experienced a lot of problems with their ADSL internet, she experimented with mobile broadband, before paying for an high speed NBN connection:

“When I arrived, we were still on ADSL. And it got to the point where it was so frustrating that I actually bought a [4G mobile modem] dongle. I think that’s what people call it. So I just preloaded it with data that I bought from Coles... but the other problem is that phone reception here where our house is... isn’t ideal either. So even that was pretty slow. So for the first month, I was always really nervous going into a big presentation, because I didn’t know if my internet connection was going to be solid. I dropped out of a few important meetings... it’s just annoying because it interrupts your flow in the meeting.”

Eventually Brooke resolved to sign up for the top range NBN connection, which largely addressed her connection issues.

“When I knew that I’d be coming out here permanently... that’s when I said, we’ve got to get on to Telstra, we’ve got to get this NBN sorted pretty quickly.”



Mobile hotspotting in the home

For other e-changers, using their mobile devices to access the internet offered the most convenient or reliable solution – either as their primary connection point or as a backup when the home connection drops out.



Meredith, a university student union events coordinator, moved from her rented room in an inner city suburb of Melbourne to rent a house from friends in a small town in Victoria's alpine region in 2020. She started working by tethering through her phone and continued with this practice while there:

"I'm online all day, every day. And I, when I first came up here, I was gonna look at reactivating the Wi Fi, but I thought I'll use up the data first and then decide... And we end up tethering off our phones. And I was like, Well, alright, I'll just start. Just start with that. And I haven't had any problems."

—MEREDITH, HARRIETVILLE, VIC

Others continued to use hotspotting as a backup for when the home internet connection was disrupted. Louise and her husband moved from renting in an inner suburb in Melbourne to another rental property Geelong in 2020 to save money and work remotely:

“The [internet] connection has been pretty shit here. I often have to tether on my phone because the internet will just turn off...but it was never really an issue as I just go to my phone. I have a really cheap Aldi \$25 a month plan on my phone with unlimited data...I was astounded at how crappy the NBN was... The phone is often a lot better than wifi!”



Environmental disruptions to digital access

Several of our participants experienced interruptions to data connections on an intermittent basis, long after the initial set up period that we discussed earlier had passed. These primarily related to weather and environmental impacts on network infrastructure, constraining their ability to work remotely.

David, from Bellingen on the north coast of NSW, said that he noticed his connection would slow down when there were significant rain events in the local area. The pits housing cables near his house would fill up and become waterlogged, causing his connection to deteriorate temporarily until the water cleared. This happened reasonably quickly at his home, since he lived on a slope and the waters would clear in a reasonable amount of time, but others living in flatter areas would experience more prolonged disruption. He would regularly conduct Zoom meetings with others in local shire community groups for his work, but claimed many of them would have “shocking internet” with “consistent issues”. This was despite some of them having fibre to the curb connections, since the low quality copper connection to their house was the contributing factor to their low connection quality.

Other weather events had also affected e-changers' ability to connect in their regional homes. Irene, who lived in Mt Macedon, was without a home internet connection for over a week after storms downed trees on electricity and NBN lines in her area. She tried to hotspot on her phone, unsuccessfully, since mobile coverage was patchy in her area. As this was during lockdown, she was unable to access the internet at the local library or cafe either.

*"It was just like *really* disruptive. So that was probably the biggest like, like, wow, ...we rely on the internet. So much."*

These unsatisfactory experiences with digital services primarily involved issues affecting physical network infrastructure; falling trees affecting above ground cables, or rain flooding underground cable pits. These types of problems are more likely to occur in regional areas, as cables pass through the natural environment across longer distances and may be affected by natural hazards such as fire and flood. These sources of disruption should be considered in the context of climate change, as potentially damaging weather patterns become more frequent and severe.



Emerging patterns of network congestion

In general, the e-changers in our cohort were able to accommodate disruptions and other challenges to their internet services in order to work from their homes or, in a few cases, from a workspaces outside the homes. However, some also observed that the existing network infrastructure displayed some difficulty in accommodating the growing population and the more data intensive usage that grew during the pandemic. Participants discussed problems with network congestion across different time scales, from peak periods during the day; seasonal population surges during holiday periods and events; and in some cases an influx of permanent resident remote workers adding demand to the network.

Daily peak periods

Helen, a project and operation manager with a background in technology startups, moved to a small town on the north coast of New South Wales. She notices that the mobile network becomes congested during school pickup hours, even though it doesn't significantly impact her work:

"I've got a school 100 metres from here, I can tell on the mobile when it's three o'clock in the afternoon, even if I couldn't hear it, because at pickup time even the 4G [network] does deal with a congestion situation. Being in a very small area, quite a narrow area, that number of people [accessing] the same digital spectrum...if I'm on a call I notice it. [Before I got fibre to the curb] it was affecting my work when I was using my phone to hotspot, but I just got a cup of tea or did something else [during that time]...if it were that number of people here all the time it would be an issue."

Seasonal population surges

Some lifestyle towns experience extreme temporary population increases over holidays periods. For example, the Victorian Surf Coast has a primary fibre optic cable connecting Geelong to service the medium size town of Torquay, but much lower bandwidth capacity services the smaller towns located further along the coast. Representatives from a nearby local council noted the pressure seasonal population surges can place on the telecommunications:

"We've got, you know, one pipe coming through from Geelong to Torquay, that all of our data has to channel through...The NBN have just announced Torquay as a business fibre zone, which as I understand will improve the access to speeds and bring down the pricing for commercial plans. So that will be good for Torquay, but the further down the coast you get the worse the internet gets. And we have a situation like the challenges in Lorne. So that's got a population of 900. But over summer, the overnight population gets to 12,000. And then there might be another 15,000 down visiting for the day."

These temporary surges in demand for network services introduce a distinct peak load challenge for network infrastructure in these smaller towns. This will likely become more pressing during these periods, as larger numbers of knowledge workers move to these towns and require routine access to high quality internet services during working hours. Increased load on telecommunications infrastructure won't only affect 'e-changers' but existing businesses that require network access, increasingly for payment services as contactless, digital payments have become the standard:

"[There's a] chocolaterie in Bellbrae, [Torquay], the internet is so bad, they can barely run their EFTPOS machine sometimes. And they've got a satellite connection...[and] they're getting 500,000 visitors through a year."

—LOCAL COUNCIL PARTICIPANT

Permanent growth in population and data intensive practices

In other cases, increases in permanent populations working from smaller towns appear to be leading to deteriorating internet speeds. This is a combination of population growth, but also more

“ So you're dealing with infrastructure that's designed for 900 people that's trying to cope with 30,000 on a busy day in summer.”

—SURF COAST COUNCIL REPRESENTATIVE

data intensive demands of the population, as more people adopt remote work practices. Susan, an owner of several coworking spaces on the NSW south coast, was highly critical of the quality of digital services at one of her locations. She claimed their connection formerly supported 20 people's data needs on a day-to-day basis, but the business now experiences disruptions with as little as eight people connected. Staff are now forced to disconnect from the wifi to ensure customer service isn't as affected. She has lobbied the local MP for better services, emphasising that it was damaging her business's ability to operate:

“One of the reasons we went to Kiama [is that it was] the first to get connected to the NBN. So we have Fibre To The Premise...[but] Berry is a nightmare and getting worse. The increase in the population and COVID – the changing usage of streaming systems...the change in working habits of our members who are now on Zoom so much more. This meant that we used to happily have 20 people in our coworking space...and have no dramas at all. Now, when we get to eight people, all of our staff have to log off and use a backup - like a 5G system and stuff like that...I cannot operate a Coworking space in a town without adequate NBN connectivity.”

A major issues on this topic is the lack of clarity and escalating price of getting Fibre To The Premise at the problem location:

“[T]o get fibre to the premises, there is like a \$30,000 investment, or more than that... First [the NBN] said between 3 and 8 grand... then I went back and he said 30, and then I went back and he said, actually they've just recently repaved the road, so now that's like 100 grand or something like that. It is a proper nightmare for me, and an enormous factor in where I decide to go...fibre to the premise is absolutely essential.”

Conclusion: Varied experiences, future challenges

The overall picture of our participant's experience of telecommunications services in regional and remote locations is varied. These differences are related to the general telecommunications infrastructure of the local town or area, including the quality and coverage of the fibre network, and the different classes of NBN services offered to local residents and businesses (FTTN, FTTC, FTTP etc). In other cases these differences are the product of idiosyncratic features of the property itself, such as distance from the nearest NBN node, poor or shoddy connections to the home, and even local topography, rainfall or weather conditions.

In some cases the growth of knowledge workers moving to and working remotely from e-change hotspot towns and coastal areas is putting pressure on existing telecommunications infrastructure, as these increases in demand were not expected or historically planned. This is partly a question of where the population is notably increasing, but also identifying the specific locations that knowledge workers are moving to and demanding more data intensive services.

Many e-changers appeared to tolerate less-than-ideal internet access in regional areas, and largely worked around issues such as slower speeds, intermittent dropouts or mobile blackspots. But not adequately addressing these issues will likely strain regional productivity and could exacerbate or even introduce new kinds of social and economic inequalities. While lower quality telecommunications services might be adequate for general forms of knowledge work, more specialised or data intensive knowledge work may be limited to regional areas with higher quality internet connections. Moreover, other essential services such as health and

education, are expected to depend more on digital infrastructures in the future, especially as population growth in regional areas are expected to outpace the traditional provision of these services to some areas (Infrastructure Australia, 2021).

The notions of an emerging network society that harbours new kinds of digital inequalities have been discussed for decades (Van Dijk, 2020), but our findings suggest a new terrain of geographic boundaries that mark access between high quality and low quality services could be emerging in regional Australia.





6

Spaces for working remotely

The promise of working from anywhere – anywhere with a reasonable internet connection – is one of the driving assumptions of the e-change lifestyle. However, remote workers don't merely require access to digital services – they also require productive and comfortable physical environments in which to perform that work. Vast quantities of resourcing is spent by industry and other sectors on designing productive environments in city-based offices. As e-changers shift their work spaces elsewhere, many of the designed indoor environments that encourage productivity are left behind in the office. What sorts of spaces are e-changers using to perform their work?

The home as the new office

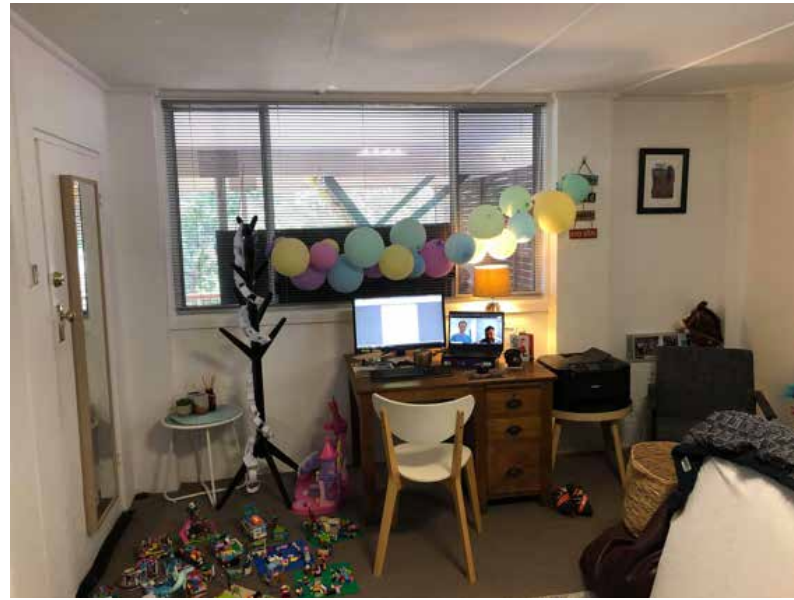
Historically, domestic spaces have not been designed for the practice of working from home. This is particularly the case in more compact urban living arrangements such as apartments and townhouses, where many people working from home have experienced difficulties throughout the COVID pandemic.

With cramped spaces available for dedicated remote work, the possibility of acquiring more domestic space to work remotely is an attractive option for e-changers.

Unsurprisingly, most of our household participants had dedicated office spaces in their home to work from on a day-to-day basis. These may have been a converted bedroom or an existing study or office space. The comparatively more affordable housing prices in regional areas had allowed many participants to purchase or rent a free-standing house that had space for a dedicated home office.

E-changers working from home were typically working with desktop monitors, often connected to laptops. This allowed them to take their device with them when they went into the office, and to potentially work while commuting on the journey to and from the city. Participants' workspaces tended to be well lit with natural light, and most felt they were comfortable working in their space.

Some participants noted that working from home required them to consider their thermal comfort more-so than when they were in the office. This was particularly the case for areas with highly variable weather and temperature conditions. For instance, e-changers moving to the Blue Mountain in NSW or around Castlemaine commented that their house was often cold, requiring them to heat it to a comfortable temperature throughout the day to allow them to work – with an associated rise in their home energy bills.



Some e-changers felt that it was important to have a workspace that was separate from the house. Peter, for example, had made a conscious decision to convert a shed on his farm in Castlemaine into a dedicated office space external to the house. He realised early on that working inside the home with his partner present would create difficulties, since she would be concerned about disturbing him while on video calls, and he may get distracted by her activities during the day. He also felt that the physical separation of the workspace helped him get into the mindset for work:

“...part of it is also that mind shift. You know, you’ve left the house and you’re at work now. You’ve shut the door to the shed and you’re at work.”

Libraries as remote working spaces

While the majority of our participants were working from home, others were making use of local spaces to perform their work.

Audrey lived in Rockhampton, and worked from the local library on her laptop on most days. She did this for a range of reasons. Her home did not have air conditioning, and so was not suitably comfortable for working throughout the days in summer – although winter was manageable. However, Audrey also felt it was beneficial

to work away from home because she didn't have easy access to her fridge, which she said was "a big issue when I was at home". Working at the library provided her with a clean environment, and her lunch break was to go for a swim at the local pool. At the time we spoke she did not have broadband internet access at her home either, as it was under renovation. While she intended to work from home in the long term, she enjoyed the experience of working from the library. Wifi access was "good", and allowed her to conduct her Spanish classes over Zoom without any significant problems.

Public patronage of physical libraries has declined over recent decades as a result of the digitisation of books, media, and other resources. Libraries are primarily designed for short term visitation – book borrowing and quiet reading – but less often designed for extended periods of remote work. From a local government governance perspective, there is an opportunity for regional public libraries to provide productive working environments for remote workers who require spaces outside the home. Given their central location in most regional communities, generally under utilised space, and established data connections, libraries could be re-oriented toward providing dedicated remote work spaces to those living locally.

Co-working spaces

Co-working spaces are another option for e-changers working remotely. Tristan, a household participant from Castlemaine, had spent several years working in the local co-working space, which was housed in the local disused hospital. This gave him a space to work outside of the home while he completed his PhD on weekends. He describes the space as 'grungy', but had a vibrant culture of creatives and other people working remotely out of the space, which he valued as part of his work environment and community.

It also gave him access to higher quality internet connection throughout the mid 2010's, as the hospital had a direct copper line to the exchange. The cost was also manageable for him, especially when compared to other dedicated commercial co-working spaces that were operating in Castlemaine.

Traditionally a city-based phenomenon, commercial co-working spaces are increasingly emerging in coastal and regional areas. This reflects the ability of people to work remotely using digital technologies, without needing to attend their employers office on a daily basis.

Susan, who manages several commercial co-working spaces on the NSW coast, said that co-working spaces were important for people experiencing isolation working from home, and who wanted to remain productive through their workday. Prior to COVID, a significant number of the space's clients were young mothers returning to the workforce with online businesses or working part time remotely.



She also observed that, since COVID, there was an increase in salaried employees using the space whose employers were funding their coworking membership. This reflects the growing acceptance of remote work throughout the economy, and the benefits it can provide for growing workforce participation outside the city.

However, Susan also argued that not all regional & coastal locations are able to support a co-working space business. In her observations about regional and coastal towns that could support co-working spaces, she described a series of factors that were indicative of a population of remote workers living locally that might make use of such a space:

“ ...when the average property price hits \$900,000. And you don't have 30% of the population that are over 60. And you have a net influx of people... that's when you open a Harris Farm [supermarket]. And so that's exactly where you open a [coworking space] too.”

—SUSAN, CO-WORKING SPACE OWNER

While working in public office-like spaces was clearly a benefit to some e-changers, many of our participants were generally content with working from home. Some said they might use a local coworking space if the opportunity arose, but they were

not overly certain they actually would. Still others said they weren't comfortable working in these shared spaces due to the nature of their work. Yannick, for instance, did not feel he would consider working in a local co-working space because his role in the public service frequently required him to review politically sensitive material that was not intended for public consumption. While his organisation did not have any specific policies that would prevent him from doing so, he felt that working in an environment with other strangers potentially looking at his screen was not appropriate for someone in his position. Privacy then, is likely to remain a concern for those working remotely outside of the home.

Working remotely off the grid

Digitally enabled remote work offers the potential for some people to not just live away from the city, but an entirely off grid existence. One of our participants Elaine has moved onto a property near a small village about 30 minutes drive from Bathurst, NSW. The property has no connection to the electricity grid, no piped water, and no fibre or copper connection for communication. Despite this, she has worked remotely as a web designer throughout 2021 with her partner whilst living in a caravan, with the longer term goal of building a house on the property. Elaine uses mobile data services for her work, charged by solar panels on the roof of the caravan, with a battery and generator providing energy storage and backup power.

Elaine works primarily from a laptop inside the caravan, along with her smartphone and tablet, as shown in Figure 1. She also has a larger iMac desktop computer on site, but this tends to draw too much power from the solar panels and so has used it less frequently. We spoke to Kate over Microsoft Teams, her on-site data connection from her caravan was similar to other participants we interviewed who were using fibre connections.



Figure 1: Elaine's off grid remote work office her caravan

Prior to moving, Elaine had visited the property and made sure that the level of digital connectivity on site would be satisfactory for her remote work needs. She had performed speed tests with both her and her partner's phones, which were on different mobile networks, and asked the neighbours about their experiences of mobile data connectivity. With this peace of mind, Elaine and her partner purchased the rural property in the knowledge that they would be able to perform their work in an off-grid environment.

Elaine plans to continue to live and work off grid on her property in the future. The solar PV energy generation and storage capacity on her caravan is relatively modest compared to other off-grid set ups available, and she anticipates that once they finish the house – and upgrade their energy system – it will remove some of the constraints on remote work that she currently has, such as using the laptop instead of the desktop computer.

While off grid living is likely to remain a relatively niche way of living, it is nonetheless a growing one. There are a number of highly subscribed Facebook [groups](#) devoted to off grid living in Australia, with several having tens of thousands of members. These offer an opportunity for people to connect and share information about



their lifestyle. While off grid living has traditionally been associated with disconnecting from society, digital and mobile technologies are allowing people to pursue this lifestyle while remaining just as ‘connected’ as they were in urban areas.



Key takeaways

- **Recent developments in energy generation & storage can enable off-grid remote work arrangements, provided robust mobile / wireless connectivity is available.**



7

The daily life of e-changers

The day to day experience of working remotely in regional and coastal areas tends to be quite different from a traditional office job in the city. With much knowledge work shifting into the digital realm, such as through video meetings and cloud computing, different demands are placed on e-changers time. In most cases, this involved more time spent at their computer than they might otherwise be doing.

Here we discuss some of the common experiences – including positive, negative, and complicated – of remote work. As we will see, the effects of being able to work remotely don't merely stay with the participants themselves, but cause changes to the routines and habits of their work colleagues and other household members.

Commuting as an e-changer – the long and the (very) short

E-changers who were working from home were overwhelmingly positive about not having to undertake a lengthy commute on a daily basis. It freed them to undertake other activities, or perform tasks that they would otherwise not have time to do. Annie spoke about being relieved of the burden of having to endure a long commute in the city:

“So before, even though I lived in Sydney, and worked in Sydney, I would be commuting two hours a day. And now I commute 10 seconds a day. I have now two hours back in my life, which is just so great. And that means that I can sleep more. I feel less stressed.”

However, some also found that it was important to maintain a separation between work and home life, a function that commuting had previously served.

Some participants created artificial commutes to enable them to enter a state of mind that would prepare them for the work day. Steve in Aeries Inlet would usually go for a walk before he started work, both as a form of exercise and a way to prepare him for the days work ahead. Brooke in Broken Hill reflected on her 'micro-commute', which allowed her to achieve a degree of separation – both physical and mental – between work and home, even while working from home:

“We actually have a little outhouse... I’ve turned that into my office. So I actually physically leave the house, walk two metres and go into another little area, which I love. I have a commute... But I really like it because it does make me feel like at the end of the day, I lock that door, I leave work behind and then I go back home.”

Other e-changers we spoke to found their commuting patterns more lengthy and stressful, primarily because they were travelling into a city office multiple times per week. For instance, Irene and her partner wanted to progress their careers in their respective roles, so made it a priority to attend the office regularly for important meetings with external clients. Irene found it convenient that she could work on the train into Melbourne from Mt Macedon, saying it was a “big positive” to her work life. But she was also frustrated by frequent train cancellations or postponements, which would mean either missing important meetings or being rushed to make them on time. She said that over time, these deficits on public transport “really got to me”, and contributed to her decision to move back to Melbourne.



Key takeaways

- **E-changers commuting practices are made easier by fast, reliable public transport that lets them be connected and productive on the move.**
- **Evolving hybrid work arrangements may become a challenge for those with expectations for regular attendance at the city office.**

Video conferencing as a new normal

Several participants noted that the widespread adoption of virtual meetings has significantly reduced the amount of time they and others would use to physically travel between face-to-face meetings.

Prior to working from home, Annie worked at a large university campus in Sydney, often requiring her to attend meetings in different locations up to 20 minutes walk away from her desk. A return journey could therefore take up to 40 minutes, time that would generally be seen as 'unproductive'. But while we could view the switch to virtual meetings as an increase in productivity – in that it eliminates the need for physical travel between places between the 'productive' meetings – Annie pointed out that this idle time walking to meetings wasn't disrupting her productivity directly:

“It didn't eat into my productivity because I still had to do the work. It ate into my private time. ... I still have the same amount of work that I need to deliver.”

Being in a professional role, Annie felt that she would still have to do the work regardless, and so avoiding the time-consuming task of moving to and from physical meetings was a welcome improvement to her work life balance.

Peter, who worked for a large organisation that occupied several buildings in the city, noted some of the difficulties of arranging physical meetings in that space. Meeting rooms were frequently booked up, or available rooms were not big enough for the number of people that were required to attend. Many of his meetings pre-COVID would start 5-10 minutes later than scheduled because of the complexities of finding meeting rooms, particularly for anyone unfamiliar with the office layout. In contrast, Peter's experience of virtual meetings was that they were overwhelmingly

more productive because of their punctuality, and that he could allocate just enough time to them as was required by his job requirements.

However, the apparent efficiency gains afforded by virtual meetings is not without its downsides. Several participants spoke of having constant back-to-back video meetings throughout the workday, and how tiring an experience it was to sustain. 'Zoom fatigue', as it has been labelled in popular media, has emerged as a relatively common symptom of working from home.

Peter was particularly aware of this hazard of remote work, typically having many meetings throughout most work days. To manage this he would regularly schedule shorter 15 or 25 minute meetings – instead of a whole hour – to ensure he had time to digest and process the material generated from those interactions.

More connection from working remotely

In some cases, the widespread adoption of digitally enabled virtual meetings has changed the way people are performing their paid employment roles in quite significant ways.

Steve works as a librarian for a large university that has multiple campuses throughout the city. Much of his role involves working with different departments within the university so that they are aware, and can make use of, the services that are available. Prior to COVID, Steve would tend to meet with people working in departments that were located on the university's CBD campus. He would rarely travel to the peripheral campuses to attend meetings since this would have taken a disproportionate amount of his time, and hence he did not develop particularly strong relationships with people on those campuses.

However, with virtual meetings now the default way of meeting, Steve has been able to more effectively reach people working in these parts of the university, who are now taking advantage of the services offered by the library.

In larger scale meetings with many participants – such as those facilitated at the College level – Steve is also able to advertise the library’s services without having to negotiate a time allocation on the formal meeting agenda. By notifying people in the meeting chat channel about library services, and inviting people to contact him, he can more effectively perform his role. In face to face meetings, he notes that it would have been far more difficult to reach such a broad audience.

Video conferencing and remote work

In some cases, the normalisation of video conferencing for replacing many face to face encounters since the pandemic has allowed certain types of businesses to form and grow. One example came from Audrey, who had moved to Rockhampton in late 2020. Previously she had been running a Spanish school in NSW, teaching face to face lessons to students drawn from the local area. When COVID hit, her lessons switched to online classes via Zoom. However, she did not merely keep teaching the same students that she had always taught. With Zoom classes becoming a new normal, she realised that she could be teaching from anywhere, and so decided to relocate to Queensland:

“When COVID started, it was a threat. Because, you know, face-to-face was not an option. But that was an opportunity, because now we could recruit students from all over Australia and teach them Spanish.”

Now, she teaches students nationwide on Zoom, and manages several other instructors who also teach in her school.

Similarly, William's work as a facilitator had shifted to online delivery throughout the pandemic. Previously, he would run workshops and focus groups for a range of government and industry clients, primarily in Melbourne, while living in the inner suburbs. However, the switch to remote meetings allowed him to work from his regional property in Malden, which they "panic bought" in early 2020. William noted how his use of virtual backgrounds gave him an opportunity to convey an impression of professionalism in his work, despite 'squalor' existing around them in their house while it underwent substantial renovations. Working remotely also presented an opportunity to expand beyond the sphere of Melbourne:

"Now, as a consulting business, we're thinking 'Well, how do you become a national business now?', because the delivery model has changed."

William felt that his move to Malden also gave him an opportunity to focus on developing connections in regional areas in Western Victoria, should clients there require in person facilitation of events.

Yannick, a team manager who works at a large organisation based in state government, frequently speaks with colleagues in offices across the state as part of his work. Prior to COVID, these conversations had generally taken place via audio phone calls. However, as video conferencing has become more thoroughly embedded in work practice, they now take place with a video connection as well. Yannick describes these interactions as now, paradoxically, "more interpersonal" than they were before, because of the normalisation of video conversations over audio.

This increased reliance on video conversations over audio communications is likely to place higher demand for data on the NBN and mobile networks, as conversations become more data intensive than they may previously have been. As information technology manufacturers release higher resolution webcams on their devices, this may further increase the demand for data-facilitated video conversations in the future.

Virtual travel replacing physical travel

Anita, based on the Sunshine Coast, was a household participant who used digital technologies and services in two very different employment contexts. When we first interviewed Anita, she was working in commercial real estate. Her role was to inspect retail shopfronts in shopping centres and provide expertise to tenants about fit outs and product arrangements to enable them to perform well. Prior to COVID, this would entail regular travel to the clients – who were often interstate – where she would provide this advice in person.

However, since COVID she was giving this advice virtually on Zoom, with clients on site providing live video feeds of the retail spaces using camera enabled smartphones. Anita would direct them to point their camera toward spaces she wanted to view remotely. She was surprised at how well she was able to get a sense of space from these ‘virtual tours’, saying that ‘it was pretty much realistic’. Anita claimed that these digitally enabled virtual tours were saving her employer thousands of dollars in travel costs, which would have otherwise been spent on her travelling to in-person inspections of her clients.

Kevin was another participant whose travel obligations for work had been fundamentally shifted due to digital services and the restrictions from the pandemic. Working as a manager in a medium sized construction company, Kevin’s role used to require him to periodically fly to manufacturing facilities in China inspect production of bespoke parts for use in infrastructure projects

in Australia. When flights were cancelled in 2020, they developed digital alternatives to air travel and inspecting these parts in person:

“One of the success stories of COVID we’ve had is... we’ve used a lot of video technology to do remote inspections. So now rather than, you know, two or three engineers jetting off to China for a week, I can get, you know, six, seven people around the conference table, and we can have that video inspection and check all of the parts.”

–KEVIN, WOLLONGONG

The local Chinese supplying company would stream 4K video of the parts to Kevin and his colleagues on Yealink (since Microsoft Teams was not enabled in China), and work through a checklist to ensure they met the required specifications. Kevin’s company employed a local third party inspector to verify that the demonstration was up to standard. In our follow up interview with Kevin he confirmed that the company was continuing to practice these remote digital inspections in early 2022, despite air travel having resumed several months prior.

These examples suggest that the pandemic induced replacement of air travel with virtual travel may continue in many cases, with the associated benefits for environmental sustainability and work life balance. It should be noted that the technology and services used in these practices are not particularly novel or cutting edge, and were available long before the pandemic began. But the restrictions brought about a forced innovation in communication and collaboration, where remote inspections are now thoroughly normalised.

More work-life flexibility for families

One of the widely recognized benefits of remote work is flexibility. Remote work removes the need for employees to commute to an office on a regular basis, giving them more time throughout the day to spend on other activities.

However, it is not just the participants themselves who benefit from the additional flexibility of working remotely and from home. In some cases, the reduction in time spent commuting, travelling, or otherwise away from home has meant that other family members are also in a position to benefit. Previously, Kevin had been the majority breadwinner in his household, and his office job in Sydney would regularly require him to be away from home between the hours of 7am and 6pm. He explained that this put more pressure on his wife to provide the majority of the caregiving for their children, including school drop offs and pick ups. However, since Kevin has been working from home he's been able to do those tasks, and his wife has been able to take on a more senior management role in her work, enabling her career to progress more than before. Summarising this new arrangement for balancing work and home life, Kevin said:

"I'm really, really happy. It's the way forward. I don't think anyone's going back."



Key takeaways

- **The benefits of working remotely allow for families to spend more time together, improving overall wellbeing.**
- **Remote work can facilitate more equitable caregiving arrangements, allowing greater workforce participation for groups that have traditionally been less represented in the workforce.**

8



Push & Pull: why e-changers settle where they do

In order to understand the migration patterns of e-changers it's important to understand the underlying motivations of their decision to move to the regions. As has been discussed, the reduced cost of living – particularly housing – is central to the concept of e-change. For those who owned property in the city, selling and purchasing a new home in the regions usually allowed them to get more for less: a larger, freestanding house with a backyard, for potentially less than the cost of a metropolitan apartment or townhouse. Seeking out a new way of life away from the city's more undesirable aspects – particularly commuting and congestion – is also a central motivation behind the e-change migration trend.

But what factors lead e-changers to choose a particular location over others? Why are some regional and coastal areas more likely to be e-change hotspots than others? Here we discuss some of the common stories behind e-changers moves.

Access to natural amenities

The presence of natural amenity in a regional area – such as beaches, mountains, and forests – has been a common feature of most of the locations our participants have e-changed to.

The ability to integrate activities in these natural environments into their daily life was seen as highly beneficial to their lifestyle, and contributed to the sense that they were ‘living the dream’. For instance, Steve in Aeries Inlet felt highly fortunate to be able to surf during the week, either before or after work or during a break. The flexibility of his remote work allowed him to prioritise surfing when the conditions were favourable, and working at other times to compensate. He would go for regular walks to the beach as part of his daily routine, which he found highly beneficial for his well being.

Likewise, Yannick and Andrea had chosen to live in the Blue Mountains west of Sydney because of the prevalence of rock climbing locations. For Yannick, being able to go rockclimbing or trail running after work during the week was a great opportunity to fulfil his passion for the sports on a regular basis:

“...if I want to go for like a trail run in the bush on a Monday after work, then I can... it’s right there, it’s on my doorstep, I can I can just go on and do that.”

For Andrea, living in the Blue Mountains meant that she was also able to climb more easily on weekends, without having to make the long drive up from Sydney. Annie and Sarah enjoyed bushwalking, which they were now able to do on a regular basis in the Blue Mountains, and similarly, moving to Wollongong offered Kevin ample opportunities for mountain biking.

More generally, the presence of green spaces – bushland, mountains, beaches, etc – was seen as a major drawcard for those accustomed to living in dense urban environments. This is reflected in the fact that many of the e-change hotspots such as Castlemaine, the Illawarra, Blue Mountains, Torquay & the Surf Coast, and the Sunshine Coast - are all renowned for their natural beauty and accessibility. Even having a backyard was viewed as extremely beneficial for many people, particularly those who were previously residing in more confined spaces in cities, such as apartments.

A place to raise a family

Several of our participants discussed how their choice of location was in part driven by a desire to find a good place to raise their children. For example, Audrey had a young child and felt it was important to have access to the beach and spaces for outdoor activities. It was also important that her child had access to good schools, and extracurricular activities like playing soccer, scouts, and music. In her eyes, Rockhampton fulfilled these criteria in part because it was a “medium” city – large enough to support these activities, but more affordable than a larger city like Sydney or Brisbane.

“ We’ve managed to buy a house with a garden, all of those kind of dream things that you want for, you know, a young family growing up. So we’ve got the swing set in the backyard, and all of that stuff we kind of wanted.”

–KEVIN, WOLLONGONG

Another participant, William, wanted to raise his 6 year old son in an environment where he could experience unsupervised play. This wasn’t possible during lockdowns in Melbourne, but even outside of these restrictions it was difficult to arrange whilst living in a small apartment in the inner suburbs. He and his partner had been looking for a way to give his son the same experiences he had growing up on a “huge place to run around on, lighting fires and building cubbies as a kid”. Living on a larger regional property would also allow them to keep their child occupied during school holidays while they worked remotely, as there was more to occupy their son than in the city.

Proximity to family

For some e-changers the desire to be closer to family was a central reason for moving to the particular area that they chose. For example, Steve, a middle aged professional who works for a large university in Melbourne, moved to Airies Inlet on the south coast of Victoria – several hours drive from the city. While the area

offered many lifestyle benefits such as proximity to the coast for surfing, it was also where Steve's elderly and ailing parents lived. While living in Melbourne previously, Steve and his partner were frequently driving to the Aeries on weekends to visit and care for his parents. Steve reasoned that working remotely would allow him to perform this important care work while still fulfilling his employment obligations.

David was another participant who had e-changed in part to be closer to family. Having worked in Melbourne for several years, and being at the point of starting a new family, he and his partner moved to Bellingen, a small town of 4000 people on the NSW north coast. This meant they were within reasonable driving distance of Brisbane, where his and his partner's parents lived. This meant they could visit more easily, and their young children's grandparents would be able to be a part of their grandchildren's life growing up.

E-change appears to afford people the possibility of living closer to their loved ones than they might otherwise have been when constrained to a city office job. The additional flexibility of remote work can allow those with caregiving responsibilities to make that task easier by reducing the physical distance between family members.





9

Regional impacts of e-change

In popular accounts of e-changers, tree-changers and sea-changers, the rural is often framed in idealised terms as a place of escape or refuge from the ills of the city. In recent years TV programmes and lifestyle magazines have celebrated escaping to the country and the joys of rural life. But what these somewhat idyllic portrayals of moving to the country tend to gloss over are the rather more complex realities that face both e-changers and locals on the ground when urban professionals decide to uproot themselves and settle in a small regional town or remote area. The impact of this counter-urban migration wave varies considerably across regional areas and specific towns.

In this section we describe some of the complex dynamics and challenges associated with the shifting role, status and culture of regional and rural centres as digital remote work enables the possibility of relocation for certain sections of the urban working population. As the urban middle classes are moving into rural and regional areas that are often characterised by quite different social and class demographics, we begin to see the challenges that come with this migration pattern.

Community social media: from conviviality to a clash of cultures

Social media pages have emerged as an important digital space for communication between residents about matters relevant to their local community, particularly in e-change areas. These are key spaces where we can see some of the complexity of the shifting cultures of towns and areas being played out. Many of our household participants were aware of these pages, particularly if they were living in areas that were experiencing changes from an influx of new residents moving to the area.

Community social media pages provide an opportunity for people to find out about goings-on in their local area in a way that is sometimes more up-to-date and accessible than official communication channels. For instance, Irene from Mt Macedon found her local community Facebook page to be a useful source of information about power outages, which were relatively frequent in her area from storm damage to power lines from falling trees.

For newcomers to an area they can also be an important point of connection with the community. Tristan, who first moved to Castlemaine in Victoria in 2012, said that the local Facebook page 'Castlemania' was a vibrant, positive resource. He said people would often help others source local goods and services, and provide

advice to people considering moving there. However, since more and more urbanities have moved to Castlemaine seeking a 'lifestyle' change, Tristan claims that the tenor of posts on the page has skewed far more negatively than in the past, as it "descended into a world of hate and politics" as he put it. He also claimed that COVID was a particular touch point in the past 2 years, lead to further conflict on the page as people disagreed over the restrictions on social distancing in the local area.

Tristan also observed that in recent years another local Castlemaine real estate Facebook page has taken a similar turn, with posts regularly discouraging people from moving there because of the lack of affordable housing for local residents. Neil, another Castlemaine resident, also alluded to the tensions on Facebook between long term residents and more recent migrants who have pushed property prices to record highs. He echoed Tristan's view, claiming that: 'you see those tensions emerge or voiced there'.

While some Facebook pages are moderated by council, other pages are created by local residents, offering relatively unfiltered sources of information and views within the community. In Shellharbour for instance, the local council operates an official Facebook page that posts news about events and activities that the council was hosting. However, many suburbs within Shellharbour also have dedicated local Facebook pages that were not moderated by council. On such pages, residents may complain about happenings in the local area, such as cars being broken into. Without any dedicated

moderation from municipal authorities, such pages may be sources of misinformation that do not accurately reflect the reality of life in that area. As a representative of Shellharbour noted:

“We found that for our older residents, that can make them feel a little bit unsafe... that can be quite unsettling for people... People’s perception of safety is often not matched with the actual reality of what’s happening within those different suburbs.”

These examples point to the complexity of the role and status of digital social media platforms, particularly during times of change and social upheaval for regional towns and communities. They offer real opportunities for connecting diverse community members and for communities to share information, goods and services and support. But at the same time, they may offer channels for misinformation and culture clashes between residents. Thus, many of the challenges to social cohesion posed by social media to broader society also apply at the local level. The potential for misinformation to spread on social media – particularly in areas that are already experiencing community tensions caused by migration and e-change – should be recognised by local authorities and policymakers.



Key Takeaways

- **Local social media (e.g Facebook) pages present opportunities for community connection for e-changers in the digital sphere, but can also present challenges as sources of potential misinformation and conflict.**

Declining affordability in hotspots

As we noted above, a key source of tension between e-changers and locals in regional and rural areas is around housing affordability and shortage of available housing given population pressures. Soaring house and rental prices in regional areas was a recurrent theme in many of our interviews with e-changers.

The impact of this counter-urban migration wave varies considerably across regional areas and specific towns. Particular lifestyle towns, usually natural amenity rich locations within 150km of a major city to keep commuting distance under two hours, have become highly desirable 'e-change hotspots'. Due to limited supply of housing, their status is most visible in the extraordinary growth of property prices during the pandemic rather than in macro population figures (see Table 1). In 2021 price growth in regional NSW (30%) exceeded Sydney (26%) and regional VIC (22%) exceeded Melbourne (15%). Rental affordability in the regions has also declined over this time.

Paradoxically, in moving to 'the country', a driver for many e-change households has been their ability to buy a more affordable dwelling (often larger and with a garden) than what they owned or rented in the city. However the growing number of urbanites moving to the regions has significantly pushed up housing and rental prices in the regions over the past couple of years. For instance, the 'Regional Migration Impacts on Property Report' has shown that regional Australia has experienced record levels of growth across housing and rental markets in the last 12 months (NAB 2022). As a result, many longer term residents are now priced out of the market in their hometowns. This dramatic decline in housing affordability in many regional areas has been particularly severe for low-income households, especially as the temporary increases in income support (e.g. Jobkeeper) during the pandemic have now ceased (SGS Economics and Planning 2021).

E-Change Hotspots	Median Property Price	% Growth in 2021
Cumalum, Northern Rivers, NSW	\$900,000	42.9
Tweed Heads West, Tweed Shire, NSW	\$380,000	43.4
Miami, Gold Coast, QLD	\$1.205 million	44
Suffolk Park, Northern Rivers, NSW	\$1.625 million	44.1
Buddina, Sunshine Coast, QLD	\$1.255 million	44.3
Bulli, Wollongong region, NSW	\$1.445 million	44.5
Bridport, North-East TAS	\$567,500	46.3
Mermaid Waters, Gold Coast, QLD	\$635,000	47.5
Sunshine Beach, Sunshine Coast, QLD	\$2.655 million	47.6
Gerringong, South Coast, NSW	\$1.31 million	49.7
Minyama, Sunshine Coast, QLD	\$1.66 million	49.7
Kembla Grange, Illawarra region, NSW	\$617,000	57.2
Bryon Bay, Northern Rivers, NSW	\$2.294	58.2
Blairgowrie, Morning Peninsula, VIC	\$1.505	58.4
Somers, Mornington Peninsula, VIC	\$1.703	69.1

Source: ([Taylor, 2022](#))

Table 1: E-change Hotspots and Local Real Estate Prices

In the long run the influx of professionals into regional areas may lead to economic expansion, but the current high rental and property costs are “leaving locals to struggle to compete against largely white collar sea and tree-changers on big city salaries” (Creagh 2021). This class based economic disparity is clearly one of the key reasons for tensions between long term locals and e-changers. However, despite being middle class, educated professionals, not all of our e-change households had economic capital.

Tristan, an education professional, moved to Castlemaine 10 years ago, and has been working remotely since then, though largely on short term contracts. He describes the housing situation in Castlemaine now as ‘absolutely diabolical’. Tristan saw this as not only being due to e-changers but also being exacerbated by people purchasing ‘weekenders’ and renting them on AirBnB, thereby reducing long term rental capacity. The housing situation is made worse when families separate, as Tristan’s had:

“There’s a lot of people who separate, and then of course, you can’t really move away... because your kids go to school here. I’m freaking out about my own [rental] property... because if I lose this place, I don’t know what I’ll do. I’m so stressed.”

Tristan’s experience points to the complexity of the e-change experience, with newcomers who might have less economic capacity than other “tree-changers on big city salaries” finding themselves having to quickly acquire housing in their new home towns. Working remotely requires an affordable supply of spaces to live and work has become difficult in the face of rising costs and a shortage of housing.

Another key group locked out of the market are ironically the growing number of service workers needed to support regional and rural communities as their population and need for amenities grow. For instance, a representative of Surf Coast Shire council claimed that the 'AirBnB effect' of property investment (noted above by Tristan) was creating a labour shortage for essential services in the town of Lorne, as there was so little affordable long term accommodation available.

"It came to a crisis point when our Lord Councillor would walk down the street and couldn't find anyone to make a coffee. After that... because of the the advocacy from businesses Council they declared a key worker accommodation crisis."



Key Takeaway

- **E-change hotspots are often experiencing drastically reduced housing affordability, creating new patterns of inequality and tensions within communities.**

The Changing Face of E-Change Hotspots

This e-change wave is also changing the demographic and cultural profile of these smaller towns. On average, the population of smaller towns in Australia has traditionally been older, less culturally and linguistically diverse, had lower levels of education, lower levels of income, and higher rates of unemployment when compared with major cities ([ABS, 2018](#)). The occupational profile of smaller towns has also been quite different from major cities. At the last census count in 2016, more people worked in the 'knowledge economy', as professionals, managers, or in administrative roles in major

cities; whereas in small towns more people worked in the ‘manual economy’, as technicians or trades workers, machinery operators and drivers, or as labourers (see Chart 1)¹.

2016 Occupational Composition of Small Town and Major Cities

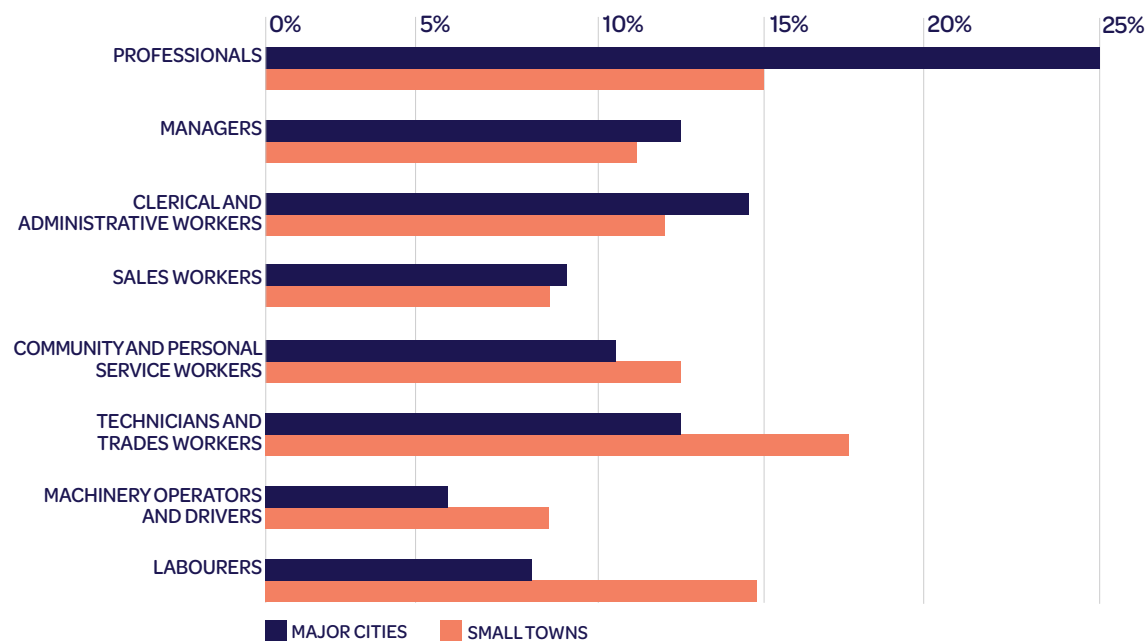


Chart 1: 2016 Occupational Composition of Small Towns and Major Cities

This new wave of regional migration led by e-changers tends to reflect the demographic profile of major cities, even the occupational, aesthetic and political values associated with ‘inner urban’ communities. A recent survey of regional migrants in Victoria during the pandemic found the majority migrated from inner metro regions, and were generally younger, more educated, had higher incomes and more likely to be engaged in knowledge economy occupations compared with those that migrated before the pandemic ([Ghin and Ainsworth, 2022](#)). This new cohort of regional migrants will thus not only have different needs related to the telecommunication and other infrastructure required for digital and remote work, but also have a marked impact on the social and cultural composition of these destination towns.

¹This data is from the 2016 national census, which is the most recently available at the current time of writing. It will be instructive to compare these figures with the results of the 2021 census when this data is made available later in 2022.



10

Recommendations

As part of the E-Change and Remote Work in Australia Project, we have produced a series of advice sheets for a variety of stakeholders that are involved or affected by e-change. These sheets provide a range of tailored recommendations for households (both homeowners and renters), businesses, local councils, and coworking spaces. These are available on the ACCAN website.

Here we offer a series of broader recommendations for stakeholders working in industry, policy development, and governance to distil key actions and priorities that have arisen from our investigation into the e-change phenomenon.

Understand and plan for the movement of remote and hybrid workers to regional areas

The growing adoption of digital technologies and remote work practices has meant more Australians are able to migrate to regional areas whilst maintaining their city jobs. However, working remotely generally requires stable, fast, reliable internet to perform work and maintain a successful career outside the city. As more Australians undertake e-change, it will have an impact on digital services in regional areas. Understanding the internal flows of knowledge workers is crucial for making informed decisions about future investment in infrastructure and services.

E-changers have different service needs than longer term residents engaged in standard employment arrangements in the area, particularly in the provision of digital services. E-changers are likely to be more 'data intensive' than other internal migrants, as they are particularly reliant on digital services for both work and domestic purposes.

Prioritise network infrastructure and communications services in areas that are most experiencing the effects of e-change

While many regional and coastal areas are feeling the effects of e-change, it is not a phenomenon that is taking place evenly across the country. Certain areas are experiencing particularly rapid influxes of new residents who work remotely, and bring with them expectations for digital connectedness. E-changers in these

areas are highly reliant on digital technologies and communications services to perform their work. Fast, reliable internet access is an essential service for these residents, who often have data intensive work practices such as video meetings and cloud based files that they access and edit. Telecommunications providers should identify these e-change 'hotspot' locations as early as possible to ensure they can provide high quality services to local residents and businesses in these areas.

Areas experiencing an influx of new residents may experience increased pressure on local services such as roads, health services, and data networks. Governments and other stakeholders should plan for how to accommodate these new demands on services and infrastructure. Towns outside the city who are wanting to attract businesses and knowledge workers will increasingly need to be able to offer digital connectivity on par with metropolitan based business demands. Strong investment in local services may also allow locals longer term locals to access jobs in nearby cities, increasing workforce participation.

Make telecommunications services resilient to extreme weather conditions, accelerated by climate change

Damage from extreme weather events such as storms, floods, and bushfires can cause significant disruption to telecommunications services. These events particularly affect e-changers' ability to perform their work, as they often rely on high speed, reliable data connections on a daily basis. Having a backup source of connectivity such as 4/5G SIM modems or mobile devices in addition to fibre can ensure e-changers remain productive during these events. Network coverage is also improving over time, with innovations such as Low Earth Orbit Satellites (e.g Starlink) offering

options for connecting from remote areas. Renewable energy and battery storage can provide e-changers with a means to secure their energy needs, or provide an option to live off-grid while maintaining a 'city' job.

Facilitate healthy lifestyles and communities through digitally connected remote work in regional and coastal areas

Working remotely is likely to change daily routines, particularly with regard to exercise and diet. Working from home may require e-changers to be more intentional about scheduling activities such as exercise and other things that maintain their wellbeing. Experiences of social isolation are also common, as it can be difficult to make new local social connections when working predominantly from home. Meeting people in the local area through community groups, sporting clubs, online community pages, or volunteering can help ameliorate this, while contributing to the civic life of the town. E-changers spending some time working from local work hubs can also help facilitate social engagement within a local community.

Plan for diverse, affordable, and sustainable housing in areas affected by e-change

Some highly desirable e-change hotspots have experienced rapid increases in property prices, reduced affordability and availability of housing. Councils and planning authorities may need to plan for affordable housing and other services to ensure lower income residents are not forced away from the area. This includes ensuring there is a diversity of housing in their local town - such as townhouses or apartments, as well as freestanding houses - to ensure that people with different accommodation needs are

met. E-changers are also highly reliant on domestic energy since their primary work place is usually their domestic dwelling. This group of workers is particularly impacted by higher energy costs, as thermal comfort is a key dimension of maintaining a work environment.

Provide fast, affordable, productive transport options to nearby cities

Many e-changers will still need to access the city as part of their flexible and hybrid work arrangements. Weekly or intermittent attendance at a metropolitan based office or place of work is a common arrangement that many e-changers anticipate going forward. Regional areas that have high speed public transportation connections (e.g trains and buses) to urban areas are more conducive to this type of hybrid work arrangement. Since these commutes are likely to be longer than urban based ones, e-changers place a high value on being able to work whilst travelling. Ensuring transport options have reliable data coverage or wifi connectivity, along with ergonomic seats and desk arrangements, will allow e-changers to remain productive while travelling.

Encourage and maintain social cohesion and connection in communities impacted by e-change

As a group, e-changers will be likely to bring spending power and new vitality to their new home area. They will shop locally, and some may engage in many activities in their new home town. At the same time, e-change households may experience significant isolation and disconnection when working from home in a rural or regional location in which they don't have family or friendship connections. Offering them opportunities to engage can benefit

the broader community while helping mitigate some of the divisions and tensions that might arise between long standing residents and newcomers. This is particularly the case in areas where housing costs have risen significantly, making it difficult for those in lower incomes to afford to live locally. Councils should be aware that many e-changers are keen to establish new local connections and communities, and consider how they can facilitate this through community events, local sporting clubs, volunteering opportunities and interest groups.

Support the provision of affordable, productive, secure local workspaces for remote workers outside the home

While the majority of e-changers appear to work from home, some remote workers prefer to work from a location outside their home, such as in cafes, the local library or coworking spaces. In some cases, this need will be served by the market in the form of paid co-working spaces. However, publicly provided services may also be appropriate, particularly if they can make use of underutilised spaces such as libraries. If no co-working spaces have been established in the local area, there may be value in undertaking research in the community to see if there is a demand for such facilities. Privacy and security are important considerations for many remote workers, so co-working space should ensure that their networks are secure, and people who require privacy of their screens are catered for. Consider how co-working spaces can build a community of engagement in their local area, for instance by holding events and guest speakers.



11

Discussion

Despite a significant proportion of the Australian population living in large coastal cities, many areas outside these urban centres are growing at a rapid rate. With housing costs rising in metropolitan areas and city employers offering more flexibility in relation to remote work, significant numbers of urban-based households are making or have made the shift to regional and coastal communities. This influx of e-changers into regional Australia brings many opportunities but also raises new challenges.

One of the key challenges for digital remote work relates to digital infrastructure. Australia lags behind many countries in relation to internet speeds, ranking 57th globally for fixed broadband speeds in June 2019, with access far from universal (Thomas et al. 2020). As we have seen in this report, access to fast, reliable, affordable broadband internet is an essential service for performing work remotely outside the city. In a telecommunications sector dominated by commercially focused private sector operators, digital disadvantage continues to be a key issue for those living in rural and remote settings. Private providers have been found to be hesitant to carry the cost of providing telecommunications infrastructure, a burden that often then falls on private homeowners and communities (Infrastructure Australia, 2019).

A central way in which issues of uneven digital access have been framed in the telecommunications planning and policy environment has been in terms of digital inclusion. The Australian [**Digital Inclusion Index**](#) sees digital inclusion as occurring across three areas: Access – the availability of the internet and connected devices, Affordability – the financial means to get online, and Digital Ability – confidence to use the internet safely (Be Connected, 2022). These areas also arose as issues for some of our e-change households, despite the fact that our study sample represents a relatively privileged group of primarily Anglo-Australian, middle-class knowledge workers.

In our research however we found that people’s capacity to work from home digitally was also tied to a range of other factors that we would suggest need to be considered as contributing to digital inclusion. Housing and infrastructure are crucial in shaping digital and social inclusion. For instance, being able to successfully work from home is highly dependent on having access to appropriately and ergonomically set up spaces, and a relatively noise free work

environment as well as being able to work uninterrupted. Having access to affordable heating and cooling and other taken for granted aspects of organisational work contexts is also key to being fully able to participate in digital environments.

We have seen how digital technologies have transformed everyday work practices for employees, and how some organisations have completely transformed to new business models in the wake of COVID. Many businesses are re-evaluating their need for office space in the CBD's of large cities, as they anticipate that working remotely from home or elsewhere will continue after the pandemic ends. For instance, outdoor retailing company REI recently sold their large centralised campus building in Seattle in favour of purchasing a range of smaller satellite offices in suburban areas around the city (CNN, 2020).

Evidence of this in Australia came from our discussions with a representative from Wollongong City Council, who described how some larger organisations are reducing their presence in the Sydney CBD and re-locating their 'back end' services - like payroll - to regional locations like Wollongong. While the managers of these organisations still see some benefit of network effects from being in the Sydney CBD, they now recognise that this is not necessarily the case for everyone in their workforce. Parts of an organisation that are not as dependent on networking with other partners for business innovation and success can be moved further out from the city centre, where office space is generally less expensive. Relocating organisations, or at least parts of them, away from city based CBD's may be beneficial if employees can take advantage of reduced cost of living and shorter commuting than might be experienced if their office was located in the city.

The reduced amount of time spent on commuting, and the accompanying increases in worker productivity, could have significant economic benefits if they are widely adopted (Quiggan, 2020). Surveys conducted by Gallup early in the pandemic report that 59% of US workers would prefer to work remotely as much as possible, compared with 41% who would prefer to return to work in the office as much as they previously did (Gallup, 2020). Likewise, a Gartner, Inc. survey of CFOs and Finance leaders in March 2020 revealed that 74% will move at least 5% of their previously on-site workforce to permanently remote positions post-COVID 19. Many companies have indicated that they will maintain at least some of the working from home policies in the post-COVID era, albeit often in 'hybrid' forms where some time is also spent in a centralised workplace ([Bloom, 2021](#)).

Such changes indicate that the COVID-19 pandemic has, perhaps more than all other developments preceding it, increased the acceptance of remote working arrangements. Consequently, it has the potential to shift people's decisions about where to live in relation to their work, to a degree that we have not experienced previously. A survey by YouGov indicates that 34% of workers claim they are "somewhat likely" or "very likely" to relocate if remote work becomes permanent in their companies (Miro, 2021). This suggests that the extent to which people may e-change is likely to hinge on individual company decisions about remote and flexible work arrangements for their employees. In 2019-2020 the population growth of the regions exceeded the capital cities in Victoria, South Australia and Tasmania, and 2020-2021 saw the highest numbers of net migration to the regions on record (Centre for Population, 2021).

The timing of this research project has in many ways been fortuitous. Prior to the COVID-19, e-change and remote work were more niche ways of living in Australia. Through the course of the

pandemic, e-change proliferated in a very short period of time compared to previous periods of adoption of remote work. Vast numbers of city people began to work remotely, and, freed from the constraints of having to work in a city based office everyday, many moved outwards. E-change became more mainstream, and we began to see the challenges that arose from its popularity.

However, for the past 2 years the e-change phenomenon has arguably been experiencing a honeymoon period. Work-from-home policies and city based lockdowns both served to encourage people to adopt an e-change lifestyle in a manner that had few downsides. Many Australians were able to reclaim aspects of their life that had previously been given away to commuting and working in a city office.

As we transition into a post-COVID era, it is unclear to what extent e-change will remain as popular as it has recently become. While the acceptance of remote work is likely to be retained to some degree, more people may return to offices in the cities to perform their work. Whether such work practices are the result of specific organisational policies, or by social norms that encourage people to work in the office, it will likely affect the viability of certain forms of e-change.

Should routinised hybrid work arrangements become more normalised – such as working 2-3 days a week in a city office, while working the rest at home – this will likely make e-change locations close to cities more desirable than more remote towns. Those regional towns that are easily accessible by public transport – such as fast regional trains - will remain more conducive to an e-change lifestyle than those without.

Another consideration for this type of longer-but-less-frequent commuting work pattern is what services might be required to support it. Several e-changers anticipating hybrid work roles claimed they would consider staying overnight in the city if they were working multiple days in a row in the office. These stays would generally be with friends or family who lived in the city, while others were considering maintaining some long term accommodation – such as renting an apartment or AirBnB – in the city for this purpose. These new work arrangements may give rise to demands for more short term accommodation near workplaces in cities, as e-changers look to stay overnight close to their workplaces during the week to avoid having lengthy commutes multiple days in a row.

The future of the e-change movement will depend in large part on how organisations manage their workforces, both remote and in-person employees. Should more people return to working in offices in the cities, those working remotely may feel compelled to also return to ensure they are equally present in their employing organisations activities. If demands for returning to the office increase too much, an e-change lifestyle may become less viable due to frequent lengthy commutes and long days away from family. It also remains to be seen whether e-changers working remotely can maintain and progress their careers in organisations that transition back toward majority in-office work.

For other organisations that embrace e-change in their policies and practices, there is a unique opportunity to capitalise on the great experiment in remote work that has taken place over the past 2 years. To the extent that remote work enables people to live more fulfilling, sustainable, and productive lifestyles, e-change represents a desirable way of life that more Australians are adopting.

These issues are ripe for future research endeavours, as the e-change phenomenon matures and Australian society adapts to a post-COVID environment. Understanding the shifting needs of Australians for telecommunications and other services in regional areas will be a high priority going forward. Questions around how to best accommodate influxes of remote workers in some regional areas will also present a challenge. Organisations will need to understand new social and business expectations of flexible and remote work in a post-COVID world, and to adapt accordingly in order to remain productive and competitive.

Policymakers and leaders across a range of sectors should be well informed about patterns of remote work and internal migration in order to make the best decisions about the future of Australia. We hope this report helps to understand that future.



12. Appendix

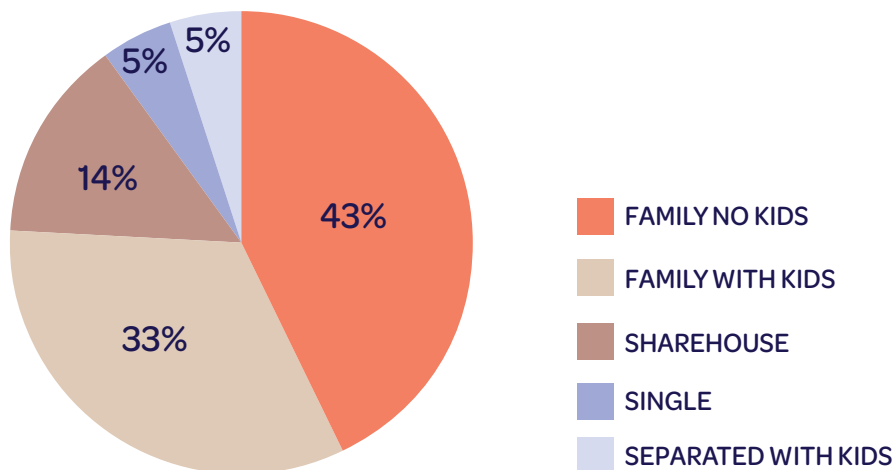
Methodology

This project primarily used ethnography and interviews, albeit adapted to take into account current travel and isolation restrictions. Ethnographic data relies on ‘thick descriptions’ of people’s practices and social relations through spending time in research sites. Conducting this kind of research online obviously brings with it some challenges, particularly in relation to being ‘on site’ or spending time in household spaces. Nevertheless we replicated elements of ethnographic research through videoconference based interviews. While small sample qualitative research such as this is not concerned with literally being ‘representative’ of the broader population (something that would be impossible in a sample of this size), we sought to recruit a range of households that reflects to some degree the diversity of household structures in contemporary Australia.

Two groups of participants were interviewed for this research.

Firstly, we interviewed 21 household participants who were ‘e-changers’ – people who were living outside the city and working remotely from a regional, coastal, or remote location using digital technologies on a day to day basis. While small sample qualitative research such as this is not concerned with literally being ‘representative’ of the broader population (something that would be impossible in a sample of this size), we sought to recruit a range of households that reflects to some degree the diversity of household structures in contemporary Australia.

E-change household type



Household participants were performing a range of employed roles, such as:

- General Manager (construction)
- Organisational Psychologist
- Web Designer
- Software Engineer
- Patient Trials Coordinator
- Event Organiser
- Online Language Teacher
- Not-for-profit Program Coordinator
- Program Delivery (library services)
- Commercial Real Estate Tenancy Coordinator
- Business Analyst
- Financial Marketer
- Program Designer
- Facilitator
- Accountant
- Academic

The second groups of participants were stakeholders in e-change - representatives of organisations who were involved in, or being impacted by, the e-change phenomenon. This included:

- 2 economic development officers in local government
- A community planning officer in local government
- 3 managers of coworking spaces
- A co-working space consultant
- A CEO of a remote working platform

These stakeholder interviews were designed to help us understand how e-change is shaping Australia at the institutional level, and to understand how governments, businesses, and other organisations are responding to it. Early on in the project we identified that remote workers working from home were not strictly working from home. Like their urban counterparts, regionally based remote workers often sought out local workspaces outside the home, in lieu of commuting to an office. To that end, we also interviewed three providers of coworking spaces in regional areas to understand the needs of individual remote workers and small businesses who were operating out of their spaces.

Recruitment

Household participants were recruited via social media on Twitter, Facebook, and LinkedIn. A call for participants was also distributed on the Digital Ethnography Research Centre's mailing list. In each of these recruitment messages, a link was given to a Google Form where prospective participants could register their interests. These responses were then screened via phone call by a member of the research team, to verify that they were living outside a metropolitan area in Australia and working remotely. Once this was established, an appointment was made for their first interview.

A \$50 supermarket voucher was offered to participants at the time of recruitment, both as an incentive to participate and as compensation for their time.

Stakeholder participants were approached directly via email and phone call, based on their involvement in organisations that were relevant to the e-change phenomenon.

Remote interview protocol

Due to the ongoing restrictions on travel and the necessity of social distancing from the COVID-19 pandemic, semi structured interviews were conducted remotely via Microsoft Teams, or Zoom where participants preferred to. Each household participant was interviewed twice. The first round of interviews took place in the first part of 2021, and was designed to give researchers an understanding of the household experiences of e-change during the COVID-19 pandemic while many restrictions on travel and workplace attendance were still in place. This involved getting to know household participants and collecting basic information: i.e. the type of workspace they are working in, types of technology and computing devices used, their digital service needs to perform work remotely, and demographic information. These interviews were 50 - 90 minutes in duration.

We conducted a round of shorter follow up interviews (30 - 60 mins) with participants in late 2021 and early 2022. These interviews were designed to give researchers an understanding of how people's experiences of e-change were playing out in the longer term as COVID restrictions had begun to ease in many areas of Australia. It also gave researchers an opportunity to learn about whether people's experiences of the e-change lifestyle had changed over time.

Prior to the follow up interviews, household participants were requested to keep a diary of their remote work practices, noting observations about their schedules, working arrangements, pleasures, frustrations, and so on. These diary entries could comprise both written and visual records, and were sent to the research team prior to the follow up interview. These diary materials provided an opportunity for participants to reflect on their experiences of working remotely outside of the interview environment, and served as prompts for discussion in the follow up interviews.

Data analysis

Interviews were recorded using the in-built recording function on Teams / Zoom, and audio files were then uploaded to an online artificial intelligence transcription service. Interviews were then coded in Miro, a collaborative digital whiteboard tool to find themes within the data that were common and noteworthy amongst our participants. These themes, and the interview data that they coalesce from, form the basis of the structure of this report.

Interview questions for households

E-change

- Can you tell us about where you live, and why you decided to move here?
- Did questions of internet access play a role here?
- Did you do any research on this area before you decided to make the move?
- How has your life and work changed, if at all, with the move?
- How satisfied are you with moving to this area?
Any regrets / difficulties?

Remote work

- Can you tell us about your employment?
- What type of work are you performing?
- (If you are an employee) What is your role in the organisation?
- Did your employer have a remote work policy pre COVID/now?
- Where do you work from? Home / coworking space / office / café?
- Tell us about a regular work day for you. What does your day look like in terms of performing work remotely?
- What types of digital tasks do you do as part of your work?
- Can you tell us about the digital devices you have for working remotely?
- Do you use different software / hardware now that you're working remotely? Tell us what's changed and what hasn't.
- Do you use video conferencing tools as part of your work?
- Thinking about your workspace, did you need to set yourself up in any special way for working remotely? Tell us about this.
- How has COVID-19 impacted your experience of remote working?

Commuting

- Do you travel elsewhere as part of your work? Where, how often, what for?
- How do you travel? Car / train / plane
- How long do you stay when you travel?
- Compared with when you were based in an urban setting, how has your new location impacted on your travel/ driving (and relatedly exercise if you walked to/biked to work pre-echange)?

Digital connectivity and home infrastructure

- Can you show us your work set up? Main hardware and software? What did you need to set up and/or purchase yourself?
- What type of internet connection do you use? How much per month? Data speed / limits? Who manages/ deals with these issues in the house and why? Has it involved much labour?
- Have you done much research (and/or did you prior to moving) about the internet set up in X?
- Does your internet connection satisfy your needs for performing work remotely?
- Have you experienced disconnections / slow downs?
- What do you do when / if the internet drops out?
- Do you have a backup way to connect to the internet to perform your work?
- Have you looked into 5G options?
- Data access on the train / commute? Drop out points?
- How do you manage heating/ cooling in your home/ work space?

Wellbeing/lifestyle and community

- How has your lifestyle changed if any with your e-change (work life balance, health, leisure)?
- Tell us about your social connections/ social life post e-change?
- Have your relationships with colleagues been impacted by the shift?
- Do you have much engagement with the local community?

Co-working

- Tell us about the Coworking Space you attend?
- Why did you choose this space?
- How many days a week/hours a day would you work from the space?

- [If employee] Does your employer or you cover the cost of accessing the space?
- What do you like most about the space and what are some of the key benefits you find in working from there? (probe for infrastructural versus social or other benefits)
- Apart from your own work, do you use it for other activities – such as meetings, events, classes or anything else?
- Have you met new people through the space - either professional contacts or friends?
- Finally, is there anything you wish were different about the space? What would you change if you could?
- Do you have any final comments you'd like to make?

Follow up interview

- Can you tell us about your work situation now, and what's different about it compared to the last time we spoke?
- Have you changed the way you do things in this period?
- How often are you commuting into the office? For what reasons?
- Has working remotely become easier or more difficult in this period? In what ways?
- Have you had to change any of your computer / internet equipment or services since we last spoke? Why?
- Is working remotely here something you'd like to keep doing into the future?

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14. Authors

Andrew Glover is a Research Fellow at the Digital Ethnography Research Centre at RMIT University, and a Senior Scientist in Social Research at the New South Wales Government Department of Planning and Environment. His research interests are in the areas of environmental sustainability, air travel, digital conferencing, household energy use, remote work, and social evaluation. He has a keen interest in how e-change and remote work are facilitating new practices that allow people to experience better lifestyles in Australia and elsewhere.

Tania Lewis is a Professor in the School of Media and Communication and Director of the Digital Ethnography Research Centre at RMIT University. She has a background in cultural studies and media studies and was a medical doctor in a former life. Over the past couple of decades, her research has been concerned with the politics of lifestyle, sustainability and consumption. Her current research is on the future of work and the digitisation of home life. She has conducted a wide range of empirical research including video ethnographic studies of household recycling, backyard permaculture and digital ethnographic research on people working from home during the COVID-19 pandemic.

Julian Waters-Lynch is a lecturer in innovation, entrepreneurship and organisational design in the School of Management at RMIT University. His research explores the economic and social effects of emerging technology, and how these changes impact entrepreneurship, organisational design and the changing character of work. His PhD examined these questions through an ethnography of the pioneering Coworking communities in Melbourne. He is currently affiliated with the Entrepreneurship and Innovation Priority Area, Centre for Digital Ethnography, Blockchain Innovation Hub and Centre for Urban Research.

