

Wimmera Southern Mallee ICT Study

Centre for eCommerce and Communications



Lateral Plains



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Executive summary

Local governments in the Wimmera Southern Mallee together with the Grampians Regional Development Australia (RDA) Committee are working to build on past successes and position the region for a rapid uptake of next generation telecommunications and broadband, infrastructure and services.

The potential for Information and Communications Technology (ICT) as a driver of economic and social development is well recognised. Regional competitive advantages in areas including grain production, mining, transport and manufacturing will be further enhanced through more extensive use of ICT. An accelerated rollout of next generation broadband will also make it possible to replicate and extend innovative service delivery in areas including education, health and government.

The Wimmera Southern Mallee ICT Study was conducted during the period between June 2010 and March 2011. More than 350 residents, businesses and local government representatives were actively engaged through community forums, business and community surveys and case studies. Innovative spatial mapping approaches have been used to present study findings to project participants and to other key stakeholders such as the Federal and State Governments, NBN Co and existing telecommunications service providers including Telstra Countrywide.

Information gathered through the Wimmera Southern Mallee ICT Study confirms significant unmet demand for fixed broadband services. Better and faster broadband, reducing the costs of access, enhancing safety and security and better supporting mobility were confirmed as the most pressing issues about the internet. Survey respondents indicated that their internet usage would increase if the internet was faster and cheaper. Enhanced mobile coverage, service and reception will generate economic and social benefits for local businesses and residents, benefit those visiting or travelling through the region and enhance safety in emergency events such as floods and bushfires.

Collaboration at a regional scale will more effectively support advocacy and other actions directed towards ensuring all residents and businesses can access and effectively use quality ICT services. The key strategic directions and actions outlined below build upon and extend the *Grampians Region Strategic Directions*, *Wimmera Southern Mallee Regional Strategic Plan*, *Central Highlands ICT Study*, *Moorabool Community Broadband and Telecommunications Strategy* and *Ballarat ICT 2030*.

Strategies	Strategic Actions
Leadership	<ul style="list-style-type: none"> ▪ Forging a common vision and understanding of the needs and requirements for ubiquitous high capacity broadband and mobile communications. ▪ Ensuring ICT and broadband remain clearly embedded in regional strategic planning and development. ▪ Bringing related agencies, organisations and individuals together to progress the priority strategies and actions as set out in the Wimmera Southern Mallee ICT action plan. ▪ Actively promoting and branding the Grampians region as a dynamic and vibrant ICT region. ▪ Celebrating ICT success through an annual ICT Showcase and the establishment of the Grampians Region ICT Awards. The ICT Showcase would recognise innovation and excellence in areas including local government, education, health, environment, community and business applications of ICT. The ICT awards would prepare regional entities for participation in state and national awards such as the Australian Information Industry Association - iAwards and the Australian Community ICT Awards. ▪ Co-investing to expand the geographical reach of Ballarat ICT with a focus on universally affordable access to next generation broadband services, creating communities that use ICT services to their best advantage and encouraging ICT innovation and new initiatives throughout the general and business communities. ▪ Being proactive in identifying opportunities for using ICT to enhance economic and social policies and strategies at a regional and local level.
Advocacy	<ul style="list-style-type: none"> ▪ Using the outputs of the Wimmera Southern Mallee ICT Study to support advocacy targeted towards immediate improvements in mobile telecommunications and broadband services. ▪ Advocating for a rapid and comprehensive deployment of next generation broadband and enhanced mobile services throughout the Grampians region. ▪ Continuing to develop an evidence base to assist the region in building and shaping its ICT policy in the coming years. ▪ Conducting periodic surveys and mapping outputs to illustrate ICT trends, take up and satisfaction levels within the region. ▪ Continuing to be proactive in identifying and responding to clusters of unmet demand for ICT services. ▪ Gathering and publishing case studies on an ongoing basis which demonstrate local adoptions of ICT and their associated economic and social impacts. ▪ Getting involved in the Australian Communications Consumer Action Network via membership or participation in campaigns and activities.

Strategies	Strategic Actions
Infrastructure	<ul style="list-style-type: none"> ▪ Pursuing partnerships and maintaining an ongoing dialogue with the Federal and State governments, NBN Co, telecommunications providers and other stakeholders to accelerate the rollout of high speed broadband and comprehensive mobile coverage. ▪ Supporting LGAs and property developers in adopting a proactive approach to broadband provisioning to facilitate a rapid introduction of FTTP infrastructure and services in greenfield and brownfield residential, commercial and industrial developments. ▪ Engaging directly with Telstra and other mobile providers to advocate for improved mobile telecommunications within the region. ▪ Supporting the maintenance and extension of the telecommunications and broadband service mapping which was initiated through the Wimmera Southern Mallee ICT Study so that service improvements can be monitored and service black spots identified.
NBN	<ul style="list-style-type: none"> ▪ Maintaining a proactive and progressive approach to creating an enabling environment for broadband deployment and ICT adoption and use. ▪ Gathering and aggregating data that assists NBN Co and other stakeholders in planning and/or extending broadband and telecommunications services across the Grampians region. As an outcome, establish a web-service to support data contribution, aggregation and sharing via spatial mapping and other formats. ▪ Extending the online services established through the Wimmera Southern Mallee ICT Study to provide efficient and effective access to information such as the location of commercial and industrial precincts; growth corridors, environmental and heritage overlays; government properties, education and health facilities, greenfield sites, barriers to construction, existing telecommunications infrastructure, areas poorly serviced by existing broadband and location of future civil works. ▪ Building business and community readiness for a rapid take-up of next generation broadband infrastructure and services through collaboration with NBN Co, DBCDE, IBES etc. ▪ Adopting a proactive approach to sharing learning from the Bacchus Marsh stage 2 NBN release site. ▪ Sourcing and regularly disseminating NBN, ICT and other related information to stakeholders.

Strategies	Strategic Actions
Local government	<ul style="list-style-type: none"> ▪ Recognising that the effective use of ICT is a core part of the strategic deployment of broadband infrastructure and service delivery. ▪ Proactively identifying priorities for the development of applications and local content that will assist in achieving development priorities and enhance the long-term economic competitiveness of the region. ▪ Strengthening support for existing and new networks across local government with the goal of fostering knowledge sharing among ICT managers, GIS officers and non-ICT areas such as community services, economic development etc. ▪ Allocating and attracting seed funding to support collaborative ICT projects across LGAs.
Collaboration models	<ul style="list-style-type: none"> ▪ Working with regional health and education providers to identify opportunities for leveraging existing broadband networks. ▪ Bringing grain production, mining, transport and manufacturing sector representatives together with researchers and other key stakeholders to identify potential ICT opportunities. ▪ Identifying scope for innovative niches in the use and application of ICT - for example the use of sensors in strategic regional industries, the development of regional cyber safety responses or supporting innovative online approaches to career training and life-long learning. ▪ Contributing to the development of project plans and preliminary business cases for ICT projects. ▪ Promoting interoperability at the regional level via adoption of global information management standards. ▪ Aggregating ICT requirements in areas such as connectivity, training, hardware, software, knowledge management and digitisation. ▪ Supporting the implementation of local broadband projects that are well-organised and that support industry engagement and participation from the local community. ▪ Attracting funding for innovative projects using ICT to deliver enhanced regional services in education, health, emergency services, agriculture, manufacturing, tourism and transport through sources such as cIIF, Re-Innovate Broadband Program and the Digital Regions Initiative.
Skills	<ul style="list-style-type: none"> ▪ Building local ICT capability and expertise through engagement with education and training providers, business groups and the agricultural, mining, manufacturing, transport and other sectors. ▪ Facilitating regular forums and knowledge exchange events to bring local firms and organisations together around ICT innovation. ▪ Attracting high profile speakers to present the latest ICT thinking. ▪ Assisting community based organisations and education providers in promoting ICT literacy, training and other essential ICT skills development. ▪ Establishing a regional business and community education program which would draw in participation from NBN Co, DIIRD, DBCDE, IBES etc.

Strategies	Strategic Actions
Research and development	<ul style="list-style-type: none">Continuing to gather evidence of the social and economic impacts of ICT and broadband diffusion in the Grampians region.Building reliable evidence and comparable indicators through future community and business surveys in areas such as ICT access, use and impact.Capturing and sharing best practices of broadband use, ideally using an online repository.Supporting the University of Ballarat and other stakeholders in attracting private and public sector funding for ICT and broadband research and development.Producing an annual report card on regional ICT activities, achievements and priorities that details projects that have been given priority, informs their progress and highlights areas that need further attention and consideration.Establishing research linkages with IBES which is a cross-disciplinary research institute dedicated to products, services, and innovations that maximise the benefit of new broadband technologies to Australian society.

Glossary¹

Term	Description
ACCAN	Australian Communications Consumer Action Network - the peak body that represents all consumers on communications issues including telecommunications, broadband and emerging new services.
ADSL	Asymmetric Digital Subscriber Line is one form of the Digital Subscriber Line technology, a data communications technology that enables faster data transmission over copper telephone lines than a conventional voiceband modem can provide. It is called asymmetric because the download and upload speeds are not symmetrical (download is faster than upload).
ADSL2	Asymmetric Digital Subscriber Line 2 adds new features and functionality targeted at improving performance and interoperability and adds support for new applications and services. ADSL2 is a fixed broadband service (delivering speeds between 8 Mbps to 50 Mbps).
BDSL	Business Digital Subscriber Line is usually characterized by the fact that it is a symmetric connection, providing equal upload and download speeds. It is a premium, business grade broadband service that is more suitable for bandwidth-intensive applications.
DOCSIS 3.0	An international telecommunications standard supporting high-speed data transfer and internet access over hybrid fiber coaxial (HFC) infrastructure. Version 3.0 significantly increases transmissions speeds (both upstream and downstream) and introduces support for Internet Protocol version 6 (IPv6).
First wave broadband	Fixed broadband services delivering speeds typical of initial broadband offerings (i.e. 256 Kbps to 8 Mbps), such as first generation ADSL.
FTTP (FTTH, FTTN)	Fibre to the Premises (Fibre to the Home, Fibre to the Node)
GWIP	Government Wide Internet Protocol - A product analogous to a virtual private network for multiple sites. Those sites can be connected up at speeds of anywhere between 2Mbps to 1Gbps depending on the technologies used (DSL vs Fibre).
HFC	Hybrid fibre-coaxial is a telecommunications industry term for a broadband network which combines optical fibre and coaxial cable.
IBES	Institute for a Broadband-Enabled Society - a cross-disciplinary research institute dedicated to products, services, and innovations that maximise the benefit of new broadband technologies to Australian society.
ICT	Information and communications technologies

¹ Adapted from Telecommunications Spend and Demand in Victoria, June 2010, Report by Access Economics Pty Limited for the Department of Innovation, Industry and Regional Development

Term	Description
IPv6	Internet Protocol version 6 is an internet layer protocol for packet-switched internetworking. IPv6 has a vastly larger address space, plus better networking, mobility and security features.
LGA	Local Government Area
LMDS	Local Multipoint Distribution Services is a broadband wireless access technology commonly operating on microwave frequencies.
Mbps	An abbreviation for megabits per second. It refers to data transfer speeds as measured in megabits.
NBN	National Broadband Network
RSP	Regional Strategic Plan
Second wave broadband	Fixed broadband services delivering speeds typical of technologies such as ADSL2+ (i.e. 8 Mbps to 50 Mbps).
Supply/coverage	The share of the households, businesses or individuals who are able to receive a service. That is the proportion who could use the service on the basis of their home or business address.
Take up	The share of the households, businesses or individuals who are customers of a services, reflecting both demand and availability.
Third wave broadband	Fixed broadband services delivering speeds greater than 50 Mbps.
Unmet demand	The share of households, businesses or individuals who would like to subscribe to a service but are unable to do so due to a lack of coverage

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1. The Wimmera Southern Mallee region

The Wimmera Southern Mallee region covers the five municipalities of Buloke, Hindmarsh, Horsham, West Wimmera and Yarriambiack. The Wimmera Southern Mallee ICT Study builds upon the Wimmera Southern Mallee Regional Strategic Plan (RSP) which was launched during June 2010. The RSP noted major attributes of the Wimmera Southern Mallee including:

- Recent population growth
- Continued economic growth
- Competitive advantages in grain production, mining, transport and manufacturing
- A developing nature-based tourism sector
- A healthy natural environment underpinning the prosperity and liveability of the region
- The recent construction of the Wimmera Mallee pipeline
- The active pursuit of renewable energy generation

1.1 DEMOGRAPHY

The Wimmera Southern Mallee region has a population of 57,100² which is concentrated in and around the region's centres of Horsham and Stawell (see Table 1). Horsham is the region's primary service centre and has experienced steady growth in recent years. Charlton, Dimboola, Donald, Nhill, Stawell and Warracknabeal are other larger towns in the region that provide a range of services and facilities. There are numerous small towns with populations of less than 1,000 throughout the region.

Table 1 - Wimmera Southern Mallee town populations

LGA	Town	Population	LGA	Town	Population
Buloke Shire	Donald	1,367	West Wimmera Shire	Kaniva	738
	Charlton	1,052		Edenhope	733
	Birchip	687		Goroke	246
	Wycheproof	686		Apsley	156
	Sea Lake	612			
Hindmarsh Shire	Nhill	1,879	Yarriambiack Shire	Warracknabeal	2,421
	Kaniva	738		Murtoa	748
	Rainbow	481		Hopetoun	586
	Jeparit	355		Rainbow	481
Horsham Rural City	Horsham	13,290		Minyip	437
	Natimuk	424		Rupanyup	370
				Beulah	201

Typical of many agricultural-based economies, population decline is a trend which has been apparent for a number of decades across all Wimmera Southern Mallee LGAs, except Horsham. The Wimmera Southern Mallee has the oldest population of any of Victoria's regions, with more residents in the shires of Buloke, Hindmarsh, West Wimmera and Yarriambiack aged 75 and over than the regional Victorian average.

² Wimmera Southern Mallee Regional Plan, June 2010

The Rural City of Horsham (population 20,000) is the most geographically compact and densely populated LGA in the Wimmera Southern Mallee region. Horsham is situated at the junction of the Wimmera, Henty and Western Highways, placing it along the Melbourne to Adelaide transport corridor and in an important regional and national context. The Horsham campus of the University of Ballarat and Longerenong College deliver training throughout the Wimmera Southern Mallee region.

Yarriambiack Shire (population 7,600) is primarily serviced by Warracknabeal. The shire is the heartland of grain production and handling in the Wimmera Southern Mallee region and one of the world's most efficient grain growing areas. The agricultural sector directly employs more than 40 percent of the workforce. A further 30 percent of the workforce is engaged across property and business services, retail trade and construction.

Buloke Shire (population 7,000) and Hindmarsh Shire (population 6,200) encompass areas of more than 8,000 and 7,500 square kilometres respectively, making them some of Victoria's most sparsely populated municipalities with less than one person per square kilometre. The agricultural sector is these shires' primary employer, specifically concentrating on grain and sheep production. The Hindmarsh Shire also comprises the Wyperfeld and Little Desert National Parks at the North and South of the shire respectively.

West Wimmera Shire (population 4,600) is principally a farming area and has the lowest population of the LGAs in the Wimmera Southern Mallee region. The shire encompasses more than 9,100 square kilometres, making it the most sparsely populated municipality in the region. The two major towns of Edenhope and Kaniva are located halfway between Melbourne and Adelaide, with the shire adjoining the South Australian border.

1.2 UNDERSTANDING THE BENEFITS DERIVED FROM TECHNOLOGY ADOPTION

Major attributes of the Wimmera Southern Mallee region include a clear vision for the broadband future and a commitment to crafting policies that encourage rapid ICT deployment and adoption. The region also has a strong innovation capacity with established clusters conducting agricultural research at the Grains Innovation Park and leading industry groups such as Birchip Cropping Group.

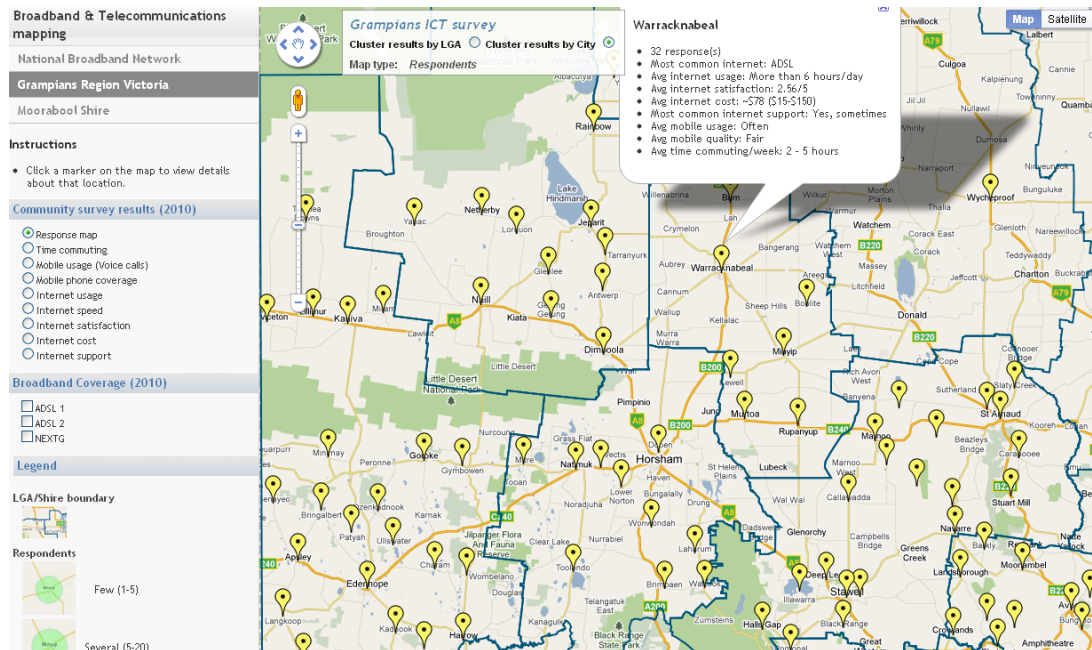
This study sought to enhance understanding of the benefits derived from technology adoption by exploring current ICT adoption trends, as well as knowledge of current and possible usage, short and long term needs and motivations for utilising new technologies in both business and community contexts. A combination of both qualitative and quantitative research methods were used to elicit information on the issues of ICT access, barriers and usage at a local level. Data collection methods included key stakeholder interviews and

forums, an online survey, case studies and spatial mapping of community feedback, regional broadband coverage and of future national broadband network (NBN) services.

Key outcomes of the project include a more thorough understanding of ICT readiness in the region, insight into the types of online services most desired, visual representations of current access to technology, and benchmarking of regional ICT usage as a basis for measuring future uptake of new technologies within the region.

A major instrument for gathering data was the online survey carried out during the June to August 2010 period. Figure 1 illustrates the distribution of responses across local government areas. The largest contributions to the 318 valid responses came from West Wimmera Shire (103), Yarriambiack Shire (93) and Hindmarsh shire (90). Figure 1 also illustrates summary information which can be viewed at either a LGA or town level.

Figure 1 - Wimmera Southern Mallee survey response map



Survey respondents indicated that the places they use the internet most are at home (84%) and work (57%). The number of hours respondents spent on the internet per day ranged from less than one to more than six, with the majority spending either 1-2 hours (36%) or 3-6 hours (34%) on the internet per day. Figure 2 identifies that respondents regularly use the internet for email and general web browsing (86%), researching services and products (69%), keeping in touch with family and friends (66%), learning and education (46%) and purchasing goods or services (41%). Twenty-seven percent (27%) of respondents also indicated they use Skype for voice and video calls.

Figure 2 - Personal use of the internet

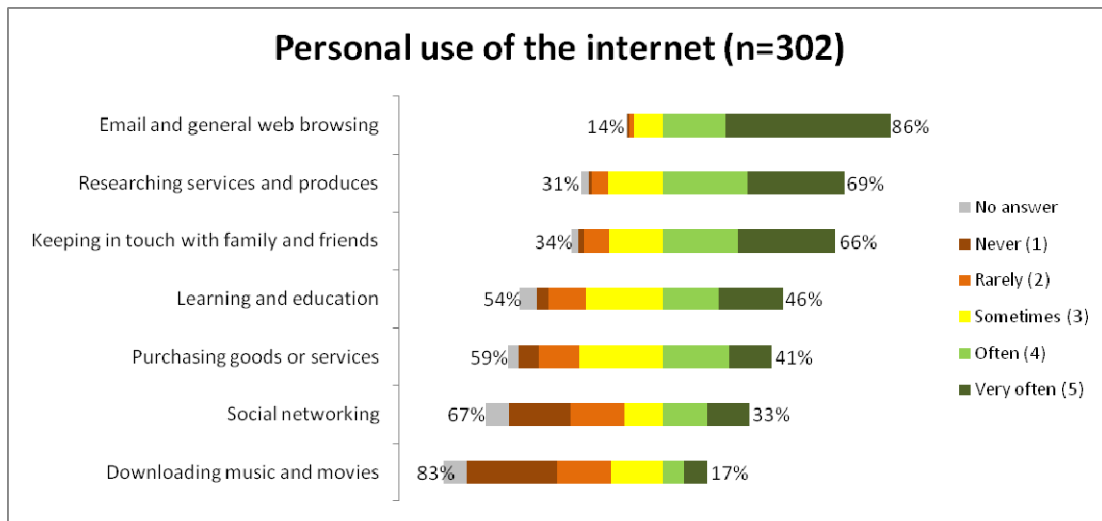
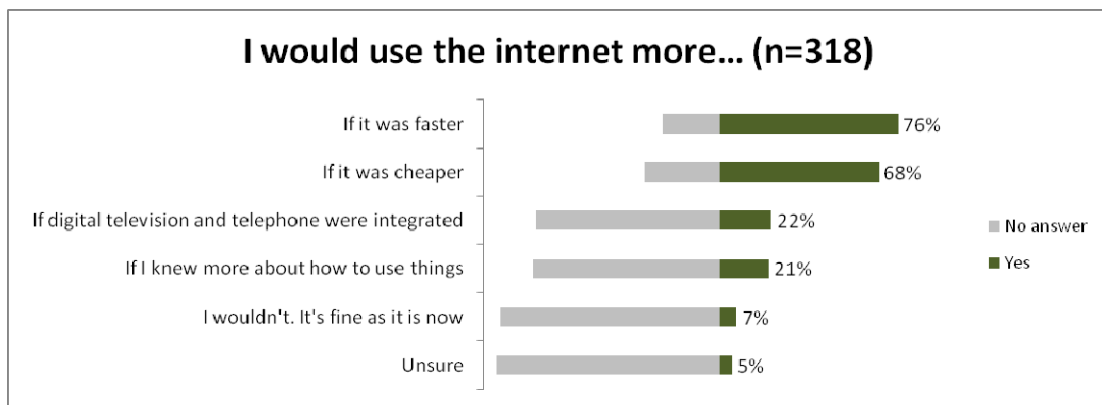


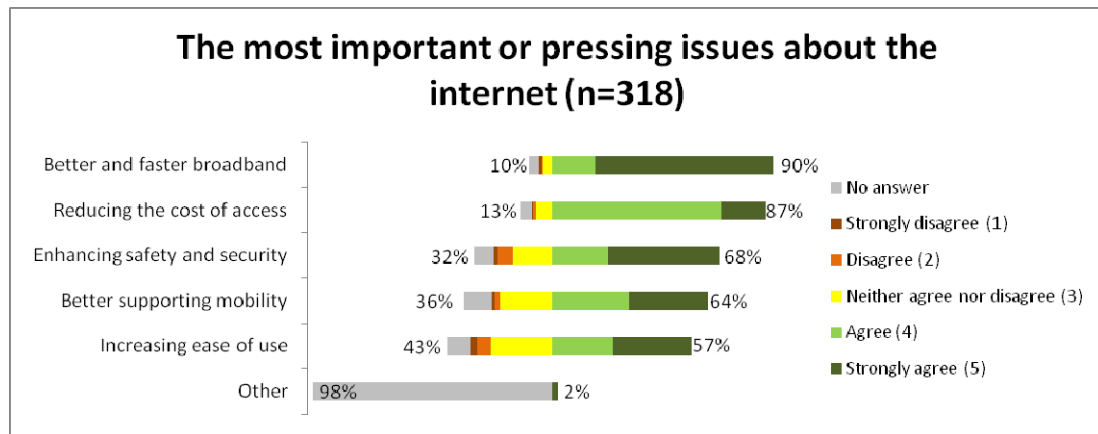
Figure 3 confirms that internet usage would increase if it was faster (76%) and cheaper (68%). Technology literacy could be enhanced through training for the twenty-one percent (21%) of respondents who indicated they would use the internet more if their knowledge of how to do things was increased.

Figure 3 - I would use the internet more...



Respondents indicated a high level of understanding of the barriers that limit ICT uptake in their community (see Figure 4). Seventy-three percent (73%) of respondents strongly agree and seventeen percent (17%) agree that better and faster broadband is the most important and pressing issue about the internet. Other pressing issues identified included reducing the cost of access (18% strongly agree and 69% agree), enhancing internet safety and security (46% strongly agree and 23% agree) and for better supporting mobility (32% strongly agree and 31% agree).

Figure 4 - The most important or pressing issues about the internet



The benefits derived from technology adoption are highlighted in the regional case studies contained within this report (see Section 4.3). In addition to enhanced infrastructure, further strengthening of linkages across the Grampians region will assist local businesses and communities in embracing technology, accessing ICT suppliers and capabilities and in achieving enhanced use of technology across all areas of the economy.

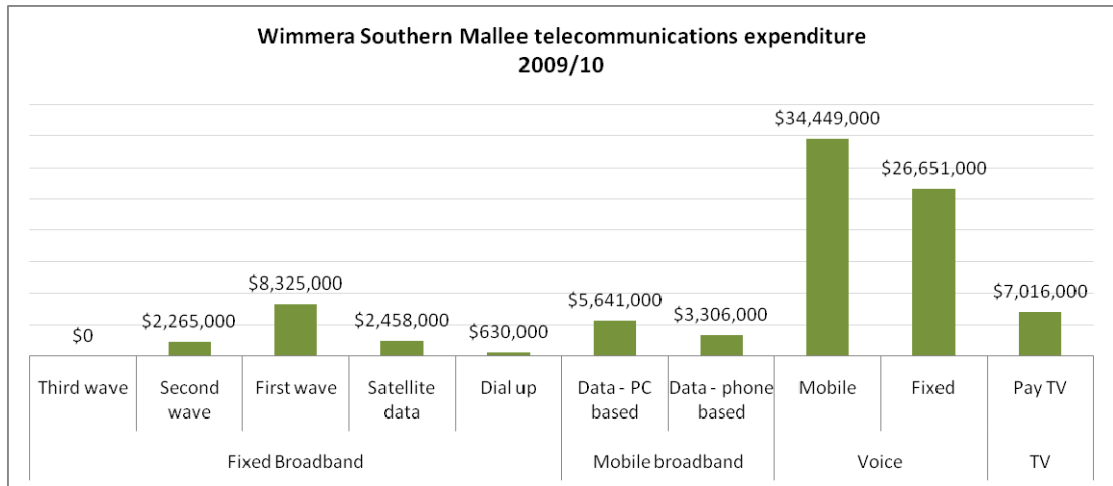
1.3 TELECOMMUNICATIONS SPEND

Recent research conducted by Access Economics³ provides insight into the central role that telecommunications play in the Wimmera Southern Mallee regional economy and in the day-to-day life of its citizens. The study sought to model Victoria’s telecommunications markets at the regional level, in terms of variables such as coverage, demand, take-up, expenditure and unmet demand, and to provide a picture for these markets over the next five years. Figure 5 confirms 2009/10 total telecommunications expenditure for the Wimmera Southern Mallee region was estimated to be \$90 million⁴. This amount combined fixed broadband (\$13.67m), mobile data (\$8.94m), voice (\$61.1m) and Pay TV (\$7.01m).

³ Telecommunications Spend and Demand in Victoria, June 2010, Report by Access Economics Pty Limited for the Department of Innovation, Industry and Regional Development.

⁴ op cit, p. 65-68.

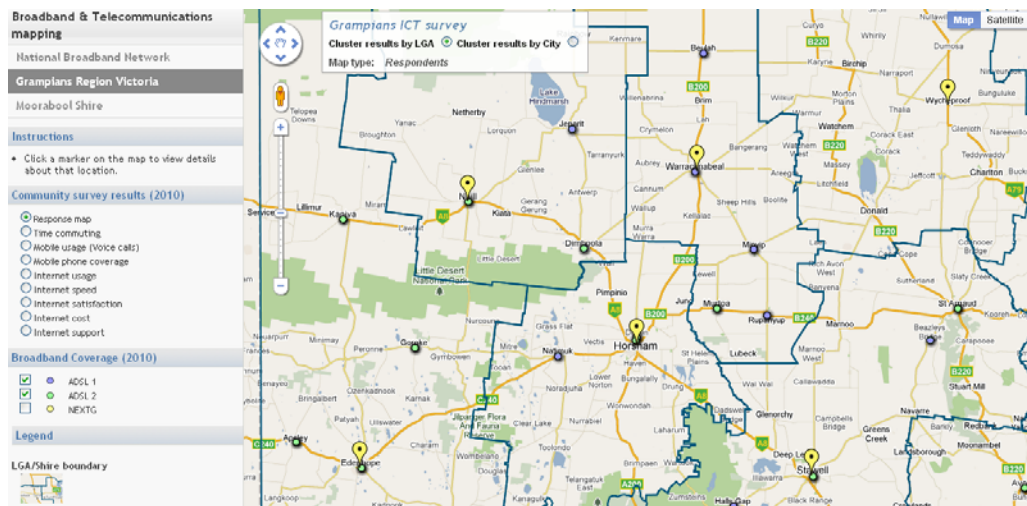
Figure 5 - Wimmera Southern Mallee telecommunications expenditure 2009/10



1.4 BROADBAND COVERAGE

Broadband is the new essential utility, as vital to economic growth as clean water and good roads⁵. Access Economics confirms significant gaps in broadband coverage in the Wimmera Southern Mallee region. While coverage for first wave broadband is near universal, second wave broadband is restricted to regional cities and towns where exchanges are enabled for ADSL2+ (see Figure 6). In addition, third wave broadband is currently not available in many parts of regional Australia, including the Wimmera Southern Mallee. The average maximum bandwidth for the Grampians region, which includes the Wimmera Southern Mallee and Central Highlands regions, has been reported at 6.20 Mbps⁶.

Figure 6 - Wimmera Southern Mallee broadband coverage



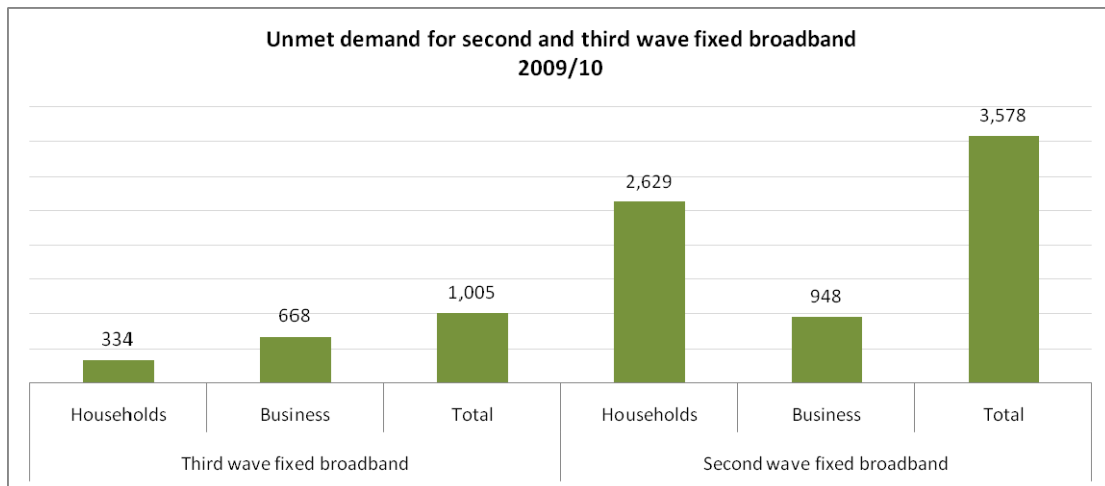
⁵ Intelligent Community Forum www.intelligentcommunity.org

⁶ Telecommunications Spend and Demand in Victoria, June 2010, Report by Access Economics Pty Limited for the Department of Innovation, Industry and Regional Development, p. 70.

1.5 UNMET DEMAND

There is significant unmet demand for second and third wave fixed broadband services in the Wimmera Southern Mallee region (see Figure 7). Unmet demand includes areas where demographic and business characteristics are generating significant demand for services, areas that lie beyond the reach of high speed services from the exchange or in areas where exchanges have not yet been enabled for second or third wave broadband services.

Figure 7 - Wimmera Southern Mallee unmet demand for second and third wave fixed broadband 2009/10⁷



More than 330 Wimmera Southern Mallee households and 660 businesses would have subscribed to a third wave broadband service in December 2009 if it was available. An even higher number of households and businesses would have adopted second wave broadband services but were unable to do so due to a lack of coverage (2,629 householders and 948 businesses).

1.6 FUTURE DIRECTIONS

The Wimmera Southern Mallee ICT Study complements and builds upon the *Central Highlands ICT Study*, *Moorabool Community Broadband and Telecommunications Strategy* and *Ballarat ICT 2030*. The Wimmera Southern Mallee region is ready to take full advantage of the rollout of the NBN.

Regional stakeholders are working collaboratively to embrace the NBN by positioning itself for an early rollout of the NBN high-speed communications network. The region's proactive

⁷ Telecommunications Spend and Demand in Victoria, June 2010, Report by Access Economics Pty Limited for the Department of Innovation, Industry and Regional Development, p. 72-73.

approach to information gathering and sharing has been clearly demonstrated throughout the Wimmera Southern Mallee ICT study period and will be extended further as the learning generated through the Bacchus Marsh stage 2 NBN release site is captured and shared.

During the consultation period, each LGA was asked to provide feedback in areas such as the level of support for overhead deployment of optical fibre infrastructure, the laying of conduit in new residential and commercial developments and the type of community education and awareness campaigns that could build support and enthusiasm for the NBN rollout (see Table 2).

Table 2 - LGA feedback on above and below ground infrastructure deployments

LGA	Area of shire serviced by overhead power cabling	Level of support for an overhead deployment of optical fibre infrastructure	Anticipated community reaction to an overhead deployment of the NBN	Level of support for conduit to be laid as part of new residential and commercial developments
Buloke Shire	100%	Very supportive	Very supportive	Very supportive
Hindmarsh Shire	100% estimate	Unsure	Unsure	Very supportive
Rural City of Horsham	90% estimate	Very supportive	Supportive	Very supportive
West Wimmera Shire	85% estimate	Very supportive	Very supportive	Very supportive
Yarriambiack Shire	99% estimate	Very supportive	Supportive	Supportive

Qualitative comments were also sought from each LGA with the following comments made in relation overhead deployments of optical fibre:

- We have a preference for underground cabling wherever possible and feasible.
- Overhead cabling could be problematical in areas with heritage overlays.
- There is a large proportion of single wire earth return network in rural areas (SWER) that could pose a problem for an overhead model.

Respondents were asked to consider how their community would react to an overhead deployment of the NBN. In this area there was less certainty (2 supportive and 3 unsure):

- Community reactions may vary across different parts of the region.
- It's difficult to gauge the reaction of residents. In the town areas, it will just be another wire attached to existing poles, so they probably wouldn't notice any difference. There has been no push from the community to replace overhead wires with underground services, however, this may not be the attitude in the future.
- Council would need to determine level of consultation.
- Some community members prefer to interact by traditional face to face means or by phone etc. There is a lower than average take up of broadband.

Suggestions related to community education and awareness that could be conducted to build support and enthusiasm for the NBN rollout across LGAs included:

- Public meetings, advertisements in the local paper and mailouts.

- Workshops, advertisements etc.
- Local print media as well as information sessions via community group meetings that are already scheduled i.e. target those already engaged in community groups and they will help get the message out there e.g. Lions and Rotary.
- Community - fairly well connected now so awareness type of information should be sufficient. Business I think is the more important area that needs education and awareness.
- Our LGA is already building awareness by encouraging people to participate in the survey. Community education and awareness could be assisted with media releases or possible public meetings on the topic. Fact sheets would help.
- Both technical knowledge (how it works) and technological knowledge (how to use it).

The Wimmera Southern Mallee region would welcome the opportunity to participate in an early release of fibre, wireless or satellite services under NBN rollout plans.

2. Policy context

2.1 FEDERAL GOVERNMENT

- Regional Development Australia is an Australian Government initiative that brings together all levels of government to enhance the growth and development of Australia's regions. A network of 55 RDA Committees has been established to achieve this objective. On 14 September 2010, the Hon Simon Crean was sworn in as Minister for Regional Australia, Regional Development and Local Government.
- The Grampians RDA Committee will provide strategic input into national programs and will be the conduit for regional engagement with Canberra. Global infrastructure for local growth—universal, affordable access to ICT—is a major driver of change and holds the key to sustainability and growth throughout the region. The Grampians RDA Committee is focused on being well planned and ready for the rollout of the NBN.
- In a recent address to the Regional Development Australia National Forum the Hon Simon Crean MP announce that \$200,000 will be provided to each of the 55 RDA committees to undertake early feasibility studies on opportunities associated with the National Broadband Network⁸.
- During April 2009 the Australian Government launched its 21st Century Broadband policy to establish a new company to invest up to \$43 billion over eight years to build and operate a national broadband network. The NBN will deliver affordable, high speed broadband services to all Australians no matter where they live or work.
- The NBN will extend optical fibre to 93 percent of premises, with speeds of 100 Mbps—1,000 times faster than many people experience today. Other communities will be served by next generation wireless and satellite services, with average data rates of 12 Mbps or more—20 times higher than most users of these technologies experience today.
- A further aspect of this national policy is the mandating of FTTP in all new estates which meet certain criteria. This may have implications for LGAs, as planning provisions may need to be changed to enable the mandating of FTTP.
- On the 7 September 2010 the Australian Labor Party and the Independent Members (Mr Tony Windsor MP and Mr Rob Oakeshott MP) entered an Agreement which incorporates a commitment to better meeting the needs of regional Australia, to 'place-based thinking' and 'localism' and to establishing new accountability requirements such as the development of a spatial accounting model which will result in better reporting and visibility of Government spending and service delivery in regional Australia in areas such as education, health and transport.
- Federal Government initiatives available for building capacity and enhancing the economic and social potential in regional Australia include:
 - Priority in connecting regional areas to the National Broadband Network.

⁸ See www.minister.regional.gov.au/sc/speeches/2011/CS04.aspx for full details.

- \$800 million for the new Priority Regional Infrastructure Program to fund projects identified by local communities.
- A Regional Priorities Round of \$500 million from the Education Investment Fund for regional universities and TAFEs.
- The Digital Regions Initiative which is a four-year \$60 million program that co-funds innovative digital technology projects with state, territory and local governments.
- Granting \$8 million for a new Regional Development Policy Centre.
- As part of its funding agreement with the Department of Broadband, Communications and the Digital Economy, the Australian Communications Consumer Action Network administers an independent grants program scheme that provides funding for research and representation projects.

2.2 STATE GOVERNMENT

- According to Concept Economics, Victoria anticipates 'an average productivity benefit per new broadband connection of \$5,000 per year and a \$7.55 billion incremental increase in GDP benefits if regional areas are provisioned with high speed broadband⁹.'
- The new Victorian government is yet to announce its ICT policies and programs. Information on the following programs was still accessible via the Multimedia Victoria website at the time of finalising this report.
- *Victorian ICT Action Plan - An ICT Plan for Victoria's Future*¹⁰ - was released during October 2010. It is a comprehensive policy framework to maximise the economic and social benefits from the use of ICT over coming years. It will accelerate innovative use and application of ICT across the economy, direct new investment and effort into building Victoria's global ICT research and development, focus on the innovative use of ICT in government and position Victoria for the most extensive broadband enabled economy in Australia as part of the NBN rollout. Examples of specific initiatives are detailed below¹¹.
 - The \$15m Collaborative Internet Innovation Fund (cIIF) fosters innovative usage of web based technologies (Round One) and supports applications which drive usage of high capacity broadband (Round Two).
 - The \$10 million *Re-Innovate Broadband Program*, will facilitate the development of innovative next-generation broadband applications.
- *Ready for Tomorrow - A Blueprint for Regional and Rural Victoria* was released during June 2010 but is no longer accessible via the Regional Development Victoria website. Examples of specific initiatives which are detailed include.

⁹ Concept Economics, *Economic Impacts of the National Broadband Network*, November 2008.

¹⁰ See www.mmv.vic.gov.au/ICTIndustry

¹¹ See www.mmv.vic.gov.au/ICTProjectsandPrograms

- *Industries for Today and Tomorrow* program to assist regional businesses to expand, invest in regional Victoria and generate more exports.
- *Planning for Tomorrow* to ensure well planned and managed future growth that supports a high quality regional way of live.
- *Local Skills Partnership package* to support local councils in their key leadership role of guiding the growth and development of their regions.
- *Innovation through Clusters* program to strengthen innovation and productivity in key regional Victorian industries through targeting industry areas including ICT and the high-performing Ballarat ICT Cluster.
- *Re-Innovate Broadband Program* providing \$10 million over five years to achieve the most extensive coverage and productive use of the NBN of any state.
- The \$20 million *VicFibre Links program* which is designed to improve access to competitive fibre backhaul.
- *Government 2.0 Action Plan* - Government 2.0 involves direct citizen engagement in conversations about government services and public policy through open access to publishing sector information and new internet based technologies. It also encapsulates a way of working that is underpinned by collaboration, openness and engagement. The Government 2.0 Action Plan focuses on:
 - Driving adoption in the Victorian Public Service - Leadership
 - Engaging communities and citizens - Participation
 - Opening up government - Transparency
 - Building capability - Performance

2.3 REGIONAL PLANNING

The Grampians Regional Development Australia (RDA) Committee and all LGAs in the region have endorsed the Wimmera Southern Mallee RSP. The RSP identifies a number of regional scale strategic directions and priority actions to best position the Wimmera Southern Mallee region to address identified issues, capitalise on key drivers, confront major challenges, take advantage of comparative advantages and deliver the agreed vision. These include improved education and training outcomes, and the development of ICT and sustainable primary production. Foundations for this strategic direction include:

- The Western Highway passing thorough the Wimmera Southern Mallee region which connects Melbourne and Adelaide and has more than 5,500 vehicles travelling along it daily. Traffic along the highway is expected to increase by 2.38% per annum and double by 2025, higher growth rates than any other Victorian non-urban link.
- A high dependence on the agricultural sector and a relatively undiversified economy, making the region the most exposed to climate change in Victoria, which in turn will bring an increase in the occurrence of natural disasters.

- Significantly lower participation rates in post secondary education and training, and significantly higher rates of deferral compared with the Victorian average.
- A dispersed and aging population which is dependent on ICT services to improve social isolation, the limiting services and the attractiveness and liveability of the region for new or potential residents.

2.4 LOCAL GOVERNMENT

A review of Wimmera Southern Mallee LGA *Council Plans 2009-2013* confirms the high regional priority which is afforded to ICT infrastructure and broadband services and the commitment to building an evidence base to support regional strategies and actions. Associated benefits include a collaborative approach toward advocacy for improved services, recognition that ICT has an important role in industry development, innovation in service delivery and the identification of the potential for eGovernment approaches to deliver service improvements for both LGAs and the broader community.

- **Buloke Shire** recognises that ICT has improved in recent years but deficiencies still exist. The shire sees potential in creating a connected rural community through the use of e-consultation to engage the community and provide them with access to information and the opportunity to provide feedback.
- **Hindmarsh Shire** is perusing ICT opportunities for businesses and the community by lobbying the government for ICT infrastructure. The role of ICT in enhancing remote and distance education capacity within the shire is one of the opportunities being explored.
- **Horsham Rural City** has a goal to excel in communication, consultation, governance, leadership and the responsible use of resources. Council recognises that using ICT to foster communication and consultation opportunities is the key way of achieving this goal.
- **West Wimmera Shire** recognised the need for improved broadband and mobile coverage and has lobbied local, State and Federal members of parliament and telecommunications providers, reminding them of the need for improved coverage within the shire.
- **Yarriambiack Shire** has identified that ICT services available across the shire need to be improved and the shire supports these improvements.

2.5 REFLECTIONS LINKED TO POLICY CONTEXT

The above review gives some insight into national, state, regional and local programs, plans and policies. It also provides a context for examining the potential for collaborative planning and responses in the Wimmera Southern Mallee region of Victoria. The ICT challenges which small communities and individual LGAs are facing are difficult to tackle alone. Collaboration at a regional scale may more effectively support advocacy and other actions directed towards ensuring all residents and businesses can access and effectively use quality ICT services. The following reflections illustrate that regional plans will be

influenced by a combination of external factors and a range of more localised opportunities and challenges.

- While the NBN is expected to be rolled-out in regional Australia as a priority, it is likely that simultaneous activity will be occurring in metropolitan areas. Given the NBN rollout is an eight year program, some regions will inevitably receive services earlier than others. As such, there is an opportunity to identify and prioritise local or regional scale actions that will facilitate a rapid rollout and uptake of services.
- The Wimmera Southern Mallee region has many towns with populations of less than 1,000. It is understood that as a rough benchmark, towns of less than 500 are likely to be targeted for a wireless broadband infrastructure solution, capable of delivering a minimum of 12Mbps. The opportunity to bring forward the introduction of wireless and satellite services so that regional areas outside the 93 percent fibre rollout can get access to better broadband sooner will be of key interest to local communities and potential residents.
- Implications for developers and LGAs as a result of changes to service arrangements for the provision of telecommunication infrastructure in new estates will need to be fully understood and accommodated. There are some implementation strategies that can and should be considered regardless of the timeline, such as conduit policies for new estates, industrial and commercial developments.
- Clear forward planning in relation to accommodating the NBN rollout is identified as critical for the Wimmera Southern Mallee region. Regional stakeholders have a strong understanding and appreciation of the importance of next generation broadband and telecommunications services. Regional advantage will be strengthened as a result of an accelerated rollout and effective use of high speed broadband.
- The Wimmera Southern Mallee region wants to position itself to take advantage of all relevant Federal and State Government programs. Timely provision of additional information on new programs such the Regional Broadband Innovation Program Re-Innovate and the Priority Regional Infrastructure Program will assist collaborative regional planning.
- A continuing effort will be required to ensure effective coordination between State and Federal initiatives, as they impact on the region, to gain optimal advantage.
- While the core business of LGAs does not include that of being a telecommunications, broadband or internet service provider, there is growing recognition of the positive role that can be played in supporting the planning and provision of new telecommunications and broadband infrastructure. Working proactively with NBN Co, DBCDE and the State Government to ensure timely information provision and effective community engagement is key to stakeholders in the Wimmera Southern Mallee region.
- A continued focus on long-term regional scale planning will assist in identifying funding opportunities to support ICT initiatives which are capable of generating economic development and social inclusion benefits for the Wimmera Southern Mallee region and for local businesses and communities.

3. Wimmera Southern Mallee ICT Study

3.1 PROJECT BRIEF

The University of Ballarat's Centre for eCommerce and Communications (CeCC) and Lateral Plains were engaged by local governments in the Wimmera Southern Mallee together with the Grampians RDA Committee to coordinate the Wimmera Southern Mallee ICT Study. The study builds upon the *Central Highlands ICT Study*, *Moorabool Community Broadband and Telecommunications Strategy* and *Ballarat ICT 2030*. The objectives of the study included:

- Mapping current ICT adoption levels and service satisfaction.
- Identifying areas of pent up demand for ICT services.
- In the light of the study findings, examining the consequences for the Wimmera Southern Mallee region and the state of Victoria.
- Recommending actions to overcome the issues and identifying areas of opportunity for residents and businesses that can be addressed.

The study was completed in the period between June 2010 and March 2011. The parallel study in the Central Highlands region was completed in the period between March and November 2010.

3.2 PROJECT METHODOLOGY

The research that underpins the Wimmera Southern Mallee ICT Study involved developing an understanding of a number of critical aspects which were implicit to the project and the task of planning for the future. These included:

- Identifying current ICT adoption trends for LGAs, residents, businesses and other stakeholders.
- Considering the desires and intentions of LGAs, residents, businesses and other stakeholders.
- Understanding regional development, NBN and the broader ICT context sufficiently.
- Setting desirable and achievable goals.
- Determining what needed to be done to achieve these goals.

The approach used to develop an understanding of the critical aspects of the project included:

- Wide ranging and intensive consultation with the community and key stakeholders.
- Obtaining expert opinions through meetings with government representatives (local, state and federal) and telecommunications specialists.
- Gathering ICT related data from a regional level and analysing it to provide a sound context and insight for moving forward.
- Exploring opportunities that connect well with the plausible ICT and business development directions and the aspirations of stakeholders.

3.3 PROJECT WEBSITE

At the outset of the Wimmera Southern Mallee ICT Study and the Central Highlands ICT Study a project website providing background information to the studies, details of the consultation approach to be used, links to the online and PDF versions of the ICT survey, and contact details of the project team was established at www.cecc.com.au/ch_ict_study (see Figure 8).

Figure 8 - Project website for ICT studies

The screenshot shows the CeCC website interface. The header includes the CeCC logo and the University of Ballarat logo. The navigation menu is located below the header, with 'Research' highlighted. The main content area is titled 'ICT Studies' and contains the following text:

The Central Highlands and Wimmera Southern Mallee ICT Plans will map current ICT adoption levels and service satisfaction, and identify areas of pent up demand for services. They will identify how broadband technologies act as an enabler for economic and social development in the Central Highlands and Wimmera Southern Mallee regions. Associated research will be completed in the period between March and November 2010.

Get Involved

One way for you to get involved is to complete an online survey. Your responses will assist the region in building and shaping its ICT policy in the coming years. Another way is to inform us about local examples of telecommunications and broadband usage that demonstrate the positive impacts of local adoption.

Four links are provided for user interaction:

- [Click here to start the online survey](#) (with a document icon)
- [Click here to download the Central Highlands PDF version of the survey to complete offline. file size: 46KB](#) (with a PDF icon)
- [Click here to download the Wimmera Southern Mallee PDF version of the survey to complete offline. file size: 46KB](#) (with a PDF icon)
- [Click here to start the online case study template](#) (with a document icon)

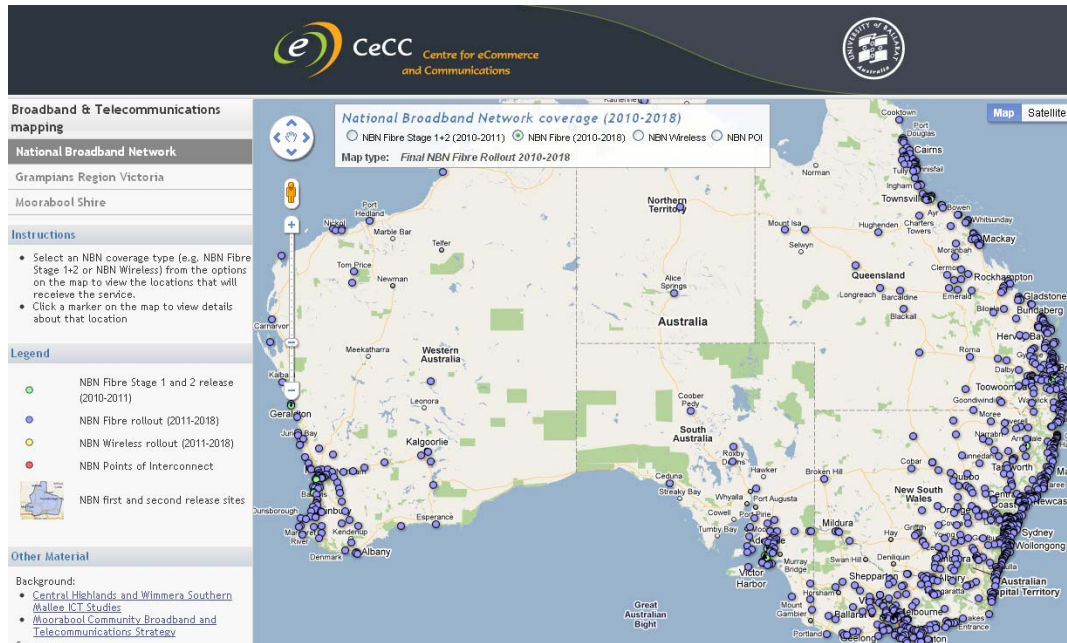
The right-hand sidebar is titled 'RESEARCH' and contains a list of links:

- RESEARCH
- ICT Studies
- Background
- Consultation
- The Team
- Project Updates
- Useful Websites
- Telecommunications Maps
- NBN Map - Bacchus Marsh
- GIS Studies
- WimmeraLive
- Online Surveys
- Research Output

At the bottom right, there is a search box with the text 'Search this Site' and a 'Search' button.

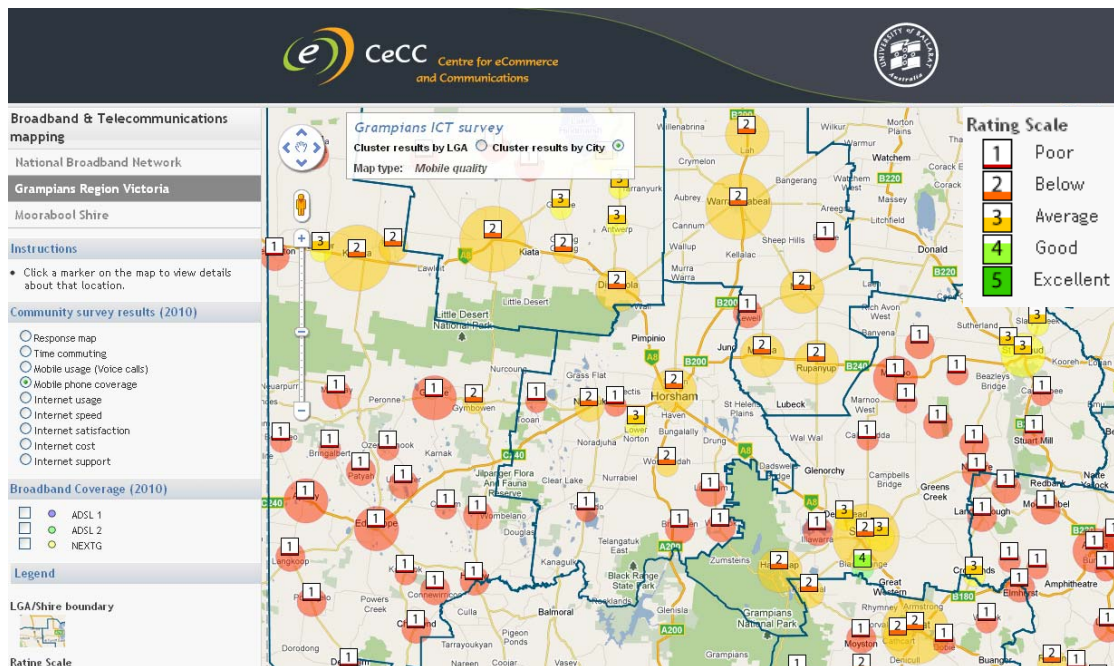
The project website was used as a reference point for the project control group and the key contacts from each of the LGAs to support community engagement and to disseminate information throughout the project period. In the period to 31 January 2010, the project updates section of the website was viewed a total of 1,354 times. Other ICT study pages were viewed at total of 2,515 times in the same period. Website content was progressively expanded throughout the project. Figure 9 illustrates the section that was established to provide information about the NBN coverage. Available information includes maps showing first and second stage release sites and proposed fibre and wireless coverage areas.

Figure 9 - NBN coverage maps



The ICT supply and demand information displayed on the sidebar of the maps were gathered from public domain sources and through the ICT survey. This was then analysed using spatial modelling techniques. The mapped outputs of this modelling are being disseminated via the project website and were included in presentations for project stakeholders and community members at various stages during the project period. Figure 10 illustrates business and resident sentiment about mobile quality in the region (n=318) with the majority of respondents classifying current services as either poor or below average.

Figure 10 - Example of mapped outputs - Mobile quality



Further survey output maps can be accessed online at www.cecc.com.au/grampians_map.php.

3.4 PROJECT ELEMENTS

The engagement of key stakeholders and community members was a key goal of the Wimmera Southern Mallee ICT Study. Activities included:

- **Desktop research** reviewing the local, regional, state and federal ICT policy contexts.
- **Stakeholder consultation** with representatives from participating LGAs, Grampians RDA Committee, Grampians Regional Management Forum, key government stakeholders, NBN Co and telecommunications specialists.
- **Forums and round table discussions** with local, regional, state and federal government representatives, NBN Co, local businesses and community members.
- **Mapping communications infrastructure** in the Wimmera Southern Mallee region from public sources, LGAs, telecommunications providers and community members.
- **ICT survey** in online and hard-copy formats used to gather an evidence base to support ICT planning and development at a local and regional level.
- **ICT case studies** conducted using telephone interviews and an online case study survey template profiling the adoption and challenges of broadband and mobile technologies in local businesses and regional entities.

3.5 PROJECT OUTPUTS

The Wimmera Southern Mallee ICT Study produced outputs including:

- **ICT Study project website** which was used as a reference point to support community engagement and to disseminate information throughout the project period.
- **ICT Study survey results report** plus mapped output of spatial modelling techniques available via the project website.
- **ICT Study infrastructure mapping** with online access to a series of maps of the ICT infrastructure and services in the Wimmera Southern Mallee region.
- **ICT Study case studies** detailing the ICT outcomes of local businesses and regional entities within the Wimmera Southern Mallee region, spanning the ICT, education, tourism, agriculture and business sectors.

4. Key findings

4.1 ICT SURVEY

The Wimmera Southern Mallee ICT Survey was conducted between June and August 2010. A summary of results is included in this section. Appendix 1 (*Wimmera Southern Mallee ICT Survey Results*) presents a full report on the ICT survey and results. A total of 318 valid responses were received.

Seventy percent (70%) of respondents were aged between 35 and 64. The majority of responses came from the West Wimmera Shire (103), Yarriambiack Shire (93) and Hindmarsh Shire (90).

Qualitative comments from the online survey are illustrated in the ‘word cloud’ image in Figure 11. Greater prominence is given to words that appeared more frequently in the submitted survey responses. This visualisation provides insight into regional sentiment around ICT services, particularly around mobile phone service, coverage and use.

Figure 11 - ‘Word cloud’ capturing regional sentiments about ICT services



The most frequent words used within the qualitative responses included service (n=275), mobile (n=252), phone (n=183), have (n=179) internet (n=173) and use (n=163). Other examples were coverage (n=145), area (n=140), would (n=120), more (n=116), out (n=88), slow (n=88), work (n=81), time (n=79) and speed (n=78).

This visualisation of the qualitative data highlights the importance of lobbying and advocacy focused on enhanced mobile service and the potential benefit of actively engaging with regional telecommunications providers. The following responses highlight some of the impacts of current service gaps:

- *The speed of the internet varies and sometimes fails. We rely on the internet for sending documents and information and receiving from our main branch. Mobile telephone reception varies. Only Telstra works in Jeparit. Visiting staff and reps can struggle to place and receive calls - Rainbow, Business & government sector*
- *Slow internet, mobile texts and voice mail can take days to arrive on my mobile phone - Rupanyup, Agricultural sector*
- *Our internet isn't of a consistent quality to allow any cloud based services to be used in business critical applications. If we hosted those services here, our other sites wouldn't be able to use them - Kaniva, Shipping industry*
- *We have no mobile phone service, and internet is very, very slow, it is extremely hard to do business from home - Apsley, Agricultural sector*
- *Mobile service in the office is very limited - we had to return a wireless EFTPOS machine, as the mobile signal was too weak for it to work - Lorquon, Business & government sector*

Seventy-nine percent (79%) of respondents indicated they work, with the highest proportion employed in the Agriculture (27%), Business and Government (15%), Service (7%) and Health (6%) sectors. Figure 12 illustrates how respondents use internet services at work. Eighty-four percent (84%) use email (71% very often, 13% often), seventy-five percent (75%) conduct research on products and services (51% very often and 24% often), fifty-four percent (54%) provide information about their products or services (30% very often and 24% often) and forty-seven percent (47%) use online procurement (27% very often and 20% often). Other significant uses of ICT services at work include instant messaging (16% very often and 9% often), internet telephony (14% very often, 6% often) and social networking (7% very often and 10% often) (see Figure 13).

Figure 12 - Use of internet services at work

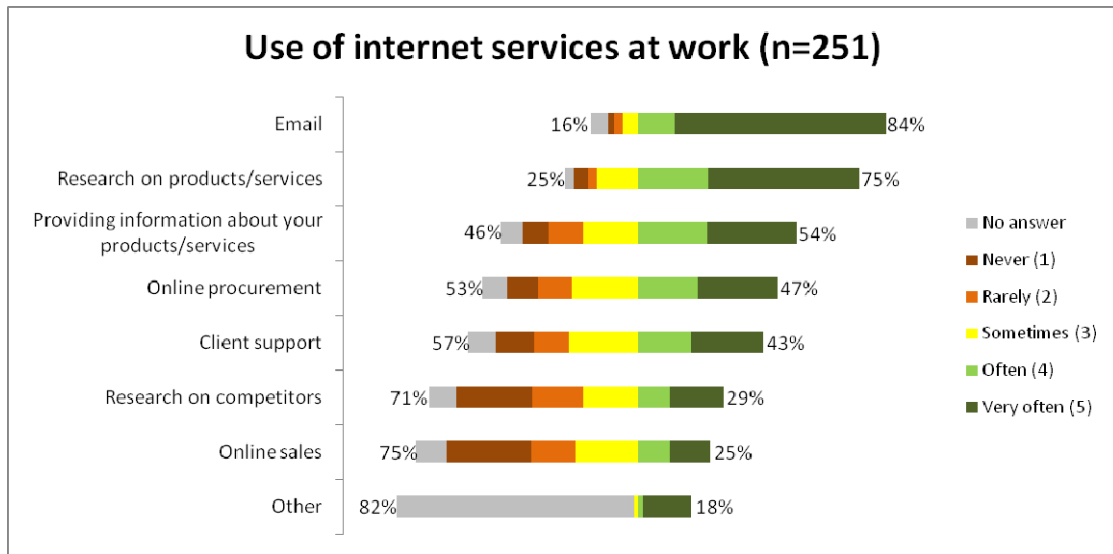
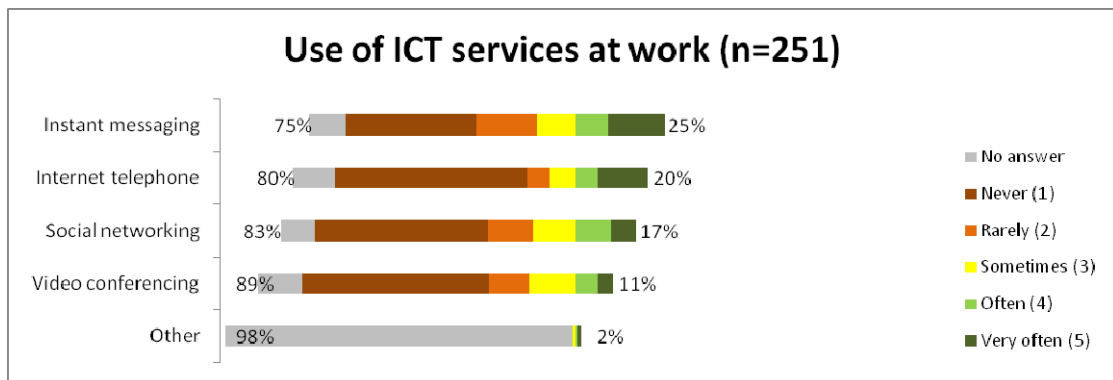


Figure 13 - Use of ICT services at work



The main frustrations or barriers encountered in using mobile, internet or other ICT services at work included speed (44%), mobile coverage (40%), internet reliability and drop outs (20%) and cost (11%). The following are illustrative of qualitative responses about frustrations using mobile, internet or other ICT services at work:

- My business is agricultural machinery sales, service and repairs and we take our service to the farms throughout the West Wimmera, Hindmarsh and the Southern Mallee. To achieve this we must have reliable phone and Internet coverage on the customers' farms. Much of the machinery we sell and service is worth hundreds of thousands of dollars and fault diagnoses are done with laptops. Even though the coverage has improved with the Next G there are still many black spots. Phones often drop out of service and the Internet won't connect - Nhill, Service industry
- Slow speeds of the internet, making it harder to use VoIP or Skype. We also encounter service dropouts on a regular basis - Warracknabeal, Community services sector
- Lack of sufficient speed of internet compared to other larger areas (half Internet speed in some cases compared to the likes of Ballarat). Poor phone coverage on anything other than Telstra NextG and then that isn't even always that good - Horsham, IT and communications sector

- *There is no mobile coverage in the area except 3G. I am totally restricted to Telstra for any services - Nhill, Food industry*
- *Lack of mobile coverage. In our business we can have up to 50 guests staying on our property who are used to receiving reliable mobile services and coverage. The inconsistency of reception on our property and region creates frustration, anxiety, loss of business and is preventing us from growing our business to full potential. Loss of money. Free wireless internet is expected by guests nowadays as that is what they get in main cities. It is too expensive for us to provide, so many guests choose to stay elsewhere. Safety of our guests and local community is at great risk due to the lack of adequate communication services, such as reporting of fires and medical emergencies - Brimpaen, Tourism industry*

Respondents identified diverse opportunities for the future use of mobile, internet and other ICT services in their work. Examples include:

- *We have a mobile workforce (interstate transport) and multiple sites. So having better internet speed and quality would allow us to collaborate in much more efficient or automatic ways. We would use VOIP and Video Conferencing - Kaniva, Shipping industry*
- *Continuous connection at faster speed will allow me to access information for my clients faster, allowing for more up to date information. Greater mobile coverage will ensure worker safety, and allow me to travel further to access remote families, who currently have to come to the office due to safety concerns. This could mean up to a 2 hour journey to access services which I should be able to provide in their own home - Warracknabeal, Community services*
- *Being able to have this service in our area opens up a whole lot of work from home options, and keeps us up with modern technology which for a remote township like us is very important to minimise isolation. Video conferencing would be extremely beneficial due to our remote location also - Wombelano, Health sector*
- *Easier data collection and recording of Agricultural activities - Kaniva, Agricultural sector*
- *Immense in terms of speed, larger downloads, reduced costs and video conferencing - Edenhope, Agricultural sector*

Fifty-six percent (56%) of respondents commute between home and work, with the car being the most common method (96%), followed by walking (14%). Forty-one percent (41%) of respondents spend an average of one hour or less commuting each week.

Using a mobile phone was identified as the predominant ICT service used when commuting (83%), followed by handsfree (19%), internet (16%) and email (7%). Mobile coverage (44%) was identified as the main frustration or barrier encountered in using ICT services when commuting. The following are illustrative of qualitative responses about frustrations whilst commuting:

- *Disconnection while talking because of poor reception - Kaniva, Agricultural sector*
- *Not much coverage for people out of the town area. Services are limited. Could use internet on phone if better coverage - Warracknabeal, Financial industry*
- *Coverage not good enough to be reliable. Just frustration. Phone drop out - Hopetoun, Agricultural sector*

- *Lack of coverage and slowness causing drop outs - Beulah, Agricultural sector*
- *Unsure of legal implications when using handsfree ICT - Nhill, Community services*

Reasons why ICT services are not used when commuting include driving being involved (14%), the trip being short (10%), it being illegal (6%) or because of poor coverage (5%).

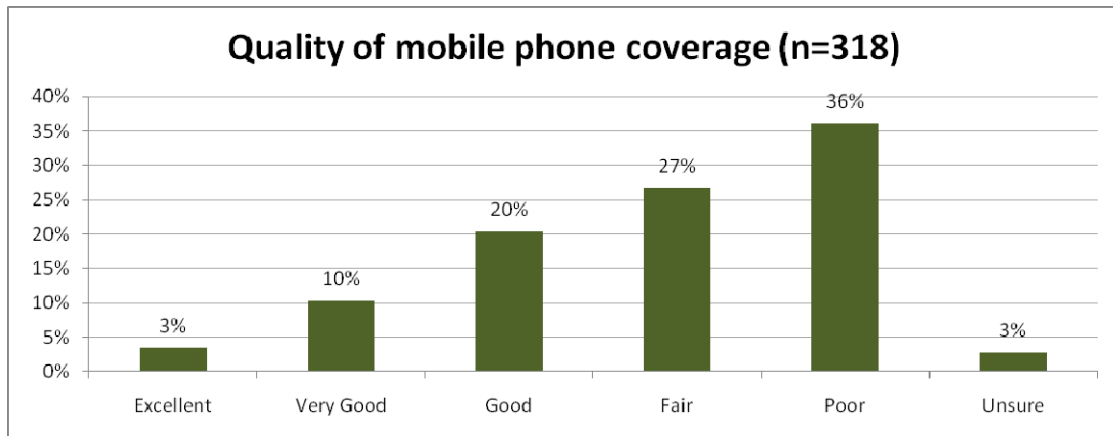
Many respondents (n=178) confirmed ICT services would be used differently if they were to improve—twenty-nine percent (29%) of respondents would increase their use, fifteen percent (15%) see greater ease of use and fourteen percent (14%) would increase their productivity. Qualitative responses illustrating these different uses included:

- *Instant access to information means less time wasted waiting for a response, management information instantly available and access to specialised software from mobile - Nhill, Food industry*
- *Would love to be able to use internet whenever I wanted to instead of having to wait for a strong enough signal - Warracknabeal, Food industry*
- *It would improve the efficiency of my work, to be able to discuss issues with customers/clients and not be worried about losing them in the middle of important talks. Also the ability to use my laptop to show clients what they would be receiving through a mobile internet modem - Rainbow, IT and communications sector*
- *Work from home more often. Video conference, which would save my time and employer's money - Nhill, Business & government sector*
- *I would be able to use my phone a lot more to do work outside of the office. Accessing emails and file downloads is currently too slow to allow for this. I am often out talking to clients and am unable to access work related resources on my mobile due to slow internet - Warracknabeal, Health sector*

Ninety-four percent (94%) of respondents use a mobile phone. Telstra (88%) holds the largest market share for mobile phone providers. Other mobile providers include Optus (7%) and Virgin (1%). Voice calls (45% very often and 22% often) and messaging (38% very often and 21% often) are the most common mobile services accessed for work purposes.

Only thirteen percent (13%) of respondents ranked the quality of mobile phone coverage in their LGA as very good (10%) or excellent (3%) (see Figure 14). Sixty-three percent (63%) of respondents ranked mobile coverage as poor (36%) or fair (27%). Appendix 1 details the highest priority areas for improvements in mobile phone coverage in each of the participating LGAs.

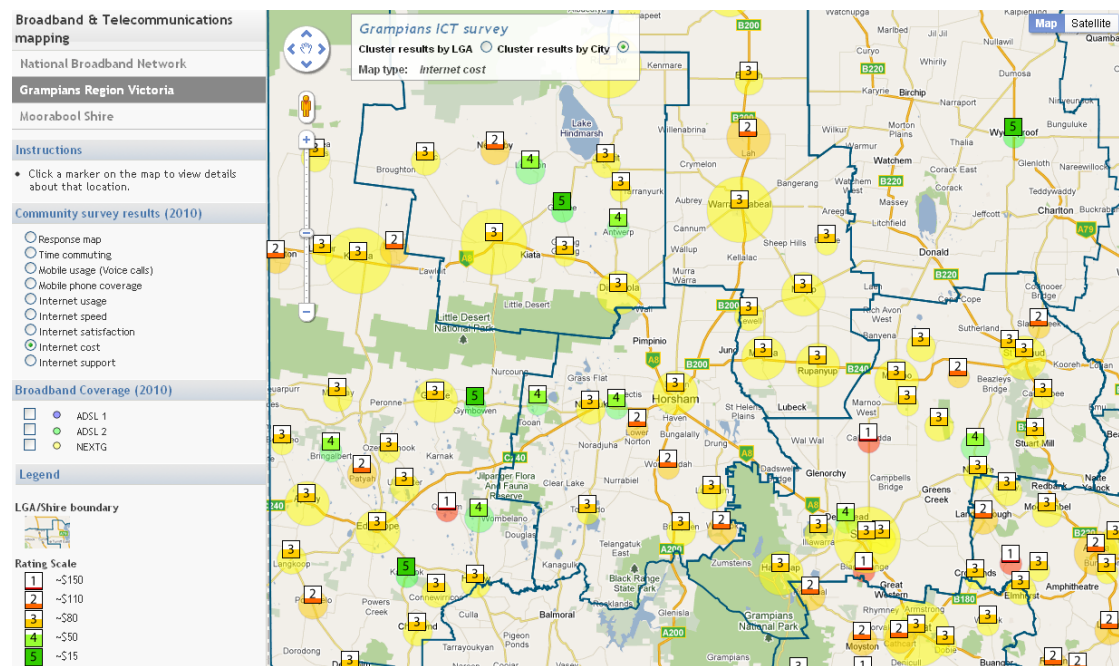
Figure 14 - Quality of mobile phone coverage



Ninety-five (95%) of respondents use the internet, with most accessing the internet at home (84%) and/or at work (57%) and spending either 1-2 hours (36%) or 3-6 hours (34%) online daily. Internet services used very often for personal use include email and general web browsing (62%), researching products and services (37%), keeping in touch with family and friends (37%) and learning and education (24%). Twenty-seven percent (27%) reported usage of Skype for personal use.

ADSL (54%), wireless 3G (27%) and satellite (24%) were the most common methods of internet access, with the largest share of the regional ISP market held by Telstra BigPond (43%). Other providers with market share include Activ8me (13%), TPG (7%), Dodo (5%) and SkyMesh (4%). Figure 15 illustrates the costs that respondents pay for monthly internet services.

Figure 15 - Monthly cost of internet services



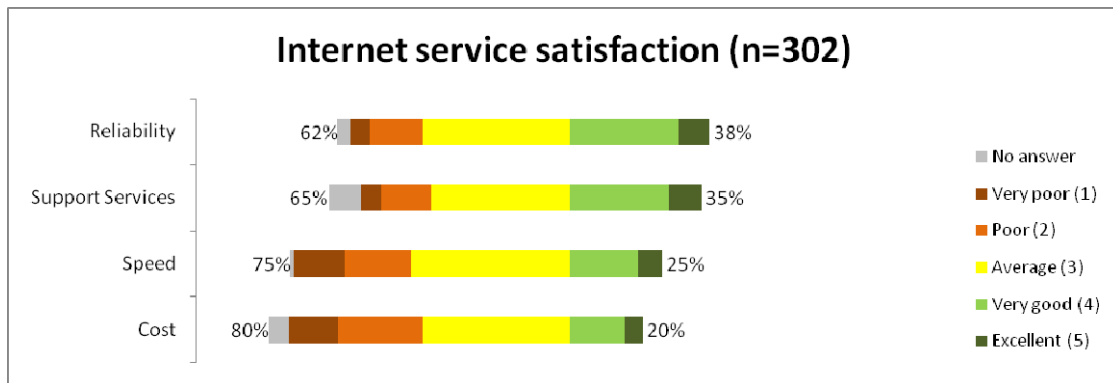
Thirty-one percent (31%) of respondents indicated they always get good support from their ISP, with forty-six percent (46%) indicated they sometimes get good support.

While forty-five percent (45%) of respondents plan to upgrade their internet service, many are unsure of the timeframe (72%) or type of upgrade planned (29%). The most common reasons for not upgrading include there being no better options available (34%), the cost of upgrading (24%) or that they are satisfied with their current plan (24%). Illustrative comments for respondents not upgrading their internet service include:

- *No need. It is sufficient for my needs - Warracknabeal*
- *Sufficient at present. Expect better system with government broadband program in the future - Laharum, Education*
- *Because ADSL2 is not available in my area - Warracknabeal*
- *Because I'm currently on the fastest plan I can receive until Telstra or the NBN upgrade infrastructure - Kaniva, Agricultural sector*
- *Concerned about the cost to upgrade - Warracknabeal*

Figure 16 confirms that seventy-five percent (75%) of respondents rate their satisfaction with internet costs as average or below (39% average, 23% poor and 13% very poor). Similar levels of dissatisfaction (74%) are associated with internet speed (42% average, 18% poor and 14% very poor).

Figure 16 - Internet service satisfaction



The opportunity for residents in the Wimmera Southern Mallee region to submit feedback via the ICT survey remains available at www.cecc.com.au/cb_pages/CH_ICT_home.php. Mapped outputs are automatically generated using spatial modeling techniques each time a new survey is submitted online.

4.2 ICT SERVICE MAPPING

A number of approaches have been used to gather and share information about ICT service offerings in the Wimmera Southern Mallee region. Research activities included:

- Consultation and review of data supplied by telecommunications providers

- Desktop research to identify and analyse public domain data about current and future telecommunications services and infrastructure
- Obtaining feedback through face-to-face consultation, the ICT survey and case studies
- Spatial modelling and information dissemination via the project website
- Preparing summary overviews of key telecommunications and broadband providers

A range of online maps have been developed to disseminate information on regional broadband and telecommunications.

Visitors to the ICT service maps have a range of options. They can turn LGA boundaries (blue lines) on and off, zoom to a particular location of interest and click on map markers to access more detailed information. Alternatively they can browse between different views of the maps by selecting options from the ‘map options’ table at the top of the map. The online maps include:

- NBN maps - stage 1 and 2 release sites, NBN fibre locations, NBN wireless locations and NBN points of interconnect
- Grampians region maps - community survey results (response map, commuting time, mobile usage, mobile phone coverage, internet usage, internet speed, internet satisfaction, internet cost and internet support) and broadband coverage (ADSL1, ADSL2 and NEXT G)

Figure 17 illustrates one of the NBN Map options with the ‘NBN Fibre Stage 1+2’ option selected and the map zoomed in on Victoria. Visitors to the online maps can easily switch between maps by selecting from the different map type options (e.g. NBN fibre, NBN wireless, NBN points of interconnect).

Figure 17 - Regional broadband services map



Figure 18 illustrates the map that is displayed as a result selecting the 'NBN fibre (2010-2018)' option and then zooming from the map of Australia to the Wimmera Southern Mallee region.

Figure 18 - National Broadband Network services map



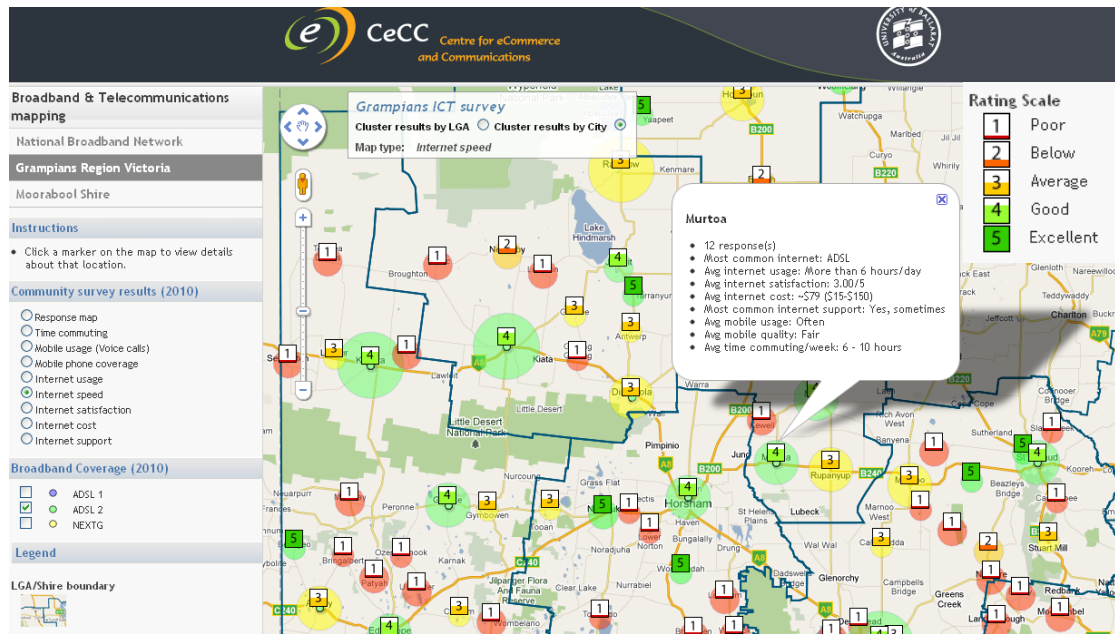
During the project implementation period there has been very positive feedback in relation to the intuitive nature of this approach to sharing information. Google analytics statistics for the project website confirm that the NBN section of the project website has been viewed more than 3,300 times during the period to 31 January 2011.

Feedback from NBN Co, Telstra Countrywide, ACCAN, the State Government and other stakeholders during the study period has confirmed that the collation and presentation of information about service availability, access costs, adoption trends and areas of unmet demand is important and can assist in planning and prioritising upgrades of existing infrastructure and rollouts of new infrastructure. Extended benefits will be gained by extending information and maintaining currency through an ongoing commitment to survey and mapping activities beyond this study period.

4.3 TELECOMMUNICATIONS AND BROADBAND SERVICES

Figure 19 combines results from the community survey (internet speed) with information about regional broadband coverage (ADSL2 as represented by the small green dots). This map confirms that satisfaction with internet speed is clearly linked to areas where exchanges have been enabled for ADSL 2 services.

Figure 19 - Regional broadband services map



Regional representatives are proactive in canvassing issues associated with the NBN. Activities have included consultations with the Federal Minister for Broadband, Communications and the Digital Economy, a presentation to the NBN Senate Select Committee, NBN Forums for LGA representatives (Ballarat and Horsham), Broadband Community Information Sessions (Ballarat and Horsham) and ongoing liaison with NBN Co and the Institute for a Broadband-Enabled Society (IBES). The aim is to place the Central Highlands and Wimmera Southern Mallee regions in an excellent position to extend the benefits of the early rollout of the NBN in Bacchus Marsh.

Regional stakeholders are committed to continued success in attracting both public and private investment to further enhance regional telecommunications and broadband services. Past lobbying efforts have achieved success in some areas but further investment from government and telecommunication companies will provide greater regional access to next generation networks and optical fibre.

4.4 REGIONAL CASE STUDIES

Regional case studies provide insight into the attitudes of business owners and managers of regional organisations. In particular, the studies offer useful information about the business potential of adopting new technology, information or knowledge economy processes.

4.4.1 Horsham Colour

Horsham Colour is a professional photographic processing laboratory (commonly known in the industry as a 'pro lab') employing approximately 50 staff and directly injecting over

\$1.5 million in wages into the Wimmera Southern Mallee economy. Horsham Colour is an excellent example of a modern manufacturing company that is able to operate globally from its regional base. High speed and competitively priced business broadband is critical to the business for functions such as receiving orders, images, text and data files; sending work for proofing; and supporting organisations such as Kodak in receiving live data to rectify machinery performance problems. With less than 5% of their revenue derived from local customers, it is essential that Horsham Colour compete globally by accessing fast business broadband at benchmarked world comparative commercial rates. Inadequate broadband speeds would make them uncompetitive in a global best practice market place.

4.4.2 Grampians Rural Health Alliance

Grampians Rural Health Alliance (GRHA) supports improved regional health outcomes by providing technology, applications, and communications solutions to connect the region's health services. The Alliance comprises 12 hospital-based health services, four bush nursing centres and stand-alone community health centres, all spread across over 40 sites. Additionally GRHA has many customers and partners spanning the aged care sector, medical sector, community service organisations, LGAs and the higher education sector. GRHA, with the assistance of the Federal and State governments, has developed a major communications network including internet access, data connectivity, shared application services, IP telephony, and room, mobile-based and desktop video solutions. The Alliance also undertakes various projects that support streamlined workflow and continuity of care across the region's multiple healthcare agencies and sites. The GRHA network build resulted in many exchanges in the Wimmera Southern Mallee region being upgraded. Most of the smaller Alliance partners access connections at 2 Mbps (BDSL). Work is in progress to raise base speeds to 10 Mbps. Alliance partners in areas including Ararat, Bacchus Marsh, Ballarat, Nhill, Melton and Warracknabeal access GWIP services with speeds between 4 Mbps and 20 Mbps. Fibre connections in areas including Ballarat and Stawell deliver speeds of up to 100 Mbps. Broader service benefits have resulted from exchange upgrades linked to the GRHA network development. Businesses and residents located in the immediate vicinity of upgraded exchanges can now access services including ADSL2+. The ICT strategy for GRHA puts forward the case for continued investment in ICT that builds on a strong foundation of ICT investment in the region and in each public health service. It argues for equal to or better access to ICT than our metropolitan counterparts to enable equality of access to scarce healthcare resources.

4.4.3 Luv-a-duck

Luv-a-duck is Australia's leading producer of duck products with export markets in the Middle East, Pacific Islands and Asia. Luv-a-duck's growing and processing operations are based in the towns of Nhill, Bowen and Whinnem in the Wimmera region of Victoria, while

their sales and distribution centres are located throughout Australia. ICT is critical to all aspects of supply chain management for this agricultural production company—that is delivering products to a global market. The company’s website (www.luvaduck.com.au) is used to profile products, recipes, cooking classes, stockists, export countries and stores. Achieving effective connectivity between their metropolitan offices, warehouses, production facilities and contract growers has been challenging. The current mix of BDSL, satellite, ADSL and NextG technologies does not provide an adequate basis for their business operations and the variations in broadband speeds causes frustrations and inefficiencies. Luv-a-duck would like to access higher quality bandwidth to support its disbursed operations, enable more efficient interaction with customers and to utilise modern procurement systems. Luv-a-duck’s work practices will change in the future when next generation mobile and broadband services become available. Future opportunities for ICT adoption include high quality video conferencing reducing the necessity for frequent travel between Melbourne and Nhill (a 4.5 hour drive each way). Remote monitoring equipment will also reduce the reliance on contractors and generate additional efficiencies and quality controls (for example SMS alarms to notify fan or heater equipment failures).

4.4.4 Phunkemedia

Operating from Horsham, Phunkemedia is a boutique web and graphic design studio specialising in original, creative and quality solutions. Their services range from the more traditional areas of logo design, corporate identity, brochures, business cards, posters and advertising to contemporary online solutions including web design and hosting, animated banners, eNewsletters, content management systems and eCommerce solutions. Current ICT usage is high, with 95% of all client communications and support being conducted via online channels. ICT also assists in bridging the locality gap, as Phunkemedia’s rural Victorian staff can regularly participate in online training sessions to maintain their industry competitiveness. Business benefits from this approach to ongoing professional development include less downtime when compared to travelling to participate in face-to-face training sessions in other regional or metropolitan centres. Part of the value that Phunkemedia provides is introducing ICT to their client organisations and supporting them in adopting new methods of business operation in areas such as online marketing and sales. Looking to the future, next generation broadband communications will support greater flexibility of work locations, more rapid transfers of data and files and the ability to achieve enhanced client services.

4.4.5 Public internet access site in a small Wimmera town

Offering ICT training in a location where other community activities take place has been a successful strategy for a public internet access site in a small Wimmera town. When a welcoming place is provided for people with varied interests to come together there is not

only the opportunity to socialise, but also to learn new skills. Community members, travellers and local arts and crafts groups all benefit from ready access to public internet facilities. Available computers are used for training, conducting research and sourcing materials such as art and craft supplies. Regional groups such as the Wimmera Regional Library Service also make use of the site's meeting rooms and computers for community engagement and training activities (e.g. to show residents how to access library services online). Next generation broadband services would overcome the many difficulties that the Neighbourhood House has experienced from its satellite service. Constant connectivity dropouts have resulted in unreliable ICT services and regular users of the public internet access site dropping. Lower connectivity costs are also required to enhance the sustainability of public internet access points. Access to information and training for supervisors and prospective supervisors is also important to ensure that the best possible assistance can be provided to those accessing public internet services.

4.5 VARIANCES IN ICT SERVICE AVAILABILITY

Information gathered through the Wimmera Southern Mallee ICT Study confirms significant unmet demand for fixed broadband services (particularly ADSL and ADSL2+) and concerns about the current reliability and accessibility of mobile coverage. A variety of factors influence ICT service variability in the region, for example:

- Government support has been a significant factor in the establishment of major communications network and backhaul infrastructure (e.g. health, education and microwave broadband services).
- The presence of organisations with large communications requirements has in some instances benefited businesses and residents accessing telecommunications services through the same exchange.
- The national broadband guarantee has assisted some individuals in addressing internet coverage issues. For others, the launch and rapid uptake of the NextG network has assisted in resolving internet access challenges.

Regional variances in ICT availability have obvious and some less obvious impacts:

- Mobile coverage tends to shadow major regional transport routes. Limits on ADSL range impact on a greater percentage of residents in LGAs where the population is geographically dispersed.
- Telecommunications blackspots are a significant concern in the context of emergencies (e.g. bushfires and motor vehicle and farm accidents).
- The availability and quality of ICT services is a significant factor influencing location and relocation decisions. Negative economic and social consequences are already evident for areas lacking quality telecommunications and broadband services.
- New residents and visitors experience frustration when they find out that broadband and telecommunications services are inferior to their expectations.

5. Strategic directions

The key strategic directions and actions outlined below build upon and extend the Grampians Region Strategic Directions, Wimmera Southern Mallee RSP, Central Highlands ICT Study, Moorabool Regional Broadband and Telecommunications Strategy and the Ballarat ICT 2030 Strategy.

5.1 GRAMPIANS REGIONAL DEVELOPMENT AUSTRALIA COMMITTEE

The Grampians is a proud region developing the life of its small and large communities to be well positioned to adapt to climate change and make the most of their natural assets. The region is Australia's first National and Natural Heritage Region, with expertise in renewable energy, innovative manufacturing and a burgeoning economy based on the uptake of new communications technology and applications spurred on by access to high speed broadband. The region is well connected and central to the movement of goods, services and people, with healthy population growth and good quality lifestyle choices¹².

The Grampians RDA Committee supports economic and social development in the Grampians region, working across all three levels of government—local, state and federal. It provides strategic advice on regional planning, economic and social issues and job creation. *Global Infrastructure for Local Growth* has been identified as one of six themes that apply across the region as catalysts for significant positive change. Universal, affordable, access to ICT is a major driver of change and holds the key to sustainability and growth throughout the region. The Grampians RDA Committee's focus is on being well planned and ready for the rollout of the NBN¹³.

5.2 WIMMERA SOUTHERN MALLEE

The Wimmera Southern Mallee RSP deliberately focuses on regional scale directions and actions. The Plan sets out a vision that is designed to best position the Wimmera Southern Mallee region to 2015 and beyond so as to provide a productive, sustainable and liveable region for its people.

The Wimmera Southern Mallee region has the capacity to utilise its strengths and capacities in ICT and through the NBN to rollout new models of co-located and integrated service delivery in area such as health, education, emergency services and the environment.

¹² Grampians Region Strategic Directions (2010)

¹³ op cit.

6. ICT action plan

The Wimmera Southern Mallee region is ready to take full advantage of the NBN. The accelerated rollout of high speed broadband and comprehensive mobile coverage will strengthen existing ICT capacity. Competitive advantages in grains production, mining, transport and manufacturing can be extended through more effective use of ICT. Next generation broadband technologies will support the region in more readily adopting new models for an array of service provision that extend across education, training, health services and information provision. Priority ICT strategies and actions are set out below.

6.1 LEADERSHIP

The Grampians RDA Committee together with the LGAs in the Wimmera Southern Mallee region will provide regional leadership and foster an enabling environment for creating a broadband development dynamic. Specific recommendations include:

- Forging a common vision and understanding of the needs and requirements for ubiquitous high capacity broadband and mobile communications.
- Ensuring ICT and broadband remain clearly embedded in regional strategic planning and development.
- Bringing related agencies, organisations and individuals together to progress the priority strategies and actions as set out in the Wimmera Southern Mallee ICT action plan.
- Actively promoting and branding the Grampians region as a dynamic and vibrant ICT region.
- Celebrating ICT success through an annual ICT Showcase and the establishment of the Grampians Region ICT Awards. The ICT Showcase would recognise innovation and excellence in areas including local government, education, health, environment, community and business applications of ICT. The ICT awards would prepare regional entities for participation in state and national awards such as the Australian Information Industry Association - iAwards and the Australian Community ICT Awards.
- Co-investing to expand the geographical reach of Ballarat ICT with a focus on universally affordable access to next generation broadband services, creating communities that use ICT services to their best advantage and encouraging ICT innovation and new initiatives throughout the general and business communities.
- Being proactive in identifying opportunities for using ICT to enhance economic and social policies and strategies at a regional and local level.

6.2 ADVOCACY

A continuing commitment to advocacy will assist the region in achieving its goal of universal, equitable and affordable access to ICT. The Grampians RDA Committee and the LGAs in the region recognise ICT as a major driver of change and understand the key role it will play in future sustainability and growth throughout the region. Recommended advocacy actions and strategies include:

- Using the outputs of the Wimmera Southern Mallee ICT Study to support advocacy targeted towards immediate improvements in mobile telecommunications and broadband services.
- Advocating for a rapid and comprehensive deployment of next generation broadband and enhanced mobile services throughout the Grampians region.
- Continuing to develop an evidence base to assist the region in building and shaping its ICT policy in the coming years.
- Conducting periodic surveys and mapping outputs to illustrate ICT trends, take up and satisfaction levels within the region.
- Continuing to be proactive in identifying and responding to clusters of unmet demand for ICT services.
- Gathering and publishing case studies on an ongoing basis which demonstrate local adoptions of ICT and their associated economic and social impacts.
- Getting involved in the Australian Communications Consumer Action Network via membership or participation in campaigns and activities.

6.3 INFRASTRUCTURE

Broadband will be the foundation for digital invention and innovation and a driver for the knowledge economy and society. The Wimmera Southern Mallee ICT Study has confirmed significant unmet demand for second and third wave fixed broadband services. Addressing inadequate mobile coverage has been identified as another key infrastructure priority. Recommended infrastructure actions and strategies include:

- Pursuing partnerships and maintaining an ongoing dialogue with the Federal and State governments, NBN Co, telecommunications providers and other stakeholders to accelerate the rollout of high speed broadband and comprehensive mobile coverage.
- Supporting LGAs and property developers in adopting a proactive approach to broadband provisioning to facilitate a rapid introduction of FTTP infrastructure and services in greenfield and brownfield residential, commercial and industrial developments.
- Engaging directly with Telstra and other mobile providers to advocate for improved mobile telecommunications within the region.
- Supporting the maintenance and extension of the telecommunications and broadband service mapping which was initiated through the Wimmera Southern Mallee ICT Study so that service improvements can be monitored and service black spots identified.

6.4 NBN

The Wimmera Southern Mallee region is ready to take full advantage of the rollout of the NBN. Regional stakeholders recognise the importance of continuing to work collaboratively to embrace the NBN. Specific recommendations include:

- Maintaining a proactive and progressive approach to creating an enabling environment for broadband deployment and ICT adoption and use.
- Gathering and aggregating data that assists NBN Co and other stakeholders in planning and/or extending broadband and telecommunications services across the Grampians region. As an outcome, establish a web-service to support data contribution, aggregation and sharing via spatial mapping and other formats.
- Extending the online services established through the Wimmera Southern Mallee ICT Study to provide efficient and effective access to information such as the location of commercial and industrial precincts; growth corridors, environmental and heritage overlays; government properties, education and health facilities, greenfield sites, barriers to construction, existing telecommunications infrastructure, areas poorly serviced by existing broadband and location of future civil works.
- Building business and community readiness for a rapid take-up of next generation broadband infrastructure and services through collaboration with NBN Co, DBCDE, IBES etc.
- Adopting a proactive approach to sharing learning from the Bacchus Marsh stage 2 NBN release site.
- Sourcing and regularly disseminating NBN, ICT and other related information to stakeholders.

6.5 LOCAL GOVERNMENT AS A LEAD ADOPTER

New technologies, improved telecommunications and next generation broadband services provide opportunities for more cost effective and efficient delivery of LGA services to businesses and residents. As a lead adopter, LGAs will gain organisational, economic and social benefits through the application of ICT. Specific recommendations for LGAs include:

- Recognising that the effective use of ICT is a core part of the strategic deployment of broadband infrastructure and service delivery.
- Proactively identifying priorities for the development of applications and local content that will assist in achieving development priorities and enhance the long-term economic competitiveness of the region.
- Strengthening support for existing and new networks across local government with the goal of fostering knowledge sharing among ICT managers, GIS officers and non-ICT areas such as community services, economic development etc.
- Allocating and attracting seed funding to support collaborative ICT projects across LGAs.

6.6 COLLABORATION MODELS

Next generation ICT will generate long-term economic competitiveness through jobs, growth and productivity gains. It will provide a platform for new content, services and applications and foster collaboration models and best practice in local ICT development. Specific recommendations include:

- Working with regional health and education providers to identify opportunities for leveraging existing broadband networks.
- Bringing grain production, mining, transport and manufacturing sector representatives together with researchers and other key stakeholders to identify potential ICT opportunities.
- Identifying scope for innovative niches in the use and application of ICT - for example the use of sensors in strategic regional industries, the development of regional cyber safety responses or supporting innovative online approaches to career training and life-long learning.
- Contributing to the development of project plans and preliminary business cases for ICT projects.
- Promoting interoperability at the regional level via adoption of global information management standards.
- Aggregating ICT requirements in areas such as connectivity, training, hardware, software, knowledge management and digitisation.
- Supporting the implementation of local broadband projects that are well-organised and that support industry engagement and participation from the local community.
- Attracting funding for innovative projects using ICT to deliver enhanced regional services in education, health, emergency services, agriculture, manufacturing, tourism and transport through sources such as cIIF, Re-Innovate Broadband Program and the Digital Regions Initiative.

6.7 SKILLS

Economic and social benefits will be maximised by a focus on broadband inclusion for all. Regional benefits will be enhanced if all citizens have the skills and confidence to use ICT in ways that improve their lives. Specific recommendations relating to skills include:

- Building local ICT capability and expertise through engagement with education and training providers, business groups and the agricultural, mining, manufacturing, transport and other sectors.
- Facilitating regular forums and knowledge exchange events to bring local firms and organisations together around ICT innovation.
- Attracting high profile speakers to present the latest ICT thinking.
- Assisting community based organisations and education providers in promoting ICT literacy, training and other essential ICT skills development.
- Establishing a regional business and community education program which would draw in participation from NBN Co, DIIRD, DBCDE, IBES etc.

6.8 INNOVATIVE RESEARCH AND DEVELOPMENT

The Wimmera Southern Mallee ICT Study supported research which gathered an evidence of regional progress in broadband deployment and ICT adoption. Specific recommendations in relation to extending ICT research in the future include:

- Continuing to gather evidence of the social and economic impacts of ICT and broadband diffusion in the Grampians region.
- Building reliable evidence and comparable indicators through future community and business surveys in areas such as ICT access, use and impact.
- Capturing and sharing best practices of broadband use, ideally using an online repository.
- Supporting the University of Ballarat and other stakeholders in attracting private and public sector funding for ICT and broadband research and development.
- Producing an annual report card on regional ICT activities, achievements and priorities that details projects that have been given priority, informs their progress and highlights areas that need further attention and consideration.
- Establishing research linkages with IBES which is a cross-disciplinary research institute dedicated to products, services, and innovations that maximise the benefit of new broadband technologies to Australian society.

7. Further information

Further information on the Wimmera Southern Mallee ICT Study can be accessed online at www.cecc.com.au/ch_ict_study or by contacting:

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