6

Economic development and diversification

6.1 This chapter will look at the role and potential of the NBN for all businesses, but especially small and home-based businesses. In this context, the Committee will also consider the effects of the NBN in rural and regional Australia, especially in terms of economic development. The chapter will discuss the varied evidence on how the NBN will improve business efficiency, extend opportunities for the information technology industry and increase business revenue. The chapter then considers specific impacts in rural and regional Australia, including in terms of economic diversification, tourism, and agriculture, and benefits for sustainable regional development.

Improving business efficiency

6.2 The Committee heard about ways in which the NBN presents opportunities for businesses to make improvements and efficiencies. These include the use of video-conferencing, tele-working, cloud computing, and voice-over-internet-protocol (VOIP), all considered below.

Video-conferencing

6.3 The Committee heard from inquiry participants that the provision of high definition video-conferencing has the potential to revolutionise the way business is conducted, while, at the same time, significantly reducing costs for businesses. Video-conferencing was also discussed in Chapter 2 in relation to the provision of government services.

6.4 Video-conferencing was identified by both big and small business as an innovation that provided significant cost savings. A reduction in the need to travel, and the ability to demonstrate products and services to a client,

rather than just tell them over the telephone or via an e-mail, opens up many new possibilities for the conduct of business both domestically and internationally. Many businesses were already able to clearly identify cost savings, whether through the provision of training online, reducing overheads for the training organisation, or through reducing the costs of transport and accommodation for sales-based companies.

6.5 Mr Tony De Liseo, President of ICT Illawarra, stated that video-conferencing would enable more efficient training of staff than conducting face-to-face training. Further, he noted that some companies were foregoing staff training due to the prohibitive costs:

> We now make up 30 per cent of our non-project billable hours in training. If the user experience is slow, we are being forced to deliver it face-to-face. That is just not possible. We do not have enough trainers and the cost of face-to-face training is very expensive. It is one thing for the university to talk about the fact that they specialise in face-to-face training, but, really, they are one trainer training classrooms of people. We often have to provide one trainer to one student. It is a huge expense, so companies are foregoing training. If they are foregoing training, the productivity of their staff is dropping.[1]

6.6 Mr De Liseo also reported to the Committee on the cost savings associated with providing training via video-conferencing, rather than face-to-face, stating there was an 80 per cent cost difference, 60 per cent of which was based on fees, with the remainder made up of other costs, such as time off work for travel.[2]

6.7 Cost savings through video-conferencing were also identified by Mr Darren Alexander, President of TASICT, who currently travelled overseas extensively for business purposes:

> When you are small, you cannot grow because you need more work, so you physically have to travel all the time. I reckon I will save $100 000 alone just in video-conferencing when I will be able to do that. I do not mean $6 million video-conferencing; I mean high-definition, real video-conferencing that will allow me to interact with our customers and deliver services.[3]

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1 *Committee Hansard*, Wollongong, 28 April 2011, p. 14.
2 *Committee Hansard*, Wollongong, 28 April 2011, p. 17.
3 *Committee Hansard*, Hobart, 11 March 2011, p. 53.

6.8 Video-conferencing was also identified as a way of building customer relations, especially when dealing with foreign markets.[4] Mr Allen Bolaffi, Deputy Chair of the Southern Adelaide Economic Development Board, agreed that the full potential of video-conferencing had not been fully explored, suggesting it could be extended across services and industries as yet untouched by it.[5] The Department of Innovation, Industry, Science and Research (DIISR) noted that 'improvements to communications through tools like video streaming will allow greater opportunities for networking and professional collaboration.'[6]

6.9 As mentioned in Chapter 2, tele-presence is an advanced form of video-conferencing that uses 'high definition, high frame rate, low latency, immersive video conferencing facilities' to simulate being in the same room as the person or group at the other end of the link.[7] Mr John Lindsay, General Manager of Regulatory and Corporate Affairs at Internode, told the Committee that his company uses tele-presence 'between all its capital city offices', saving it 'hundreds of thousands of dollars a year' in airfares and accommodation.[8] Mr Lindsay told the Committee that tele-presence is a 'completely different way of working', but noted:

> … using tele-presence requires bandwidth that approaches 50 megabits. Today, that is affordable in a corporate setting but it is not really affordable in a domestic setting. The NBN will enable that.[9]

Tele-working

6.10 While tele-working has been discussed in other chapters of this report in terms of social and environmental aspects, consideration here is given to the potential for savings and efficiencies in business, improving workplace participation and supporting regional development.

6.11 DIISR informed the Committee of a report on tele-working that found 24 per cent of small and medium sized businesses had used tele-work, with

4 Ms Philippa Forrester, Chair, McLaren Vale Grape, Wine and Tourism Association, *Committee Hansard*, Victor Harbor, 5 April 2011, p. 31.

5 *Committee Hansard*, Victor Harbor, 5 April 2011, p. 29.

6 DIISR, *Submission 219*, p. 19.

7 CSIRO, *Submission 171*, pp. 5-6.

8 *Committee Hansard*, Adelaide, 4 April 2011, p. 6.

9 *Committee Hansard*, Adelaide, 4 April 2011, p. 6.

82 per cent reporting a positive impact, 17 per cent a neutral impact, and less than one percent a negative impact on their business from tele-work.[10]

6.12 The Committee heard from inquiry participants about the benefits to business from tele-working, hearing evidence that it will lead to increased productivity as employees are able to choose, to some extent, their hours of work.[11] The Committee also heard companies that offer the opportunity to tele-work have recruitment advantages, as employers are able to access skills available in other cities or even countries. It also gives organisations the opportunity to retain employees who may have to leave the area of the place of business for personal reasons.[12]

6.13 The ACT Government told the Committee that tele-working 'allows expertise to be used where it is needed regardless of the location of the worker', reducing the costs of office accommodation for employers and reducing time and travel costs for workers.[13]

6.14 Rising Sun Pictures identified affordable broadband as a way of not only reducing costs but also increasing the pool of quality workers available to the company:

> We have pockets of artists all around Australia and, rather than sticking them on aeroplanes and flying them here, we could be either working with them as individuals or working with them in small clusters of two, three or four people and having located them in that area.[14]

6.15 The North Queensland Small Business Development Centre reported that they had a remote staff member based in Perth, and that another employee planned to retire to Brisbane, but would remain a part time employee working with remote access to the company's server.[15] This allowed the organisation to retain skills while also ensuring employee satisfaction.

6.16 Mr Peter O'Rourke of Shellharbour City Council suggested the growth of tele-work via the NBN would change behaviours, removing the need for some employees to commute. Mr O'Rourke compared the likely growth of

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10 Department of Innovation, Industry, Science and Research, *Submission 219*, p. 17.

11 Mr Mike Quigley, Chief Executive Officer, NBN Co, *Committee Hansard*, Sydney, 29 April 2011, pp. 6–7.

12 Mr Paul Nicholls, Director, Strategic Projects, Office of Research and Development, Curtin University, *Committee Hansard*, Perth, 5 May 2011, p. 19.

13 ACT Government, *Submission 227*, p. 10.

14 Mr Tony Clark, Director and Co-founder, *Committee Hansard*, Adelaide, 4 April 2011, p. 17.

15 Mr Brian Arnold, Chief Executive Officer, *Committee Hansard*, Townsville, 19 April 2011, p. 31.

businesses and employment around the NBN's infrastructure to that which happens when a significant freight-carrying road is built:

> If you look at the M7, it carved its way through Western Sydney and it is a road. So what. But when you look at all the economic development that happened and the capacity and the ease with which businesses can relocate, there is another tick, another advantage of that sort of infrastructure. You look at the sustainability being improved because petrol is saved and trip times are saved and all sorts of things. I think at the local community level the NBN is going to have a similar influence in terms of shifting the whole culture in ways that we may not have yet anticipated.[16]

6.17 Mr John Grant of the Information Technology Industry Innovation Council (ITIIC) also identified the flexibility offered by tele-working, noting it was a choice about where someone worked, as well as to some extent being about when someone worked. Drawing on the experience of his own business, he explained that in addition to infrastructure, cultural change is needed to support tele-working, to change the mindset from one where 'work is a place I go' to 'work is a thing I do':

> People talk about a blurred line between the personal and work, but there is no line at all. In fact it has all merged now because it can do, and it has done …[17]

6.18 Mr De Liseo of ICT Illawarra indicated that tele-work would not completely remove the need for face-to-face contact in the conduct of business, as it was not possible for employees in all roles to work remotely. Mr De Liseo explained various instances where tele-work arrangements were successfully used, including where senior staff could work on projects using client computer systems 'during their down time, without cutting into their production time'. Mr De Liseo also noted that this had impacts for travelling time to and from the office, which is 'a lot safer for them and for us.'[18]

6.19 He also discussed the workplace participation benefits of tele-work with regard to the return to the workforce of new mothers:

> Over 50 per cent of our workforce are women, and a lot of them do not want to do those late hours in our office. That is one of the

16 Mr Peter O'Rourke, Director, Community Planning and Strategies, *Committee Hansard*, Wollongong, 28 April 2011, p. 45.

17 *Committee Hansard*, Brisbane, 18 April 2011, p. 31.

18 *Committee Hansard*, Wollongong, 28 April 2011, p. 18.

> additional benefits of working from home. A lot of the women who work for us— three of our professionals—have recently had babies and they have been able to use that [flexible work arrangements].[19]

6.20 Mr Paul Nicholls of Curtin University agreed that the possibility of being able to tele-work would be a positive outcome for women, reducing the shortage of women in the workforce, and assisting in the retention of women in the workforce.[20]

6.21 Mr Fry of Ballarat ICT Ltd indicated that the future of tele-work would also include employees working *as* they commuted, requiring a quality broadband connection to service railway networks. He suggested an optical fibre connection would enable the rapid transfer of documents, improving the capacity of employees to work while they commuted.[21]

6.22 The Committee acknowledges the significant benefits that can be brought to a region's economic development by tele-working arrangements. These benefits are further considered later in this chapter, but the Committee notes evidence regarding some impacts of reduced commuting. Mr Pulford, representing the City of Ballarat, noted that while 'we very strongly aspire to have a regional economy not become a dormitory city', approximately 3000 people commute daily by train or car to Melbourne, and that many of those people also worked from home as part of their employment arrangements.[22] It was also noted that tele-work opportunities provided through the NBN would address some infrastructure pressures currently being experienced in Ballarat, namely car parking and commercial office space.[23]

6.23 Mr De Liseo advised the Committee that there were approximately 400 to 500 people working in the IT industry who commuted daily to Sydney from the Illawarra, and that there was no real reason they could not perform that work back in the Illawarra.[24] This reduction in the need to use modes of transport also eases traffic congestion and creates environmental benefits through reduced carbon emissions, as was discussed in Chapter 5.

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19 *Committee Hansard*, Wollongong, 28 April 2011, p. 18.
20 *Committee Hansard*, Perth, 5 May 2011, p. 19.
21 *Committee Hansard*, Ballarat, 17 March 2011, p. 27.
22 *Committee Hansard*, Ballarat, 17 March 2011, p. 7.
23 *Committee Hansard*, Ballarat, 17 March 2011, p. 8.
24 *Committee Hansard*, Wollongong, 28 April 2011, p. 19.

Box 6.1 A practical example of tele-working

The Committee heard from Mr Chris Hancock, CEO of AARNet and a self-described 'tree-changer'. As described in Chapters 4 and 7, AARNet is a large national organisation that provides broadband services to universities and other educational institutions.

Mr Hancock currently lives in Armidale, New South Wales, and only travels to Sydney weekly for face-to-face meeting. This is made possible by the use of high-definition video-conferencing equipment allowing multiple participants. He reported participating in 'at least four to six video-conferences a day'.

He commented that in order for tele-work via video-conferencing to become viable 'end-to-end throughput is really important. It is not only symmetrical—we cannot have any latency or any delay.' This is the type of broadband service that will become widely available with the NBN.

Source: Mr Chris Hancock, *Committee Hansard*, Canberra, 27 May 2011, pp. 29-30.

Cloud computing

6.24 As discussed in Chapter 2 in the context of government services, cloud computing is the provision of consumer and business products, services and solutions delivered in real time over the internet. ICT Illawarra noted that the nature of computing was changing, and that 'real work' was being done on the internet now, rather than on computer hard drives, and that there had been an increase in people wanting to connect and run business applications via the internet, rather than over small, closed networks.[25]

6.25 As noted in Appendix E, cloud computing stores information in servers and provides that information as an 'on demand' service. Under cloud computing consumers can access all of their documents and data from any device with internet access such as a home or work PC or a mobile phone or other mobile internet enabled device.[26]

6.26 Computer Associates described cloud computing as the 'undisputed' future direction for the IT industry, and commercial and government entities, noting it will provide organisations with the ability to more

25 *Committee Hansard*, Wollongong, 28 April 2011, p. 13.

26 Richard Hayes, *Valuing Broadband Benefits: A selective report on issues and options*, Melbourne Business School, University of Melbourne, 7 December 2010, p. 27.

effectively utilise their IT infrastructure and to consume IT as a utility, paying for only what is used on a monthly basis, delivering clear benefits for users.[27]

6.27 Computer Associates noted that latency in internet connections can have a 'severe' impact on complex cloud services, even rendering applications 'inoperable'. It suggested the rollout of the NBN will assist in addressing this problem and will facilitate access to overseas service delivery, with the added benefit of providing a 'sustainable competitive advantage' for Australian cloud computing service providers.[28]

6.28 George Fong, Executive Director of Lateral Plains Pty Ltd, noted that while the concept of cloud computing may be considered new, his business had been assisting other businesses with multiple premises with similar solutions for a considerable period of time.[29] However, the NBN would present more of these opportunities and make it easier for business owners to pursue cloud solutions. Mr Fong also noted that there was a growth in these sorts of business opportunities with the growth of broadband internet services.[30]

6.29 Mr Alexander of TASICT reported on the productivity and cost benefits of cloud computing for small and home-based businesses:

> … a lot of these businesses are family oriented and they are working from home, so they are currently using what they have now. If you look at cloud computing you see what benefits that would have for the SME [small and medium enterprise] market. Instead of going to buy all this hardware and all this software and actually using it, having to update it and regularly use it, they will be able to have a one-monthly fee service that they can run. Cloud already exists now but part of the problem is that Tasmania does not have the backhaul, so we do not have the infrastructure that allows us to do that in the high-capacity area.[31]

6.30 Mr Grant of the ITIIC also noted the financial shift offered by cloud computing:

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27 Computer Associates, *Submission 189*, p. 2.
28 Computer Associates, *Submission 189*, p. 3.
29 *Committee Hansard*, Ballarat, 17 March 2011, p. 38.
30 *Committee Hansard*, Ballarat, 17 March 2011, p. 38.
31 *Committee Hansard*, Hobart, 11 March 2011, p. 54.

> In simple terms, cloud is about converting capex [capital expenditure] to opex [operating expenditure]; there is no doubt that the cloud service delivery model will allow that to occur.[32]

6.31 Smartnet identified good quality, high speed broadband as an enabler for small and medium enterprises (SMEs) to access cloud computing and to grow their businesses in markets outside of their immediate suburbs, accessing skills, products and customers, as well as support and investment to increase their productivity and competitiveness. It noted that SMEs who take advantage of these opportunities are enabled to:

> … grow without many of the physical constraints with which they presently must grapple. This fundamentally underpins our ability to be more productive and competitive globally—which, of course in turn, directly impacts the quality and prosperity of communities and individuals.[33]

6.32 During a site inspection at Google Australia's headquarters in Sydney, the Committee was given the opportunity to use new Google products called 'Chromebooks', which consist of a basic notebook computer with an internet browser installed. Using only the internet browser backed up by a reliable, high speed broadband service, a full range of standard desktop computing applications could be run and documents shared via the 'cloud', including email and calendar functions, word processing, spreadsheets and instant messaging.

6.33 Cloud computing also offers a radically different way for small and medium businesses to conduct themselves, and offers excellent opportunities to find cost savings. Rather than spending heavily on capital expenditure, the ability to use a wide range of services but only to pay for what is used offers significant savings for businesses.

VOIP

6.34 Voice Over Internet Protocol (VOIP) was identified by many witnesses and submitters as a method of providing cost effective telephony to small business, reducing reliance on the traditional telephone system, and greatly reducing costs for small businesses, especially those that sought to do business overseas. Ms Pip Forrester of the McLaren Vale Grape, Wine and Tourism Association noted the advantages of VOIP to small and home-based businesses:

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32 *Committee Hansard*, Brisbane, 18 April 2011, p. 35.

33 Smartnet, *Submission 134*, pp. 5–6.

> … lots of people say the new world is working from home, working remotely. They want to be able to work from home and access the internet from home. It is really important to secure VOIP. Some of them use it now but it is not very secure. Many of them that get this see this as a really incredibly good way to save a lot of money. A lot of them do a lot of international work, international phone calls, but also phone calls to these remote sites. They are all on the phone constantly. So they see VOIP as being one of the really big advantages.[34]

6.35 Mr Alexander of TASICT also identified VOIP as beneficial for small business, noting that it would be possible for a small business in Tasmania to communicate from points in Hobart and Launceston for free, using VOIP technology, rather than having to pay for it through traditional telephony.[35]

6.36 Mr Mark Frost, Director of On Q Communications, reported that VOIP would provide cost savings for small and medium businesses, while also increasing flexibility.[36]

6.37 At a site inspection of the Telstra Experience Centre in Sydney, Telstra demonstrated to the Committee a range of practical VOIP services being made available to small businesses through its Digital Business packages.

6.38 The Committee agrees that the use of VOIP can offer significant savings for business at a very low initial cost. Being able to communicate over an internet connection removes the need for a company to pay for a copper line rental as well as for internet access. A drastic reduction in telephony expenses is also extremely valuable to businesses in rural and regional areas, and businesses that do extensive business with overseas clients.

Supporting business growth

6.39 The Committee heard from witnesses and submitters that the capacity to increase business revenues would be provided by the NBN, particularly by improving business access to export markets, by enabling more effective operation of home-based business, and by being able to take advantage of Australia's time zone in the operation of transnational businesses.

34 *Committee Hansard*, Victor Harbor, 5 April 2011, p. 40.

35 *Committee Hansard*, Hobart, 11 March 2011, p. 54.

36 *Committee Hansard*, Townsville, 19 April 2011, pp. 34–35.

Opportunities for high technology industries

6.40 Many sectors of the Australian economy are now dependent on the transfer of large volumes of information from one point to another in the conduct of their everyday business. Even the manufacturing sector is now heavily reliant on being able to access a network that can handle large amounts of data. The Committee heard of opportunities which may exist for smaller companies in these data-intensive fields to become rapidly competitive with larger firms and foreign competitors, for a comparatively low outlay for business.

6.41 The ITIIC noted that the NBN would support the local IT industry by enabling it develop applications that exploit the availability of high speed broadband:

> … there is a considerable opportunity for the local IT Industry in developing software applications that exploit the availability of high speed broadband. Traditionally we have been great users but not producers of ICT, and the NBN provides the opportunity to shift this balance.[37]

6.42 Mr Adrian Young, Director or Sales at NearMap Pty Ltd, suggested that with the support of the NBN, users of his company's high resolution mapping product would be able to take advantage of its open source programming to develop a wide range of innovative applications:

> In terms of how our customers would use our product in an NBN environment, we see huge applications … We have an API [Application Programming Interface] which is open, which means developers can build all kinds of applications using our content and, in an NBN environment, that amplifies that substantially. Customers will be able to leverage our imagery in very powerful ways to build their business … it will turbocharge the application of our product to innovation, to new product development and to research. So it is a serious shot in the arm in terms of how our customers would use our product. It is certainly a very nice fit with what we do.[38]

6.43 The Committee heard several examples of how high technology industries have to date relied on slow and inefficient means of transferring information. Mr De Liseo stated that it had taken approximately eight hours for him to transfer a file from Wollongong to Brisbane, and that

37 ITIIC, *Submission 111*, p. 6.

38 *Committee Hansard*, Perth, 6 May 2011, p. 29.

through the course of a project, that data transfer would occur multiple times, meaning days of lost productivity, and that it was still faster to physically transport a file:

> It is 2011 and the bandwidth of a 737 is still better than I can get to my home. This is where we are and that is what is limiting us.[39]

6.44 The ITIIC noted that the improved network capacity of the NBN will benefit Australian companies by enabling them access to software on demand. For example, the submission notes that modelling and simulation industries, such as computer aided design and engineering, depend on applications that often have 'heavy graphical input and output bandwidth requirements', meaning they are currently limited to localised and difficult to access facilities. The high bandwidth capacity of the NBN will greatly lower the cost of access to these applications, enabling small companies in these industries to 'compete with the larger companies in provision of services to a much wider customer population'.[40]

6.45 The ITIIC identified the Australian video game industry as a potential growth area,[41] reporting that it currently exports almost 100 per cent of its product, working with partners in the US, Europe and Asia, and that the NBN would improve these collaborative opportunities. Further, the Council reported that the delivery of video games to consumers had changed greatly recently, with the focus moving away from the physical medium of a DVD to full online downloads.[42] The provision of the NBN would enable Australian developers to improve the speed in which they were able to deliver their products to their clients.

6.46 Mr Brian Hales, Economic Development Advisor at the City of Onkaparinga, noted that while the manufacturing sector is increasingly 'fragmenting' and being outsourced overseas, design and prototyping are key elements where Australia can maintain its industry locally. He noted that local design would require 'big broadband capacity to send it interstate or internationally'.[43]

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39 *Committee Hansard*, Wollongong, 28 April 2011, p. 14.

40 ITIIC, *Submission 111*, p. 7.

41 The Committee also notes observations made by Michael Short writing for *The Age* that some of the world's pre-eminent gaming developers are based in Australia; there are more than 1600 Australian video game companies; the industry is growing by 15 per cent a year; and projected earnings are $4 billion this year. See <http://www.theage.com.au/opinion/society-and-culture/fun-and-games-20110807-1ihid.html> viewed on 9 August 2011.

42 ITIIC, *Submission 111*, p. 8.

43 Mr Brian Hales, Economic Development Advisor, *Committee Hansard*, Victor Harbor, 5 April 2011, p. 37.

6.47 This was supported by Mr Geoff McQueen, board member of Regional Development Australia (RDA) Illawarra, who noted that design companies in the Illawarra region were constrained in their ability to transfer large files compared to other parts of Australia:

> Some of the examples I am familiar with are things like engineering design outfits that are doing work from here, generating income and employing people here. Their customers are all over the place—in the Pilbara, in Queensland and internationally. They are having to ship a lot of big files around and they are having to do a lot of design work. They are constrained in a way that they would not be if they were in Surry Hills, Randwick or any other places of Sydney, or Melbourne, the Gold Coast, Brisbane, Geelong, Newcastle, Perth or Adelaide, that happen to have coaxial cable running past them already that can do speeds in excess of 100 [Mbit/s].[44]

6.48 Mr Alexander of TASICT, who operates a design company that specialises in colour marketing solutions for the paint and building products manufacturing industry, identified the NBN as enabling small to medium businesses to become more competitive in larger markets, as well as accessing international markets.[45] He also noted the ability to transfer files over broadband has already greatly lowered his company's costs, as it no longer relies on air freight to transfer files on discs. However, he said the rate of file transfer over DSL 'is still slow', and the benefits of providing faster broadband infrastructure would be considerable:

> It is simple: time equals money. Small business operators understand that. It does not matter if they have a webpage, they are sending a catalogue or interactive video or they are showing their bed and breakfast in some small town; the access to data and allowing people to see it is going to allow those businesses to understand where the benefits are.[46]

6.49 DIISR told the Committee about the export potential of Australian IT skills, noting that the NBN would provide an opportunity for Australian IT professionals to more easily connect to the global software and applications market.[47]

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44 Mr Geoff McQueen, Board Member, *Committee Hansard*, Wollongong, 28 April 2011, p. 32.

45 *Committee Hansard*, Hobart, 11 March 2011, p. 51.

46 *Committee Hansard*, Hobart, 11 March 2011, pp. 63–64.

47 DIISR, *Submission 219*, p. 24.

6.50 The Committee was informed that there were particular opportunities for small business in local website hosting. Mr Bret Treasure, Member of the Australian Web Industry Association (AWIA), told the Committee that most hosting of Australian websites is currently done overseas. He said that the NBN would give the Australian IT industry the opportunity to offer faster hosting locally:

> Then for the first time people could say, 'Here is an advantage—here is in a reason to host in Australia: you will actually get a faster loading time to website then you would get otherwise'. That has direct benefits not only in the users getting better experience but also in the fact that there are search-engine advantages in having that faster load time—Google rewards you for having fast load times; Google also rewards you for being hosted locally; if you have a .com.au and you are hosted locally, then that is going to help you in the rankings as well—so there are some side benefits to that. [48]

6.51 Mr Treasure also suggested that if some large cloud hosting services were operated in Australia, it would lead to lower bandwidth costs for Australian businesses:

> When you look at something like Twitter photos they are hosted on S3 by Amazon overseas, so if they had a bank here—and obviously they will make a commercial decision about whether they will do that—then we would not need to use the bandwidth to download those photos every time we look at a photo on Twitter. [49]

6.52 Local hosting was also discussed by Mr Adrian Young of NearMap, who advised that his company was looking to scale its business internationally, and was approaching the point of having to decide whether his company wished to host and serve all its bandwidth-intensive content in Australia or overseas. Mr Young suggested that the competitiveness of the price of access to high-bandwidth connections under the NBN would be critical to this decision.[50]

6.53 Mr Alexander of TASICT also noted the potential of locating servers in Australia (and indeed, Tasmania) as being a way of reducing costs and improving efficiency in his business:

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48 *Committee Hansard*, 5 May 2011, Perth, p. 38.

49 *Committee Hansard*, Perth, 5 May 2011, p. 42.

50 *Committee Hansard*, Perth, 6 May 2011, p. 29.

> … we currently have four servers that had to be set up in four different parts of the world. We cannot do it here in Tasmania, because we do not have the capability. We have four servers set up and we access and control them here but, if the NBN comes in, and I can have a data centre set up here, there is no reason I cannot do it all over Tasmania.[51]

6.54 The Committee sees the ability for Australian businesses to access affordable hosting onshore as a benefit of the NBN. It has the potential to increase speeds, improve the visibility of Australian businesses through search engines and also support a new sector of the IT industry in Australia. The Committee recognises that at present, it can be more cost effective for an Australian business to move their hosting offshore. The rollout of the NBN is likely to lead to growth in local hosting; sufficient speeds will become available to make an Australian hosting industry viable.

Home-based businesses

6.55 DIISR described the home-based business sector in its submission as being 'diverse and complex'. It told the Committee about its own research which has found that home-based businesses vary greatly 'from building trades through to ICT consultancies', and the majority use a computer and internet as part of their operations. It also noted:

> The research indicates a correlation between growth in business outcomes and ICT use. ICT is seen as important in this context as it allows these businesses to increase the scale of virtual operations without the costs associated with growth in physical operations.[52]

6.56 The Australian Bureau of Statistics (ABS) estimated that in June 2004, there were around 1 040 000 home-based business operators in Australia, representing 67.5 per cent of all small businesses. This proportion had increased from 58.3 per cent of businesses in February 1997.[53]

6.57 The Committee heard from several witnesses that obtaining comprehensive and up to date information on the number of home-based businesses was difficult, because many home-based business operators

51 *Committee Hansard*, Hobart, 11 March 2011, p. 53.

52 DIISR, *Submission 219*, p. 22.

53 ABS, *Characteristics of Small Business (8217.0)*, 2004, p. 70.

prefer to 'fly under the radar'.[54] For example, Ms Rhonda Hardy of Eastern Metropolitan Regional Council in Perth told the Committee:

> A lot of them do not want to put their hands up … and tell the local council and everyone that they are operating a local business for fear that suddenly they will have to put in extra toilets, disabled bays and this and that and refit their whole house to run their services … We probably only know about 20 or 25 per cent of what our home businesses are up to in this country.[55]

6.58 However, some witnesses were able to provide useful approximations on the number and proportion of home-based businesses in their local areas. For example:

- Mr De Liseo of ICT Illawarra said that more than half of the people he deals with in the ICT field had started as home-based businesses.[56]
- Mr John McGee of the Tasmanian Department of Tourism, Economic Development and the Arts noted that of the 38 000 businesses in Tasmania, around 22 000 are sole traders, suggesting a high proportion are home-based.[57]
- Mr Bob Carmichael, Manager of Business and Economic Development at the City of Tea Tree Gully, informed the Committee that using conservative methods of approximation, 4125 of the 6000 businesses in his local government area are home-based. This equates to one business operating in every nine households, although Mr Carmichael noted that anecdotally the figure was closer to one in every seven households.[58]
- Mr Steven Harrison, Director of Business and Economic Development at the City of Prospect, said that Council research had found that around two in every three businesses advertising in their area are home-based.[59]

6.59 Mr Harrison went on to discuss the very wide variety of types of businesses being run from homes in his area:

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54 Mr Robert Wallace, Chief Executive Officer, Tasmanian Chamber of Commerce and Industry, *Committee Hansard*, Hobart, 11 March 2011, p. 18; Mayor David O'Loughlin, City of Prospect, *Committee Hansard*, Adelaide, 4 April 2011, p. 66; Ms Rhonda Hardy, Director, Regional Services, Eastern Metropolitan Regional Council, *Committee Hansard*, Perth, 6 May 2011, p. 25.

55 *Committee Hansard*, Perth, 6 May 2011, p. 25.

56 *Committee Hansard*, Wollongong, 28 April 2011, p. 15.

57 *Committee Hansard*, Hobart, 11 March 2011, pp. 65–66.

58 *Committee Hansard*, Adelaide, 18 April 2011, p. 28.

59 *Committee Hansard*, Adelaide, 18 April 2011, p. 66.

> A lot of builders, carpenters, electricians, plumbers, engineers and architects, people who need high bandwidth. One of the most surprising businesses down one of our side streets works for the UN and runs UN events on a global scale. She was in desperate need of optical fibre. She has paid to put her own optical fibre in since we found her. It was a real mixed bunch. They were very small businesses, one person: consultants, marketing communications people …[60]

6.60 Mr Hales of the City of Onkaparinga in South Australia identified home-based businesses as a way of driving employment growth in the local economy. He described high-speed broadband as being a 'substantial attracter for employment' and suggested that the City of Onkaparinga would begin to heavily promote home-based business in areas connected to NBN fibre in the future.[61]

6.61 Mr Grant of the ITIIC noted that some small and home-based businesses had been developed exclusively over the web, and many of these were run by young people with no traditional understanding of business practices, leading to innovative behaviours:

> There are a lot of creative people … they are all young people and they are doing things differently. They do not have the legacy of bricks and mortar real estate … they are trained in the digital economy. That is where they operate. That is what tomorrow is, too, so we have to be part of that. We have to be decisively part of that.[62]

6.62 The North Queensland Small Business Development Centre (see Box 6.2 below) reported that some of the smaller businesses they had supported were using their connectivity to expand their businesses further afield. Mr Brian Arnold, the Centre's Chief Executive Officer, told the Committee about a local second hand clothing business that, before setting up a retail outlet at the Centre, had started at home using Facebook. It is now seeking to expand its franchise to other regional areas by selling second hand clothes through its website.[63]

6.63 At the inquiry's Wollongong hearing, RDA Illawarra told the Committee that home-based businesses in the region suffered because of a lower level

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60 *Committee Hansard*, Adelaide, 18 April 2011, p. 66.

61 *Committee Hansard*, Victor Harbor, 5 April 2011, p. 30.

62 *Committee Hansard*, Brisbane, 18 April 2011, p. 37.

63 Mr Arnold, *Committee Hansard*, Townsville, 19 April 2011, p. 32.

of connectivity impacting on their competitiveness with other cities.[64] The Committee heard that an acceptable level of ADSL service was not possible in many suburbs in the area due to the distances from the nearest exchange.[65] The RDA expressed optimism, however, that the rollout of the NBN would put these businesses 'on a level playing field' with their competitors.[66]

6.64 While it is difficult to quantify the exact size of the home-business sector, the evidence suggests it accounts for a growing majority of businesses operating in Australia. By making high speed broadband available to all premises in Australia, including fibre connections to 93 per cent of them, the Committee expects that the NBN will bring significant gains for this sector. Home-based businesses, located in all parts of the country, will be able to leverage NBN connections to up-size their operations and access new customers without facing the high overhead costs involved in setting up traditional 'bricks and mortar' outlets.

Box 6.2 North Queensland Small Business Development Centre

The North Queensland Small Business Development Centre was established to provide support to small businesses in the area around Townsville. It is located in a light industrial area and provides an NBN-level connection to all of its 35 tenants. It identifies its role as helping small businesses to make a soft transition from home-based to commercial premises.

The Townsville Home Business Group is also based in the centre—a group that aims to assist home-based businesses. The majority of the home-based businesses are operated by women, or 'mumpreneurs'. The majority of businesses are also web-based.

The Centre regards the NBN as key to the ability of small and home-based regional businesses to continue to grow. This includes networking, enhancing the customer base and establishing franchises in other regions.

Source: Mr Brian Arnold, *Committee Hansard*, Townsville, 19 April 2011.

64 Ms Natalie Burroughs, Chief Executive Officer, RDA Illawarra, *Committee Hansard*, Wollongong, 28 April 2011, p. 27.

65 Mr Geoff McQueen, Board Member, RDA Illawarra, *Committee Hansard*, Wollongong, 28 April 2011, p. 28.

66 Ms Burroughs, *Committee Hansard*, Wollongong, 28 April 2011, p. 27.

Australia's geographic advantage

6.65 The Committee heard that Australia's geographical position and time zone hold some advantages in the provision of services for the foreign market, with Australia open for business while people in other parts of the world sleep.

6.66 At a public hearing in Perth, Ms Valerie Maxville told the Committee that Western Australia is nicely positioned between Europe and the United States to enable multi-national companies to continue their operations around the clock:

> Some of the companies put their studios eight hours apart around the world. So anything that is not closed gets passed onto the next group, and they can have a 24 hour turnaround on developments.[67]

6.67 Mr Tony Clark, Director and Co-founder of the Adelaide-based visual effects company, Rising Sun Pictures (refer to Box Study 6.3), explained that his firm uses its *cineSync* online collaboration tool, underpinned by a private fibre broadband network, to take advantage of Australia's time zone while working on motion pictures:

> This is what our clients do and they tell us repeatedly: they come in the morning and there is the delivery of all the things they have wanted from yesterday's review session sitting on their desktop waiting for them. They open those little movies, they give them to their editorial department, they show them to the director, they spend the whole day milling around talking about what people think about that work. At the end of the day, we wake up, go to the office, have a little sit down chat by video conference or typically just audio conference and cineSync session with our customers. We take their notes, which we turn around while they are in bed, they wake up the next day and the whole cycle continues. You will find that the time zone offset instead of being your enemy is actually your friend and is what is enabling you to service your customers better than you could if they were down the street from you.[68]

6.68 Mr Clark also informed the Committee that similar collaborations across time zones are taking place in the medical field. The example he gave is

67 *Committee Hansard*, Perth, 5 May 2011, pp. 28–29.

68 *Committee Hansard*, Adelaide, 4 April 2011, p. 23.

that there is radiography that is being analysed in Australia as 'night shift' work for the United States.[69]

6.69 Mr Brett Biddington, a member of the Space Industry Innovation Council, told the Committee that Australia has strategic advantages from being 'essentially equidistant around the globe from the United States and Europe' and also being in the Southern Hemisphere (unlike the major space-industry nations), making it ideally placed for hosting satellite ground stations to support services requiring '24/7 coverage'.[70]

6.70 The Committee notes with interest that Australia's geographic position can be turned from a negative into a positive by high speed broadband. As the above examples indicate, there are a wide range of fields in which Australian companies could take advantage of time zone offsets to provide potentially lucrative services to much larger markets in Europe and the United States. The Committee recognises that these services all require the ability to quickly transmit large amounts of data, and the NBN will enable this type of connectivity to become available to many more businesses that it is currently.

Box 6.3 Rising Sun Pictures

Rising Sun Pictures is a film and television visual effects company based in Adelaide that works principally on Hollywood feature films. When the company began operations with just four staff, they were required to courier work on tapes to the United States, which took approximately four days. The client would then review the tape and call Rising Sun to talk through any changes.

Facilitated by the availability of fast broadband (funded by the South Australian Government), Rising Sun developed 'cineSync', an award winning collaboration technology. CineSync allows Rising Sun and its remote clients to look at a shared visual context and point at items on the screen, enabling the users to collaborate effectively. CineSync has been used films such as Avatar and the Harry Potter series, and has helped the movie industry to grow outside of the United States.

Rising Sun now employs 140 staff and sends hundreds of gigabytes of data over fast broadband every day.

Source: Mr Tony Clark, *Committee Hansard*, Adelaide, 4 April 2011.

69 *Committee Hansard*, Adelaide, 4 April 2011, p. 22.

70 *Committee Hansard*, Canberra, 27 May 2011, p. 33.

NBN impacts for regional development

6.71 The Committee received more than 75 submissions from Regional Development Australia committees (RDAs), rural and regional councils, and other rural and regional groups, constituting almost a third of submissions made to the Committee. These submissions were overwhelmingly supportive of the rollout of the NBN, identifying it as a transformative piece of infrastructure that would go some way to ameliorating the tyranny of distance that has long been a problem for rural and regional communities.

6.72 Many of the potential impacts of the NBN discussed in other chapters (for example, in the health, education, and government services sectors) will extend positive benefits to rural and regional areas. This chapter focuses on the NBN's capacity to support **economic growth and employment** in those places. The Committee heard about the ways in which economic development in regions and better business outcomes could be mutually reinforced.

6.73 While specific outcomes and benefits of the NBN for particular sectors, such as health and education, have been discussed earlier in this report, it should be noted that evidence also outlined other positive consequences that could be felt in rural communities following the availability of NBN applications in those sectors. For example, medical treatment may require a patient to travel to a major regional city, or a capital city. Mr O'Halloran, of the Wheatbelt East Regional Organisation of Councils, explained that those people are often accompanied by members of their immediate families, which means that their home towns forego the economic benefit of that family shopping locally.[71] The availability of rehabilitation treatment and support via NBN applications may enable these people to not only return home more quickly, and recover from illness with appropriate support, but ensure that their home town doesn't suffer the ongoing economic consequences of their absence.

6.74 These positive consequences can also be observed in education sector. One of the primary benefits to education identified for rural and regional Australia was the ability to provide remote training for employees, negating the need to spend time and money to send employees to major centres to receive further vocational training. Mr Shenal Basnayake, Economic Development Officer at the Cassowary Coast Regional Council,

71 Mr Stephen O'Halloran, Wheatbelt East Regional Organisation of Councils, *Committee Hansard*, Perth, 6 May 2011, p. 20.

noted the ability to provide in-house training would act as a great enabler for local businesses while also making productivity gains.[72]

6.75 The Committee notes the concerns raised by many inquiry participants about declining youth populations in regional and remote communities, and the social and economic impacts felt across several sectors, including agriculture. As discussed in Chapter 3 on Education, by improving access to educational options, the NBN could help retain young people in rural and regional areas. The Committee recognises that this could lead to significant economic benefits for these areas.

6.76 Elsewhere in the report, some consideration is given to evidence received by the Committee as to the positive benefits the NBN will bring to the Australian tourism sector. In this chapter, the focus will be on the impact of those improvements which may be experienced from the perspectives of rural and regional communities. Similarly, the impacts of some NBN applications in the agriculture sector are discussed in Chapter 5, as part of the consideration about environmental benefits of improved sensoring and monitoring; the focus in this chapter will extend to the benefits anticipated for the economic sustainability and development of Australia's agricultural communities and productive industries.

6.77 Across all of these areas, the Committee heard many views from inquiry participants as to the role of governments; greater consideration to these aspects are concentrated in chapter 10.

Constraints on business by current service

6.78 Mr Geoff McQueen of RDA Illawarra expressed enthusiasm about what local businesses were achieving through use of information technology and the internet. He noted however that some local organisations were starting to feel constrained in what they could do due to the lack of bandwidth through existing internet connections, and were unable to spend significantly more on higher capacity services.[73]

6.79 The Committee received extensive evidence noting that current services to rural and regional areas were inadequate for the needs of end users. It heard that some Australians in rural areas are still using dial up internet services, and even travelling to another location to access faster internet services.[74] Extensive evidence of blackspots was also provided to the

72 Mr Shenal Basnayake, *Committee Hansard*, Townsville, 19 April 2011, p. 50.

73 *Committee Hansard*, Wollongong, 28 April 2011, p. 24.

74 Ms Hardy, *Committee Hansard*, Perth, 6 May 2011, p. 25.

Committee, including areas very close to major population centres. These inadequate services also extended to basic access to telephony, with the Committee hearing of inadequate landline telephone access, and poor quality mobile phone access.[75]

6.80 The Committee was also informed by inquiry contributors that the services they currently accessed were expensive compared to those available to consumers in cities and urban centres.

6.81 AgForce Queensland identified distance as the cause of high costs and poor services to regional and remote Australia, noting that gaps would exist in the availability of 'normal' broadband through ADSL until the NBN was completed, as there was not existing infrastructure to support universal broadband in regional areas.[76] Mr Robert Walker, Chief Executive Officer of AgForce Queensland, noted that his organisation still used postal services and facsimiles to send documents to some members due to a complete lack of internet access, or a lack of education in how to access these services.[77]

6.82 The Committee heard that even in a large, regional centre, there were still blackspots in the coverage currently provided, and that an initial inquiry made by business owners who were considering relocation to Ballarat regarded the level of data access which could be expected.[78]

6.83 Access to cheaper, better quality services at prices competitive to those offered in metropolitan areas was identified by several witnesses as an attractive element of the NBN for regional areas. For example, Mr Alexander of TASICT remarked:

> This is the first time that these centres will have investment that allows for business growth and provides an opportunity for younger people to stay in these regional centres. Effectively, the NBN technology will breathe life back into regional centres and allow them to operate more on par with the metropolitan areas.[79]

6.84 The Committee heard evidence that suggested the NBN would have significant impacts on rural and regional businesses, either through

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75 Indigenous Remote Communications Association (IRCA), *Submission 82*, p. 7; Ms Mel King, Research Officer, Tasmanian Farmers and Graziers Association, *Committee Hansard*, Launceston, 10 March 2011, p. 42.

76 AgForce Queensland, *Submission 24*, pp. 3–4.

77 *Committee Hansard*, Brisbane, 18 April 2011, p. 39.

78 Mr Jeff Pulford, Director of Destinations and Connections, City of Ballarat, *Committee Hansard*, Ballarat, 17 March 2011, p. 12.

79 *Committee Hansard*, Hobart, 11 March 2011, p. 50.

providing those businesses with the infrastructure required to be more competitive with businesses in major cities or overseas, or by enabling businesses to relocate to regional centres due to reduced overheads.

Regional service hubs

6.85 The City of Ballarat identified itself as a services hub for the region, and explained that broadband provided through the NBN would constitute an essential part of the city's plan to fulfil this role.[80]

6.86 However, the City of Ballarat also noted that while it saw itself as the hub for economic activity, it also sought to preserve economic activity elsewhere in the region:

> We are trying to avoid the absorption of economic activity from the region into Ballarat. We understand that in Ballarat we need to provide a foundation level of services and economic activity to support the region, but we very much support maintaining and developing industry sectors and businesses more broadly within the region. We see that there are strengths right across the region in different parts of the region that support various businesses. The feedback that was provided to the regional planning committee, which developed the strategic regional plan through community symposiums, was about the ability of businesses to remain based in small rural towns and nice businesses to be able to be developed out of homes, or vineyards, or whatever those activities are through the use of broadband and very fast internet.[81]

6.87 Mr Pulford, of the City of Ballarat, identified strong development of the ICT sector as vital to the growth of the region in more traditional sectors, such as manufacturing:

> Through the Federal Government there is about to be a centre for manufacturing excellence built in Ballarat. That says that manufacturing is critical for Ballarat's economy. The connection that we want to make for the purposes of today's discussion is around ICT as an enabler for manufacturing and the commercialization or opening up of the intellectual property universities. The council is currently engaged in a very detailed process with the universities and the manufacturing sector using

80 Mr Anthony Schinck, Chief Executive Officer, *Committee Hansard*, Ballarat, 17 March 2011, p. 2.

81 Mr Schinck, *Committee Hansard*, Ballarat, 17 March 2011, p. 6.

> ICT as a key enabler. It is one of those opportunities, where, for us, while ICT is probably the seventh largest sector of our economy, it is fundamental to what actually makes our economy strong and vibrant.[82]

6.88 The City of Geraldton-Greenough saw itself as a similar hub for regional Western Australia. Mr Tony Brun, the city's Chief Executive Officer, explained that in the NBN's network architecture Geraldton would effectively become 'the exchange for the whole of WA'. He noted this would bring opportunities for the city to exploit both in ICT and as a logistics, service and data centre for the resources sector.[83]

Attracting and growing businesses

6.89 The Committee received a range of evidence that the NBN could play a key role in attracting businesses to set up new operations in regional centres, leading to positive employment outcomes for those communities. For example, the Eastern Regional Corridor submission stated that:

> The NBN will also reduce the impact of geographical inequalities on economic productivity and growth and enable the region to become a viable location for existing firms from outside the area to establish operations. This is already happening slowly as business owners and staff opt for a better quality of life away from capital city congestion.[84]

6.90 AgForce Queensland noted that the NBN would provide significant cost savings to rural and regional businesses by making communication faster and cheaper, resulting in increased revenue which could be used to grow businesses and to grow regional economies. It would also enable companies to expand and still remain in their local community, or to attract established companies to rural and regional areas.[85]

6.91 Kiama Municipal Council advised the Committee that there were restrictions on large businesses operating within the local government area, but that the Council's economic plan aimed to attract high-end professionals seeking to relocate from Sydney. Mr Christopher Quigley, the Council's Director of Strategic and Commercial Services, suggested that the NBN would enable the Council to attract architects, graphic

82 *Committee Hansard*, Ballarat, 17 March 2011, p. 5.

83 Mr Tony Brun, Chief Executive Officer, *Committee Hansard*, Perth, 6 May 2011, p. 4.

84 Eastern Regional Corridor, *Submission 141*, p. 23.

85 AgForce Queensland, *Submission 24*, p. 10.

designers and other workers in similar fields to operate small businesses in the region.[86]

6.92 The Committee heard that regional areas often used their lifestyle benefits as a way to attract professionals who are able to use technology to continue to work away from big cities.[87] Attracting these professionals with infrastructure such as the NBN has the potential to increase employment in regional areas as businesses grow.

6.93 Mr Paul Lange, Member of the Australian Council for Private Education and Training (ACPET), told the Committee that he chooses to run his online training organisation from Cairns due to the lifestyle there. However, three quarters of the company's 60 staff work remotely from locations 'all over Australia' by using broadband connections with VOIP and video links. Mr Lange noted that despite being in a regional location, this enables the company to employ 'quality people' who would not necessarily be available in the immediate area.[88]

6.94 Mr Clark told the Committee that Rising Sun Pictures had benefited greatly from Cinenet, a state government-funded private fibre network for the major businesses in his sector. He indicated that had this technology not been available to support and grow the business, it would have had to have relocated to the United States.[89]

6.95 The Committee expects that as the NBN continues to be rolled out, more and more businesses will take advantage of the flexibility to base themselves in the locations of their choice while remaining highly competitive in markets both locally and overseas. The Committee was interested to hear that since the NBN has been deployed in the small town of Scottsdale in rural Tasmania, at least two businesses have already moved there from interstate specifically to take advantage of its fast broadband connectivity.[90]

Economic diversification

6.96 Diversification of local economies was often emphasised by contributors to the inquiry from rural and regional areas, who, while proud of their

86 *Committee Hansard*, Wollongong, 28 April 2011, p. 47.

87 Mr Basnayake, Cassowary Coast Regional Council, *Committee Hansard*, Townsville, 19 April 2011, p. 48.

88 *Committee Hansard*, Canberra, 4 March 2011, p. 41.

89 *Committee Hansard*, Adelaide, 4 April 2011, pp. 14, 16.

90 Ms Ally Mercer, Sustainable Development Manager, Dorset Council, *Committee Hansard*, Launceston, 10 March 2011, p. 6.

local traditional industries, had sought to expand into different areas and saw the potential of the NBN as an enabling tool for diversification.[91] The Committee heard that this could help regional economies become more sustainable.[92]

6.97 The comparative advantage of regional and rural communities was also emphasised, with one witness noting that lower costs and a higher quality of life could act as drivers to attract industries away from metropolitan areas and increase rural and regional populations in communities that would otherwise be dependent on 'monoculture' traditional industries.[93]

6.98 The National Farmers' Federation (NFF) noted the opportunity the NBN provided to build and diversify regional economies while encouraging the decentralisation of businesses and services, suggesting there should be a strong focus on encouraging development and diversification of regional economies during the rollout of the NBN.[94] The New South Wales Farmers' Federation noted:

> The ability to earn off-farm income through online businesses is very important to our Members. Diversification of income is a common goal of many farm businesses, and the NBN will provide the much needed opportunity to run online businesses in nearly any industry.[95]

6.99 The Committee was informed by witnesses and submitters that the rollout of the NBN had the potential to provide jobs in rural and regional communities, and to give young people the opportunity to access on-the-job training and experience in skills that would be transferable to other areas, addressing some of Australia's skills shortages.[96] Shellharbour City Council noted the job generation that had occurred at the trial site in neighbouring Kiama.[97]

6.100 Wollongong City Council agreed, identifying the NBN as presenting excellent job opportunities, especially for the young people of the area. The council noted the decline of the coal and steel industries in the

91 Mrs Karen Hall, President, North East Tasmania Chamber of Commerce, *Committee Hansard*, Launceston, 10 March 2011, p. 13.

92 Mr Bolaffi, Southern Adelaide Economic Development Board, *Committee Hansard*, Victor Harbor, 5 April 2011, p. 27.

93 Mr Gregory Powell, Member and Council Representative, Wheatbelt East Regional Organisation of Councils, *Committee Hansard*, Perth, 6 May 2011, p. 24.

94 NFF, *Submission 197*, p. 3.

95 New South Wales Farmers' Association, *Submission 182*, p. [3].

96 Mr Quigley, Kiama Municipal Council, *Committee Hansard*, Wollongong, 28 April 2011, p. 49.

97 Mr Peter O'Rourke, *Committee Hansard*, Wollongong, 28 April 2011, p. 1.

Illawarra had lead to higher than average unemployment, and reduced employment opportunities for young people. The council reported that there had been attempts to diversify the economic base of Wollongong and the Illawarra, especially in the tertiary education and financial sectors, and that the NBN would enable these sectors to continue to grow, and compete on an equal footing with competitors based nationally and internationally.[98]

6.101 It was also noted by witnesses that the opportunities provided by the NBN enabled smaller businesses in regional areas to promote themselves and to connect more easily with their communities.[99]

Exporting to other markets

6.102 The Committee heard that there were significant constraints on rural and regional businesses being able to access foreign export markets due to insufficient internet services in these areas, and that the NBN would perform a transformative role in this area. Mr Basnayake of the Cassowary Coast Regional Council, noting that his region has the largest amount of tropical fruits grown in Australia, described the situation of one grower who had sought to engage in foreign markets:

> How do we enable him to export? He has to have a web presence. He has to be engaged with foreign markets. He has to be able to have real-time access to information to respond to inquiries and things like that. The NBN will provide such a benefit not just to him but to all the businesses.[100]

6.103 Mr Basnayake continued:

> It is about enabling them to export. It is giving them access to real-time information. You could access the stock exchanges, the markets, and see price fluctuations in what the dollar is doing. Things like that are important for these businesses. Reading the newspaper or reading the *Financial Review* the next day is not going to help you if you had to deal with something the day before. Having access to that information, being able to connect, is what I am talking about, and getting your product out there.[101]

98 Mr Farmer, *Committee Hansard*, Wollongong, 28 April 2011, p. 42.

99 Mr Basanyake, Cassowary Coast Regional Council, *Committee Hansard*, Townsville, 19 April 2011, p. 46.

100 *Committee Hansard*, Townsville, 19 April 2011, p. 51.

101 *Committee Hansard*, Townsville, 19 April 2011, p. 52.

6.104 RDA Townsville and North West Queensland also identified the potential for engaging in export markets that would be opened up by the NBN. They reported an expectation of rapid growth in the region due to the mining industry and food export production demands. Further, it was noted that the arable parts of the region were very close to ports, enabling rapid harvest and transportation.[102]

6.105 Mr Paul Nicholls of Curtin University noted the capacity of the NBN to enable regional businesses to access larger markets in other cities or overseas, suggesting a $5 million business in Western Australia could become a $50 million business if it had access to foreign markets via technology such as the NBN.[103]

6.106 The Committee was informed of innovations in the wine industry, with a wine-maker in McLaren Vale using video-conferencing technology to conduct 'virtual wine tastings'. The winemaker and potential buyers overseas would taste a package of wines together and discuss them remotely, strengthening ties between the winemaker and his customer and reducing the need to travel. However, connectivity was currently constraining the success of this innovation; images and sound were not transmitting smoothly.[104]

6.107 Mr Alexander of TASICT told the Committee that his own business exports around 50 per cent of its products all over the world, from its base in Launceston. Mr Alexander explained that because his work all uses rich media, he currently spends a very large amount of time and money travelling, and estimates he will save $100 000 a year on travel expenses if he is instead able to use high-quality video-conferencing to engage with his export clients.[105]

Supporting tourism

6.108 The Department of Resources, Energy and Tourism (RET) submitted that tourism contributes $34 billion Australia's economy, employs more than 500 500 people, and comprises 93 per cent micro to small sized businesses.

102 Mr Ron McCullough, *Committee Hansard*, Townsville, 19 April 2011, p. 41.

103 *Committee Hansard*, Perth, 5 May 2011, p. 24.

104 Ms Forrester, McLaren Vale Grape, Wine and Tourism Association, *Committee Hansard*, Victor Harbor, 6 April 2011, p. 31; 'High speed broadband a barrel of success', *Southern Times Messenger*, 25 January 2011.

105 *Committee Hansard*, Hobart, 11 March 2011, p. 53.

It noted that 46 cents in every dollar tourism expenditure is spent in regional areas.[106]

6.109 The Committee notes that, as part of a National Long Term Tourism Strategy, a Digital Distribution Working Group has been set up to 'encourage more small and medium tourism enterprises to accelerate online distribution of their tourism product, improve online presence and capability'. Currently, although 85 per cent of tourism operators have a website, only 35 per cent have online booking and payment facilities.[107] RET advised that the NBN will 'enable businesses to develop data rich websites, showing video and high-resolution images of products and services as well as allowing access to increasingly sophisticated applications'.[108]

6.110 The National Tourism Alliance informed the Committee that at a time when the tourism industry is undergoing a period of transformation, access to high speed broadband internet is becoming more 'critical to the future success of the tourism sector' as customers increasingly use the internet for tourism research, bookings and payments. The NTA noted that:

> The NBN provides opportunities for tourism businesses to distribute their products online more effectively, through high quality websites, and thereby compete and conduct business on a global scale in new markets, particularly from Australian regional and remote areas who may not have had a cost-effective online opportunity in the past.[109]

6.111 Mr Basnayake of Cassowary Coast Regional Council noted that having effective broadband services was of particular importance to the tourism industry, which represents a significant part of the regional economy. The region contains backpacker hostels which provide accommodation for workers in the banana plantations. He reported that there was clearly a lack of broadband availability in the area, as evidenced by the popularity of wireless internet connections at fast food restaurants and libraries.[110]

6.112 The Committee heard that tourists have come to expect the provision of internet services, as they have become reliant on e-mail and social networking sites to maintain a connection with home while they travel.

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106 RET, *Supplementary Submission 190.1*, p. 1.

107 RET, *Supplementary Submission 190.1*, pp. 1–2; NTA, *Submission 235*, p. 2.

108 RET, *Supplementary Submission 190.1*, p. 3.

109 NTA, *Submission 235*, pp. 1–2.

110 Mr Basnayake, *Committee Hansard*, Townsville, 19 April 2011. p. 47.

For example, Mr Andrew Connor, Spokesperson for Digital Tasmania, observed:

> Some people want to get away from it all, but some people still want to stay connected to everything. They want to upload their holiday videos and pictures to their friends so they can see them instantly.[111]

6.113 Mr Basnayake noted that while some tourism operators around Mission Beach had an excellent web presence, the smaller tourism operators and caravan parks did not, and suffered as a result. He noted that those smaller businesses relied heavily upon 'drive tourism' and were unable to access markets beyond that because of an inadequate web presence. Mr Basnayake described the 'chicken and egg situation' where slow internet speeds meant a lack of ICT expertise in the area which meant that businesses were not easily able to access assistance to design and establish a better web presence.[112]

6.114 The McLaren Vale Grape, Wine and Tourism Association informed the Committee that the tourism sector in its region was acutely aware of their dependence on the internet. The vast majority of tourism operators were small businesses operating bed and breakfasts that handled more than 90 per cent of their bookings online, and expected increased occupancy rates once they were able to harness the potential of the NBN to grow and promote their businesses.[113]

6.115 The Eastern Metropolitan Regional Council in Western Australia also told the Committee of its aspirations to increase tourism to the area by promoting the area as a haven for natural and conventional health treatments, and that there was a desire to implement a system in which tourists could book customisable packages online, but that this would require adequate ICT support and infrastructure to enable adequate collaboration.[114]

6.116 The Committee was interested to hear the ways in which the web was being used to promote the tourism sector in Ballarat. More than half of the tourism sector in Ballarat is based around home-based tourism services, mostly bed and breakfast providers. The City of Ballarat advised that they had worked with the local tourism sector and had invested more than $1 million in developing, for the first time, an integrated booking system for

111 *Committee Hansard*, Launceston, 10 March 2011, p. 29.

112 *Committee Hansard*, Townsville, 19 April 2011, p. 48.

113 Ms Forrester, *Committee Hansard*, Victor Harbor, 5 April 2011, pp. 44–45.

114 Ms Hardy, *Committee Hansard*, Perth, 6 May 2011, p. 26.

bed and breakfast providers around Ballarat, 'which sounds minimal', but which has resulted in a substantial improvement in the marketing of the city:

> … We now have an integrated place for people to go. It has also meant that for businesses their booking systems are running much more seamlessly than they might have otherwise. [115]

Supporting agriculture

6.117 Agriculture is clearly another particularly important industry to many rural areas. As noted earlier, Chapter 5 of this report discussed a number of innovative agricultural applications of the NBN in the context of using sensors to monitor infrastructure and the environment. This section will explore some broader agricultural applications.

6.118 The Australian Information Industry Association (AIIA) submitted that broadband access can stimulate new employment and improve the sustainability and profitability of traditional industries like agriculture:

> For a country such as Australia with a deep export history in agriculture and resource extraction, access to high speed broadband through the NBN has the potential to both open new business and investment opportunities as well as build on our traditional strengths.[116]

6.119 The NSW Farmers' Association informed the Committee of the importance of broadband-related technologies for enabling more efficient farm operations:

> Popular uses by farming businesses include weather forecasting, purchasing equipment online, trading commodities, determining soil moisture and calculating efficient fertiliser content. The ability to email from the paddock, turn off irrigation remotely and monitor farms through satellite imagery has increased the profits and productivity of those able to access it.[117]

6.120 AgForce Queensland informed the Committee that there had been a significant increase in the average age of primary producers in Queensland, especially in the dairy industry. It noted that young people were leaving rural and regional Queensland due to a lack of educational opportunities, and a lack of drivers to retain young people in their

115 Mr Pulford, *Committee Hansard*, Ballarat, 17 March 2011, p. 6.

116 AIIA, *Submission 184*, p. 17.

117 NSW Farmer's Association, *Submission 182*, p. 7.

communities, and noted that this was clearly due to a lack of technology.[118]

6.121 AgForce Queensland told the Committee that farmers could use broadband both to manage their operations and to access better information, such as weather reports and market information. AgForce particularly emphasised in its submission the ways in which access to this information would lead to more environmentally sustainable farm practices, 'as well as a system to network and manage on-farm technology which is used in everyday operation.'[119]

6.122 Mr Walker also reported that industry was driving technological changes in farming, and that Australia was leading the way in many of the technologies being used.[120] This was supported by the National Farmers' Federation, who agreed that agricultural industries had a significant engagement with research and development, and that the NBN may offer opportunities for innovation not previously considered.[121]

6.123 The Cassowary Coast Regional Council noted the provision of quality video streaming services would enable agencies such as the Australian Quarantine and Inspection Service, Customs, and the Department of Primary Industries to assess products remotely.[122]

Committee conclusions

6.124 It is clear to the Committee that some businesses have outgrown the traditional internet infrastructure available in Australia, and are seeking to incorporate more efficient methods of conducting operations, including by using technologies which are supported by an effective and reliable broadband network. The Committee heard that in order to successfully use applications such as video-conferencing and VOIP, to access cloud computing and tele-working arrangements, and to make the most of the advantages offered by Australia's time zone, Australian home-based businesses and other small and medium enterprises will require the NBN.

6.125 The Committee accepts the views of inquiry participants about the possibilities offered through tele-working arrangements, particularly with

118 Mr Robert Walker, *Committee Hansard*, 18 April 2011, p. 39.
119 AgForce Queensland, *Submission 24*, p. 9.
120 Mr Robert Walker, *Committee Hansard*, 18 April 2011, p. 44.
121 National Farmers' Federation, *Submission 197*, p. 4.
122 Mr Shenal Basnayake, *Committee Hansard*, 19 April 2011, p. 52.

regard to improving productivity and access to skilled workers. From a regional perspective, the ability to tele-work also presents rural and regional Australia with a competitive advantage against bigger population centres. Rural and regional Australia can offer a completely different quality of life when compared to cities, but the lack of employment opportunities has long made choosing to move to a rural or regional location a difficult decision for people who live in cities because of their employment circumstances. The Committee considers that the NBN affords the possibility of regional economic diversification, allowing towns to attract smaller businesses which may then expand locally, providing more traditional employment to locals.

6.126 The Committee was also interested to hear of the benefits provided by the NBN to small rural and regional businesses seeking to expand and even compete overseas. It was noted by many inquiry participants that rural and regional economies were often heavily dependent on one or two specific industries, and that these economies were often placed under significant strain due to natural disasters. However, the NBN would provide rural and regional small business with the opportunity to broaden their customer bases and to grow their businesses, provide further employment, and to support regional economies sustainably.

6.127 The Committee was interested to hear the role technology can and is playing in the tourism and agricultural sectors, and the particular impacts in these industries in rural and regional Australia. The Committee heard concrete examples of the role the NBN could play in supporting small businesses across Australia, and encourages other councils and regional groups to examine the innovations of councils in their support of local tourism. For the agricultural industry, there are also significant benefits arising from the provision of ubiquitous high speed broadband. Electronic telemetry and real time market information provide farmers with opportunities to greatly improve productivity and competitiveness, and benefits of the NBN through, for example, the education sector, may assist small communities to retain their younger populations, thereby also assisting in the economic development and sustenance of those places.

6.128 The Committee notes that the speeds provided by the NBN will vary, depending on whether a user is connected to fibre, wireless, or a satellite service, and notes the desire from many rural and regional Australians to be connected to the fibre network. The issues around this are discussed in Chapters 9 and 11.