



DIGITAL AND COMMUNICATIONS

THE MID WEST WILL BE A CONNECTED, DIGITALLY EMPOWERED AND INNOVATIVE REGION WITH COMPETITIVE MOBILE AND NETWORK INFRASTRUCTURE, CREATING OPPORTUNITIES FOR GROWTH AND DEVELOPMENT



The digital age is upon us and the Mid West needs to maximise its potential through a targeted partnership approach with communities, all levels of government, public, private and non-government sectors in order to develop a digital economy. A focus on digital literacy and optimising the use of available infrastructure and services will help connect Mid West communities and ensure they are digitally enabled.

Communications infrastructure will largely underpin the development of many proposed major projects in the region, all of which require varying levels of advanced telecommunications systems. Enhancing telecommunications infrastructure is necessary to achieve equity of provision in the region and help position Mid West business / industry on the global stage.

A thriving digital economy would give the Mid West powerful new tools to build a competitive and inclusive region with even greater productivity and innovation. It would also provide communities with access to new jobs, training and economic opportunities.

This chapter identifies the Blueprint's key Digital and Communications focus and priorities.

Communications infrastructure

Connected Communities



Meekatharra students using a small telescope as part of a visit from the International Centre for Radio Astronomy Research (ICRAR)



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In today's world of fast-moving commerce, **mobile telecommunications and broadband** access can be just as **important to businesses** as electricity, water, roads and other physical infrastructure."



Digital technologies are having a profound impact on the way we conduct business, deliver education, experience entertainment and on life in general. Access to new digital tools can open doors to opportunities that bring significant economic and cultural benefits and can ultimately result in social advantage, higher incomes and a higher standard of living.

Access to reliable high speed broadband infrastructure has the potential to transform communities and all sectors of the economy, including but not limited to education, health, tourism, small business, professional services, construction, manufacturing, law and order, emergency services, public and social services and all forms of primary production.

Yet, because of the vast distances required to reach many of the Mid West communities and relatively small population bases, a reasonably significant percentage of the Mid West population lives and works in areas where the availability of digital tools and high-speed Internet connectivity is grossly inadequate by metropolitan standards or even absent altogether.

Of the 14 top issues raised during the recent Blueprint community consultation process, eight contained some reference to absent or inadequate communications infrastructure.

To overcome this "Digital Divide", the Mid West requires the strategic deployment of significant new communications infrastructure such as fibre optic cables, communication towers, wireless networks and satellite dishes. Although yet to be finalised, the current plan for rolling out the National Broadband Network (NBN) is unlikely to satisfactorily address all of the region's Internet access needs and wants. However, it is likely there will be opportunities to partner with NBN to produce better outcomes in some of the region's communities.

Technological advances will provide other options to rapidly and cost-effectively deploy new technology that could fundamentally reduce the Digital Divide and allow all Mid West residents to fully participate in the digital revolution. The Mid West must keep abreast of emerging technologies to ensure it makes the most of new opportunities on a timely basis.

Above all, a connected Mid West will enhance the region's appeal as a place to live, work, study and invest. In the process it will help retain existing residents and make it more attractive for new people to make the Mid West their home.

NBN and the Mid West

By "providing access to a minimum level of broadband services to homes and businesses across Australia" the NBN will play an important role in digitally connecting the Mid West. Though not all broadband users will ultimately connect to the Internet via the NBN, it will guarantee that all Mid West residents have an opportunity to have an affordable broadband Internet connection.

The NBN will enable connectivity via one of four types of connection, depending on the customer's location: Fibre to the Premise (FttP); Fibre to the Node (FttN), Fixed Wireless (FW) or the Long Term Satellite Solution (LTSS). All of urbanised Geraldton is expected to have access to the NBN by FttP by the end of 2016.

Fibre to the Premise (FttP). FttP connects a high-speed fibre directly between the customer premise and the nearest communications exchange. This is the fastest type of broadband connection. FttP will be rolled out to Geraldton's town centre and all urban suburbs. Geraldton FttP services will provide Internet download and upload speeds that are in the top 1% of Australian-connected premises. Geraldton was fortunate to be the first regional area in WA to receive the NBN FttP rollout and will be one of the few regional centres in Australia to receive full FttP services. This will further add to the town's appeal as a top-tier broadband-connected area.

Fibre to the Node (FttN). FttN uses fibre optic cables between the local communications exchanges and each neighbourhood, with the final leg of the journey from a neighbourhood node to the home or business being delivered by existing copper telephone cables. It is expected that NBN delivery in Dongara, Kalbarri, Leeman and Northampton will primarily be via FttN.

Fixed Wireless (FW). FW towers broadcast signals to many users' premises simultaneously over a dedicated wireless network, eliminating the need to connect each individual site to a fibre cable. While FW services provide less capacity and speed than a direct fibre connection, they can provide significantly better connectivity than existing telephone lines (ADSL2+). FW services are already available in most areas immediately surrounding Geraldton.

Long-Term Satellite Service (LTSS). In the remainder of areas not reached by FW services, NBN's new LTSS (available in early 2016) will provide all remote communities with high-speed satellite Internet services. LTSS uses orbiting satellites to connect users to the Internet. Signals from the satellite's 101 discreet "spot beams" can reach any location in Australia, including Abrothos Islands communities.

Though satellite services do provide the option for ubiquitous connectivity, they are constrained by some notable limitations. These include contention for shared capacity amongst users and delays (latency) related to the signal transmission time from the ground to satellites. This can impede the ability to conduct real-time communication (eg, voice and video conferencing), making satellite services the last option of choice.



Murchison Radio-astronomy Observatory



BEYOND THE NBN

Mobile Broadband Services.

Although not an initiative of the NBN project, Internet connectivity via mobile telephone networks is the fastest-growing Internet access technology.

Mobile communications in parts of the region have been improved through provision of near-continuous coverage along major transport routes via the State Government's \$40 million Regional Mobile Communications Project (RMCP). Of the 113 RMCP towers supported for funding, 13 are in the Mid West. All Mid West RMCP sites are now complete and operational.

"Royalties for Regions" provided \$45 million in the 2014-15 State Budget for the Regional Telecommunications Project (RTP) to extend mobile broadband coverage with additional mobile base stations. Going beyond the RMCP, the RTP has a focus on improving coverage into communities (rather than along major transport routes), providing mobile access alternatives to NBN fixed services.

In addition, the Australian Government's Mobile Black Spot Program will provide \$100 million over four years to improve mobile coverage in regional, rural and remote areas around Australia. This program is expected to establish around 250-300 additional mobile base stations nationally and attract substantial co contributions from community, industry and all tiers of governments.

Because significant areas of the Mid West region currently lack broadband infrastructure altogether or may not receive NBN services for some time, a move to delivering mobile broadband services may strategically be a high priority. These services would be supported by new and evolving mobile technologies, which are expected to deliver far better speeds than current or future satellite services.

Despite often being reasonably close to high-capacity infrastructure eg fibre optic cable, some Mid West communities may only have broadband access via NBN satellite services. This may prove insufficient for some customer needs. In some cases, it may be cost-effective to provide infrastructure that supports alternative technologies to supplement NBN satellite services to offer services similar to those available in larger regional centres. Accordingly, MWDC is exploring a range of alternative technologies and funding models for regional communication infrastructure. These could potentially deliver metropolitan-grade broadband into outlying communities and overcome many of the inherent limitations of satellite services.

OPPORTUNITY: For MWDC to work in partnership with relevant State and Commonwealth counterparts to leverage the most effective digital outcomes for the Mid West.

CHALLENGE: Incentivising innovative private sector investment to maximise the digital infrastructure and capabilities in the region

OPPORTUNITY: To provide cost effective connectivity to the region through alternative innovative telecommunication solutions and to leverage the opportunities afforded through the NBN.

IBM Smart Cities Challenge

The IBM Smarter Cities Challenge is a three-year, 100 cities, \$50 million program through the company's philanthropic arm. The (in-kind) grants are valued at about US\$400,000 using the expertise of IBM employees who research projects nominated by the chosen recipient. The City of Greater Geraldton (CGG) was selected to participate in the program in 2012, only the second Australian city to do so. Over a three week period, six IBM experts worked in Geraldton to investigate opportunities for the City, particularly in relation to:

- smart digital services that leverage the increased availability of broadband; and
- smart energy strategies to enable the City's vision of becoming carbon neutral by 2029.

The IBM conclusion was that CGG "has developed an exciting vision for its long term growth and has the economic opportunities to make this vision a reality. The community has the potential to become a model for cities that want to leverage technology to support sustainable, rapid growth, as well as those that want to leverage natural, renewable energy sources to become carbon neutral."

A set of recommendations in five key areas were developed for the City to drive this Smart Cities agenda.

GOAL: Internationally competitive communications networks exist throughout the region to enable high business productivity and community safety and amenity

2050 OUTCOMES Regional Aspirations	CHALLENGES / OPPORTUNITIES	STRATEGIES	TERM
<p>COMMUNICATIONS INFRASTRUCTURE</p> <p>Internationally competitive telecommunications networks exist throughout the region to promote economic growth and community wellbeing.</p> 	<p>For MWDC to work in partnership with relevant State and Commonwealth counterparts to leverage the best possible digital outcomes for the Mid West.</p> <p>Incentivising innovative private sector investment to maximise the digital infrastructure and capabilities in the region.</p>	<p>Through the allocation of co-invested funds, maximise the impact of different telecommunications rollouts to provide a reliable and stable supply of mobile telephone and broadband services to Mid West communities.</p>	!
<p>COST EFFECTIVE ACCESS</p> <p>All sectors in the Mid West have cost effective and reliable access to technology.</p> 	<p>To provide cost effective connectivity to the region through alternative innovative telecommunication solutions and to leverage the opportunities afforded through the NBN.</p>	<p>Work with NBN Co and Mid West communities on opportunities to upgrade technology being rolled out / provided by the NBN.</p> <p>Investigate in innovative mobile telephone and broadband communications technologies as options to provide access in sparsely populated and / or remote parts of the region.</p>	🕒



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DIGITAL PARTICIPATION

Digital technologies are critical enablers of innovation and creativity, which can underpin new economic development activity and create new jobs. The primary focus of the 'Digital and Communications' pillar is the provision of enabling infrastructure. However, broadband infrastructure alone isn't sufficient to create community connectivity or engagement. The Mid West can only open doors to new economic, social and cultural opportunities if its residents have the knowledge, competitive skills and the support necessary to take advantage of the new technologies.

Recognising this, a "Towards a Digital Geraldton and Mid West" strategy was commissioned late in 2012 by the CGG, MWDC, RDAMWG, Department of Commerce and Northern Agricultural Catchments Council. The strategy recommended 32 initiatives designed to take advantage of the region's new digital assets; particularly Geraldton's early participation in the rollout of the NBN.

A number of the strategy's recommendations have now been implemented; some have been trialled and some withdrawn; and some are yet to be considered. Of note, the majority of the strategy's recommendations were focussed on Geraldton, and to date, few benefits of the initiatives have flowed to Mid West communities outside Geraldton.

The next step will be to build on these successes and now focus on the unique needs of the challenging rural / remote environment.

An updated and revised regional strategy will need to be developed as part of this Blueprint's implementation. It will focus on identifying and launching new initiatives that can bring increasing prosperity and a better quality of life to all Mid West communities.

As applications in tourism, education, retail, health, small business, manufacturing, transportation, logistics and others bring the world to us, communities are no longer isolated by distance.

High capacity broadband will allow residents to create and share content. Cooperative infrastructure ownership models could see communities profit by owning a portion of their communications infrastructure.

Communities will transition from being exclusively content consumers to content creators, content owners and marketers. With digital connectivity, many locally created products and services can be marketed across the globe - creating new jobs, new sources of income and improving the social fabric of local communities.

This new found connectivity also brings new challenges. The same connectivity is available around the globe and allows marketers to target Mid West consumers from afar - potentially savaging regional economies.

Digital expertise is no longer an optional luxury. To compete, local organisations must adopt and deploy the latest digital tools. Increasing profitability and productive capacity will often depend upon an organisation's ability to identify opportunities and instantly deliver competitively priced products and services around the region and around the globe.

Mainstay primary industries will have no choice but to tackle the digital arena or risk being left behind by their more innovative and entrepreneurial competitors elsewhere. To thrive, communities must learn to embrace their local uniqueness and create high value products and services that can be sold locally and exported globally.

Tourism: Virtual reality immersive experiences using broadband-enabled technology can showcase to the rest of the world in high definition 3D the attractions of any remote location, motivating more tourists to visit the region in person.

Healthcare: Broadband-enabled healthcare providers can now draw on real-time expertise from leading medical professionals to diagnose and treat patients living in the most remote locations.

Emergency Services and Government: Digital tools can reduce the costs of public services, renew community engagement and improve emergency response times.

Business: Services enabled by improved infrastructure would allow some rural Mid West businesses to compete on near-equal footing with their metropolitan counterparts. A firm that markets products, services and knowledge to customers around the globe can be run from virtually any location convenient for its owner.

Local Government: Connected, cooperatively-owned networks can enable local governments to share the cost of ownership of digital infrastructure, providing better service at lower cost to ratepayers.

Education: With adequate communications technology and connectivity, students in regional communities can access educational content from the world's finest universities, obtain university degrees through distance learning programs, or learn new skills that prepare them for jobs in the region and beyond.

Innovation and Entrepreneurship: Spinoffs from innovations associated with the Square Kilometre Array (SKA) project will lead to opportunities for local entrepreneurship, creating an even more diverse local economy with access to associated technology from CSIRO / GUC and tertiary education facilities. Opportunities for local Aboriginal students to participate in the SKA via CSIRO cadetships will also no doubt lead to some young indigenous people entering careers in world leading astronomy science.

OPPORTUNITY: New digital infrastructure provides avenues to unlock significant socioeconomic potential in regional communities.

CHALLENGE: All Mid West Blueprint sections will depend heavily on digital technologies and digital services to be successful.

GOAL: Mid West communities are highly connected and the region is digitally empowered

2050 OUTCOMES Regional Aspirations	CHALLENGES / OPPORTUNITIES	STRATEGIES	TERM
DIGITAL ECONOMY Mid West communities are highly connected and the region is digitally empowered.	New digital infrastructure provides avenues to unlock significant socioeconomic potential in regional communities.	Deploy regional digital initiatives and equalise the Digital Divide by making high capacity/high quality tools and education available throughout the Mid West region.	
	All Mid West Blueprint sections will depend heavily on digital technologies and digital services to be successful.	A collaborative, multi-disciplinary approach that ensures all Blueprint strategies and plans adopt an appropriate digital perspective and use the available digital tools to drive socio-economic gains.	