

Western Queensland Alliance Of Councils

Digital Connectivity
Terms of Reference V1.0a

August 2021



Executive Summary

Western Queensland Alliance of Councils (WQAC) vast distances and small population present policy makers and leaders with many challenges; yet despite these complications, Western Queensland contributes significantly to state and national economic and employment outcomes.

Through dedicated leadership and strong intergovernmental collaboration, the 22 local governments of WQAC have bridged many gaps in health, education, infrastructure, public safety and liveability.

The benefit of this strong collaboration has driven many improvements, such as road, rail, and air travel. These connections have ensured Western Queensland remains competitive and viable, shortening the time between our region and large cities.

New communication tools have now brought the outback even closer to the city, and the world to our doorstep. Like the roads, rail and air travel, the modern approach to connectivity is now vital for services and businesses with the WQAC Region.

This document outlines how the WQAC Region seeks to ensure the community and businesses stay competitive by improving the most in demand, most cost effective and environmentally friendly connectivity – digital infrastructure.

In the following pages, this document brings together all levels of government to lower cost and risk in favour of social and economic outcomes.

WQAC Infrastructure Connectivity

Connecting Infrastructure



Road Infrastructure – Delivering flexible, timely connectivity to all parts of the region.
WQAC supports the ongoing delivery of ~ 57,000KM of State and Council controlled roads.

High



Strong governance, collaboration and investment delivering continuous improvement



Rail Infrastructure – Connecting large volumes of nationally important products.
WQAC members collaborate with operators to delivery rail in the regions.

High



Strong governance and collaboration.
Investment delivering continuous improvement



Air Infrastructure – Flexible, timely and efficient connectivity for Western Queensland.
WQAC members own and operate airports and collaborate with regulators to deliver air services in the regions.

High



Strong governance and collaboration. Continuous improvement to lower cost and improve service



Digital Infrastructure – Instant global connectivity, low cost, high value.
WQAC recognises the need to improve this asset class.

Very High



No governance, limited collaboration and investment delivering a patchwork of unequal access.

Relevance
in
2021

Current
State

Benefits of Infrastructure Connectivity

Redundant Digital Connectivity provides low cost, high value community benefits regardless of location.



Healthcare/Aged Care - On demand, in home healthcare 24/7.



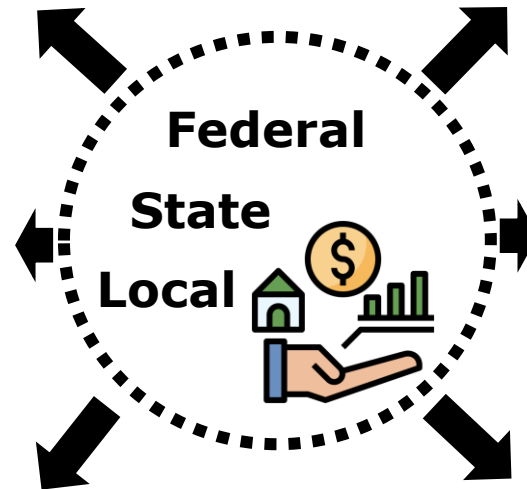
Employment - Digital jobs where location is no barrier.



Small Business/Tourism - Removing cost barriers to growth.



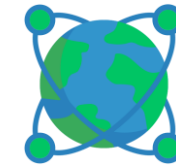
Education and Skills - Support and learning not matter the location.



Agriculture - Lowering costs and improving opportunities



Public Services - Timely and effective every day, and in times of urgent need - natural disasters.



Global Citizen* - Entertainment, collaboration, and influence. Reducing economic and social inequities.



Environment - Minimise harmful impacts on the environment.

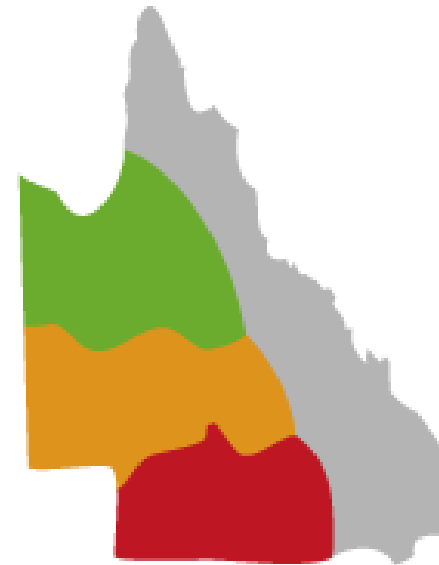
Western Queensland Alliance Of Councils

Western Queensland Alliance Of Councils (WQAC) includes 22 local government areas. The WQAC is a collaboration between the three regional organisations of councils in Western Queensland:

- North West Queensland Regional Organisation of Councils (NWQROC),
- Remote Area Planning and Development Board (RAPAD), and
- South West Queensland Regional Organisation of Councils (SWQROC).

The WQAC Region is a vast land mass with an estimated population of ~63,500. Despite its small population base, Western Queensland contributes significantly to state and national economic (\$7.64B Gross Regional Product) and

employment outcomes across mining, agriculture, construction and healthcare.



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Introduction 1 of 2

As technology has advanced, Australia has benefited from the productivity digital tools provide. With an estimated >\$51 Billion committed by the Australian Government on the National Broadband Network (NBN), many Australians enjoy increased access, availability and a lower price for an internet connection.

COVID has accelerated the demand and supply of digital technology in every part of Australia; during peak load (lockdowns), the NBN was robust and resilient, demonstrating the return on investment (ROI) for tax payers. While Australia still has some digital challenges, the global pandemic has demonstrated the critical nature of digital communications.

The release of the Australian Government, Digital Economy Strategy 2030, has reinforced the vision of Australia to be a digital leader and has been welcomed by industry and community groups. The ongoing efforts by all levels of government remain vital to ensure fair and equitable digital connectivity to every Australian.

It is recognised the vast distances and small population of the WQAC Region present policy makers and leaders with many challenges. The WQAC Region faces numerous digital gaps that are placing constraints on social and economic policy. While the region remains vital to the state and national economies, the ongoing liveability is essential if the regional economic contribution is to flourish.

Further background information can be found in Appendix 1 of this document.

All three levels of government have strived to improve the connectivity within remote Australia. Within the WQAC Region, many grants and initiatives (public and private) have incrementally bridged the digital gap. While welcomed, these have created a 'patchwork quilt' of connectivity that now requires a refreshed, more strategic approach.

Source - <https://digitaleconomy.pmc.gov.au/sites/default/files/2021-05/digital-economy-strategy.pdf>

Introduction 2 of 2

With the welcomed support, guidance and encouragement of the National Recovery and Resilience Agency (NRRRA), WQAC has developed an improved policy approach to digital connectivity within its region.

Under the Approach to Market (ATM) DRD000102; NRRRA has funded the first phase of activity towards a refocused digital policy approach for WQAC.

This document forms **Phase 1 - WQAC Digital Connectivity Terms of Reference**; which seeks to outline:

- What has to be achieved,
- Who will take part in it,
- How it will be achieved and,
- When it will be achieved.

Furthermore, the document will address the defined deliverables

outlined within ATM DRD000102:

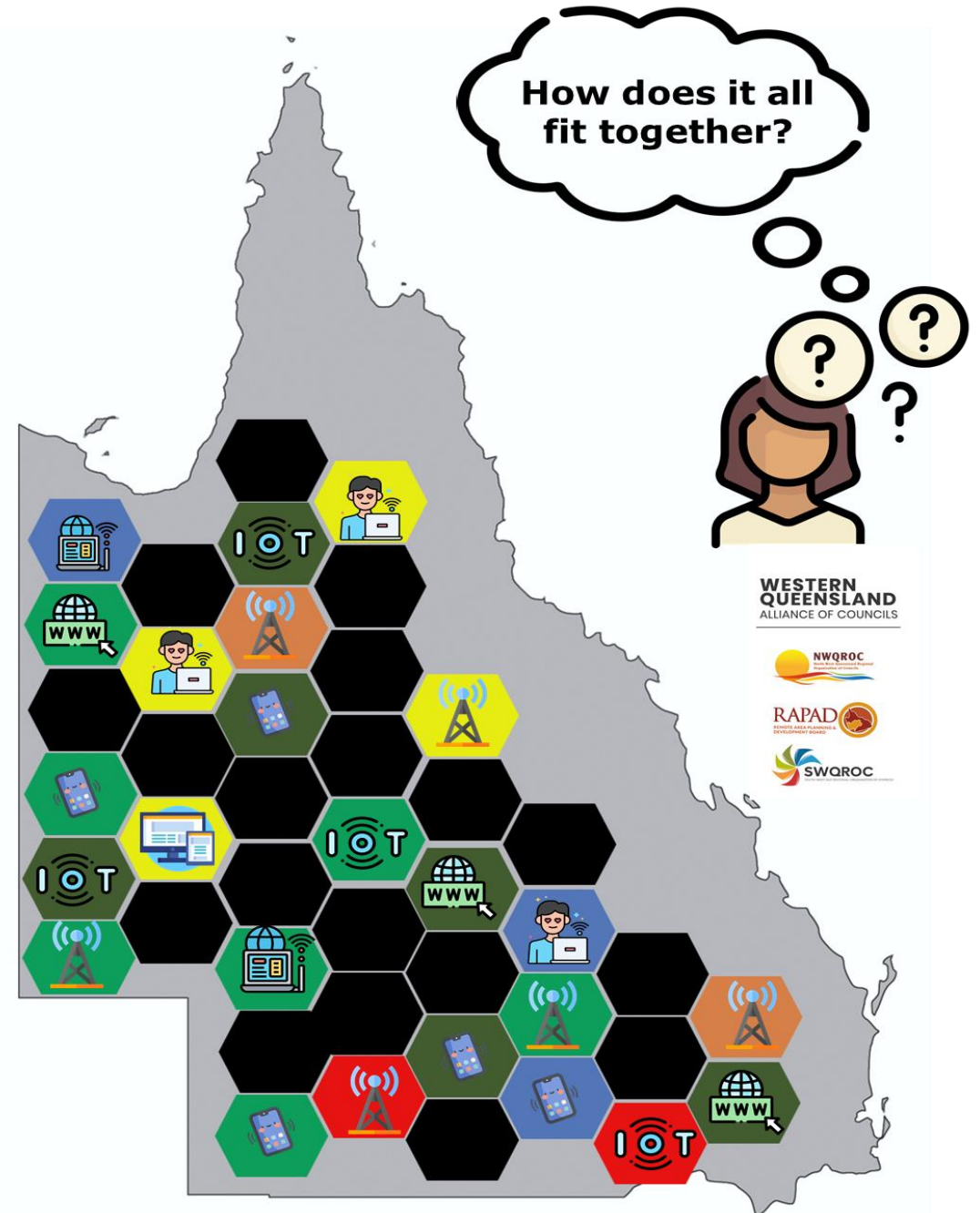
1. A definition of successful digital connectivity in regional Queensland in partnership with local councils.
2. An assessment of the current and future state economic and social benefit situation of regional digital connectivity for SWQROC, RAPAD and NWQROC based on metrics used to assess the Federal Government Regional Connectivity Program (RCP) and the Queensland Government Building Our Regions (BoR) grant programs.
3. A high level assessment of key cost considerations in relation to the proposed future state and suggested approach.

This document will fully inform the next step, **Phase 2 - WQAC Digital Connectivity Blueprint**.

Patchwork of connectivity

Within the WQAC Region, many grants and initiatives (public and private) have incrementally bridged the digital gap.

While welcomed, these have created a **'patchwork quilt'** of connectivity that now requires a refreshed, more strategic approach.



The Vision

The Western Queensland Alliance of Councils seeks to provide residents, rate payers, businesses and visitors with ubiquitous digital connectivity at pricing and service levels comparative to those in metropolitan areas of Australia.

The Objectives

To achieve the vision, WQAC had defined the following objectives to guide **Phase 2 - WQAC Digital Connectivity Blueprint** and all other activity:

- 1. Unified Governance.** WQAC will bring together all stakeholders, across all levels of government, to achieve the vision that delivers a new model of connectivity.
- 2. Digital Demand.** WQAC will capture and forecast the region's digital demand across all stakeholder groups; this will include wholesale and retail demand.
- 3. Digital Supply.** WQAC will engage with industry to inform itself of current and planned technologies that can achieve the vision.
- 4. Policy Priorities.** WQAC will define a set of pragmatic policy options to address the digital gap between supply and demand.
- 5. Community Engagement.** Through its members, WQAC will engage with all stakeholder groups on the best way to achieve the vision.
- 6. Investment.** WQAC will quantify the investment and fiscal process required to achieve the vision.
- 7. Measurement.** WQAC will define a monitoring and evaluation method that aligns with current approaches defined for public sector expenditure.
- 8. Risk Analysis.** WQAC will provide a comprehensive risk management approach that seeks to mitigate the uncertainty that such activity creates for its members.

1. Unified Governance

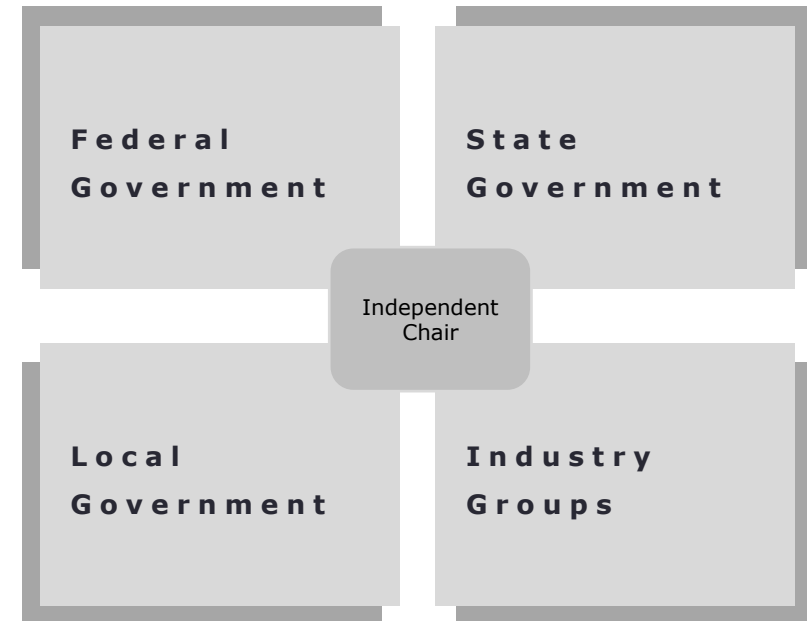
Unified Governance. WQAC will bring together all stakeholders, across all levels of government, to achieve the vision that delivers a new model of connectivity.

WQAC is thankful for the ongoing investment by all levels of government to bridge the digital gap. This activity, while with the best intent, has taken place in an uncoordinated manner, resulting in what has become defined as a “**patchwork quilt**”^{*} of connectivity in the region.

To guide subsequent activity, WQAC defines a governance model that is capable and empowered to achieve the agreed vision to create a new model of connectivity. This group will guide WQAC through the complexity of existing committees, groups and governance functions to deliver a unified outcome for WQAC.

^{*}WQAC - Regional Telecommunications Review 2021 - Hearing - Central & Western Queensland - Tuesday 27 July 2021

WQAC Digital Connectivity Governance



2. Digital Demand

Digital Demand. WQAC will capture and forecast the region's digital demand across all stakeholder groups; this will include wholesale and retail demand.

To attract the required investment, WQAC must be able to robustly articulate the market demand in the coming years. Phase 2 will seek to deliver a comprehensive understanding and model of future demand of the next 5 – 10 years. This will include:

1. Current demand (domestic and industrial) with the input of the latest ABS data and from a market request for information. (RFI).
2. Future demand based on two different economic models (domestic and industrial).
3. Wholesale and retail demand.

2021 This Is What Happens In An Internet Minute



3. Digital Supply

Digital Supply. WQAC will engage with industry to inform itself of current and planned technologies that can achieve the vision.

WQAC understands that collaborating early with the telecommunications industry is vital to achieving the vision. Given the vast array of public and private sector investment, WQAC will:

1. Complete a Request for Information (RFI) to the telecommunications industry.
2. WQAC will seek the following:
 - Current capability and existing network.
 - Future technology and opportunities.
 - Commercial models for future investment.

- Ability to achieve the stated vision as an entity or within a consortium.
- Retail and wholesale supply capability.



Getting out of town: Australians rush to rent in the regions

Australia's housing market is being turned on its head by Covid-19, with fierce competition for regional rentals as city properties stand empty

4. Policy Priorities

Policy Priorities. WQAC will define a set of pragmatic policy options to address the digital gap between supply and demand.

It is recognised the vast distances and small population of the WQAC Region present policy makers and leaders with many challenges. The WQAC Region faces numerous digital gaps that are placing constraints on social and economic policy. It seeks to provide policy that can be adopted at all levels of governments.

WQAC believes that a refreshed policy approach is vital to achieve the vision. The following themes will guide policy development:

1. Aggregated demand – The different levels of government do not coordinate digital services, meaning that demand cannot be aggregated or rationalised.

2. Shared Digital infrastructure - Services provided by different levels of government do not share digital infrastructure.
3. Single telecommunications architecture – Significant duplication occurs within the WQAC.
4. Public Safety – There are opportunities to use emerging technologies that could lead to significant changes in how telecommunications services are delivered.

Table 2: Ranked scores for states and territories (ADII 2020)

Rank	State/Territory [^]	ADII Score	Points change since 2019
1	ACT	67.5	-0.1
2	WA	64.1	+2.8
3	NSW	63.5	+1.7
4	VIC	63.1	-0.2
5	QLD	62.2	+1.3
6	SA	61.9	+1.7
7	TAS	59.6	+1.5
Australia		+63.0	+1.1

[^] NT has been excluded based on sample size (<150)

Source: Roy Morgan Single Source, March 2020.



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Source - https://digitalinclusionindex.org.au/wp-content/uploads/2020/10/TLS_ADII_Report-2020_WebU.pdf

5. Community Engagement

Community Engagement. WQAC will engage through its members with all stakeholder groups on the best way to achieve the vision.

Regional users are evolving rapidly in their use of telecommunication services and increasing their demand for data, placing significant pressure on regional digital infrastructure.

Regional users are more likely to require mobile services for communication and safety, as they travel long distances and spend considerable periods of time outdoors. They also have a higher dependence on the internet for access to entertainment, shopping and essential services, such as banking, education and healthcare.

During natural disasters, regional users are more likely to be at greater risk of mass service disruptions due to damage to infrastructure.

WQAC will bring together a statistically valid survey of domestic and industrial internet activity through community engagement. The data* will provide the following insights:

- Why digital connectivity is important.
- How to connect digitally.
- Who connects digitally.
- What services are consumed digitally.
- Digital literacy

6. Investment

Investment. WQAC will quantify the investment and process required to achieve the vision.

WQAC acknowledges that to achieve the vision, substantial funding will be required. Given the significant investment already made through Mobile Black Spot Program, the Regional Connectivity Program, Regional Tech Hub and the NBN, WQAC is committed to exploring a range of approaches to achieve the vision.

WQAC will:

1. Quantify the investment (Opex and Capex) to achieve the vision.
2. Quantity whole of life costs and associated (short and long-term) benefits.

3. Explore innovative public and private funding models to achieve the vision.



7. Measurement

Measurement. WQAC will define a monitoring and evaluation (M&E) method that aligns with current approaches defined for public sector expenditure.

WQAC will build upon the models currently in use as defined in the statement of requirement from NRRRA:

“An assessment of the current and future state economic and social benefit situation of regional digital connectivity for SWQROC, RAPAD and NWQROC based on metrics used to assess Federal Government Regional Connectivity Program (RCP) and Queensland Government Building Our Regions (BoR) grant programs.”

WQAC will establish an ongoing monitoring and evaluation program for digital connectivity. WQAC will use the Australian Digital Inclusion Index* as the initial M&E framework.



Source - https://digitalinclusionindex.org.au/wp-content/uploads/2020/10/TLS_ADII_Report-2020_WebU.pdf

8. Risk Analysis

Risk Analysis. WQAC will provide a comprehensive risk management approach that seeks to mitigate the uncertainty such activity creates.

WQAC understands that telecommunications policy and delivery is complex. It accepts the region creates challenges and constraints and thus it wishes to approach achieving the vision with 'eyes wide open'. WQAC will conduct a comprehensive risk analysis exercise as part of **Phase 2 - WQAC Digital Connectivity Blueprint**.

This risk analysis will be broad ranging but will directly assess the defined risks below:

1. There is a risk that population will continue to decline in the WQAC Region.
2. There is a risk that limited demand creates limited commercial viability for the market to increase capability.
3. There is a risk that with NBN being finalised, there is limited appetite for further digital connectivity investment from public money.



Resources

To achieve **Phase 2 - WQAC Digital Connectivity Blueprint** capability will be required not currently held within WQAC.

WQAC will seek to fund the next phase through the relevant stakeholder groups (public and private).

The resources and capability required are:

1. Professionals services capability with proven experience of:

- Regional Australia.
- Telecommunications.
- Digital technologies.
- Legislation and public policy experience.
- Specialist Local Government knowledge.

2. Support to establish and maintain effective governance. This would be:

- Paid independent chair.
- Limited travel and accommodation for two physical meetings per year.
- Limited administrative support for the governance function.

Budget

To achieve **Phase 2 - WQAC Digital Connectivity Blueprint**, investment will be required.

WQAC has undertaken consultation with subject matter experts to complete a budget for Phase 2. It is anticipated all monies will be expended by 30 June 2022.

Capability	Budget
Professional Services	\$350k Ex GST.
Administration Support	\$100k Ex GST
Governance function	\$150k ex GST
Total Budget for Phase 2	\$600K* ex GST

*This is 0.0011764705882352942% of the ~\$51 Billion investment on NBN to date.

DIGITAL ECONOMY STRATEGY

Building a modern and resilient economy to drive Australia's future prosperity

Our Vision

For Australia to be a leading digital economy and society by 2030

Delivering the right foundations to grow the digital economy



Keeping at the forefront of emerging technologies



Lifting our ambition – Digital Growth Priorities



Digital SMEs



Modern industry sectors



Dynamic and emerging tech sector



Digital Government and services

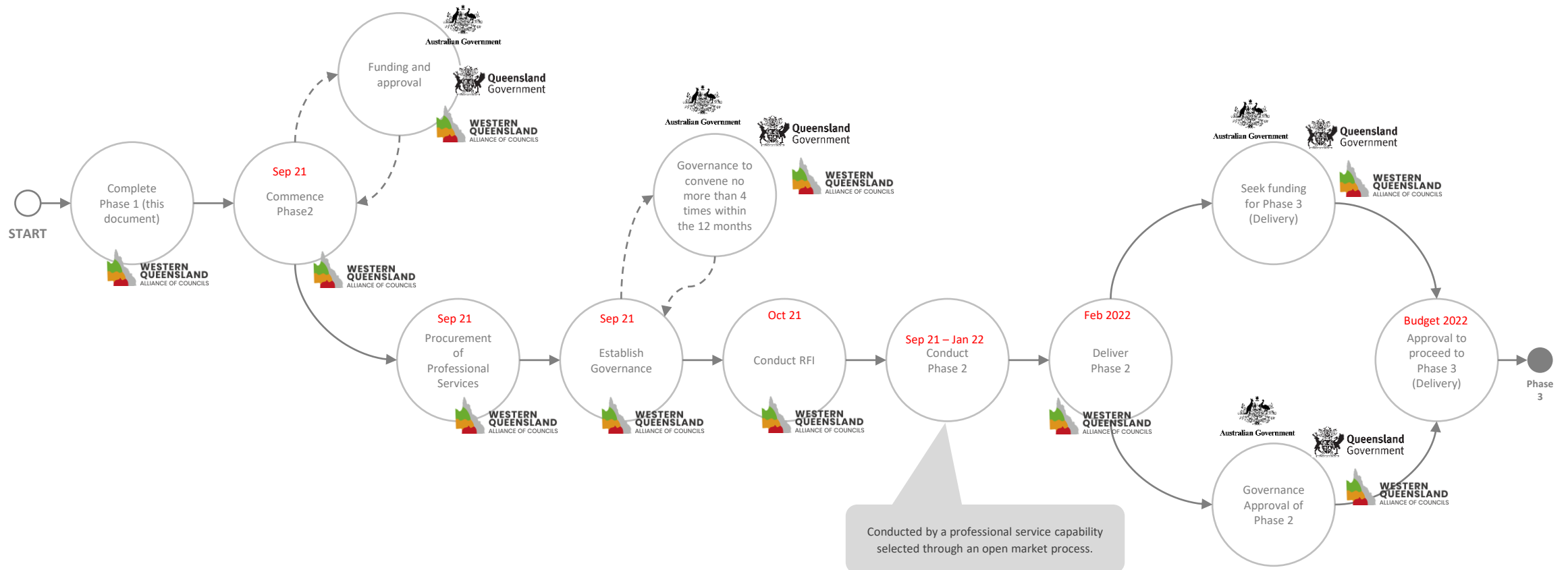
Key 2021-22 Budget Initiatives

- **AI investments** to drive greater AI adoption across the economy
- **Emerging Aviation Technology** reforms and industry partnerships to enable the use of drones and other aviation technologies
- **Tax incentives** to grow the digital games sector and encourage business investment in digital technologies
- Accelerating the rollout of the **Consumer Data Right** giving Australians greater access to, and control over, their data
- Unlocking the value of data with an **Australian Data Strategy**
- Building skills for a modern economy with a **Digital Skills Cadetship Trial** and **Next Generation AI and Emerging Technology Graduates**
- **Enhancing myGov** to deliver better services to Australians
- Enabling **next-wave My Health Record** for world-leading healthcare
- Expanding the use of the **Digital Identity System** for secure and simple access to services from government and across the economy
- Expansion of **Digital Solutions - Australian Small Business Advisory Services** to build SME digital capability
- Improving **internet and mobile connectivity in peri-urban areas**
- Driving the uptake of **e-Invoicing** by businesses
- Working with industry to **secure Australia's mobile networks** (5G and future 6G networks) and data centre infrastructure
- **Digital Atlas** to support emergency response, environmental management, virtual construction design and business investment

We'll be succeeding when

- | | | |
|---|---|--|
| 100% of Australian Government services are available online | Digitally-intensive industries employ more than 10% of the Australian workforce | All Australian businesses continue to improve cyber security practices |
| Tertiary advanced digitally skilled graduates increase to more than 15,000 per year | All new businesses are 'born' digital | 95% of SMEs are using e-Commerce tools |

Core Activity

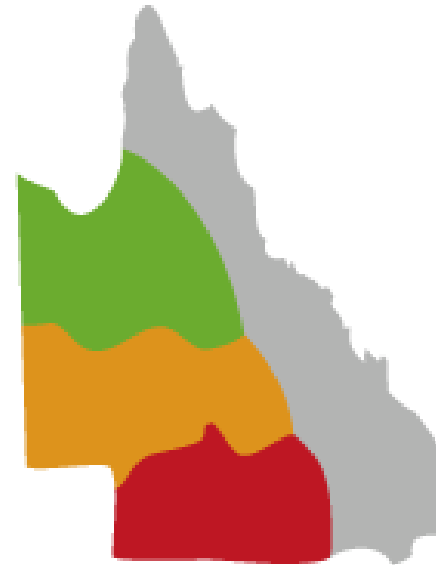


Assumptions

To achieve the desired outcomes we have made the following assumptions, which we will validate with you in the first week:

- The risk of 'do nothing' is not viable. A new strategic focus must be adopted to achieve future digital connectivity in the WQAC region.
- We can leverage our existing relationships to achieve an effective governance group.
- We will use the latest ABS census data as the social and economic source of truth for the region.

- We will reuse available resources, avoiding rework wherever possible.



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Contacts

For future information about this initiative, WQAC contacts are:

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- David Arnold, Chief Executive Officer, Remote Area Planning and Development Board (RAPAD)
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- Simone Talbot, Executive Officer, South West Queensland Regional Organisation of Councils (SWQROC)
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Appendix 1

Digital Connectivity
Terms of Reference V1.0



Background

The Western Queensland Alliance of Councils (WQAC) is a collaboration between the three regional organisations of councils in Western Queensland; North West Queensland Regional Organisation of Councils ([NWQROC](#)), Remote Area Planning and Development Board ([RAPAD](#)), and South West Queensland Regional Organisation of Councils ([SWQROC](#)).

The three organisations represent 22 Councils across the north west, central west and south west of Queensland. This area covers 60% of the State and makes a major contribution to the economies of Queensland and Australia. By comparison, these local government areas account for 1.3% of the Queensland population. All three organisations have come together under the banner of the WQAC to represent the views of the 22 rural and remote councils on matters of common concern in the State's far west.

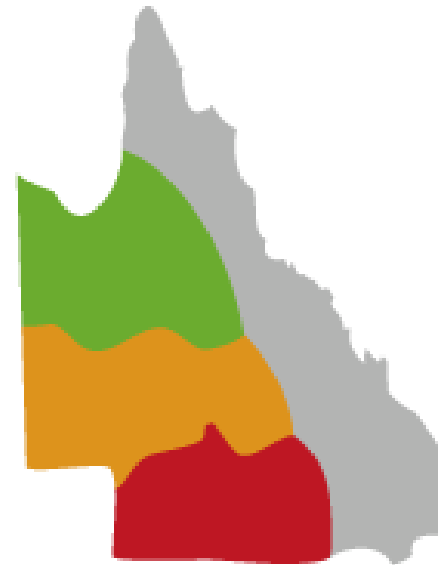
Key Regional Statistics

1.06 Million Kms ² of area and 951 HA of Parks	63,730 population with 1 in 6 being indigenous	13% of the population is over the age of 65 years	28% of the population are 19 years or younger
30,797 rateable properties	37,172 local workers	AU\$7.64B Gross Regional Product	\$1,677 per week average household earnings
24 Water Treatment Plants servicing 66 communities	44,535 Km Council & 12,476 Kms controlled roads	33 Sewage Treatment Plants servicing 37 communities	5,141 residents from other regions
8,578 businesses in industries such as: <ul style="list-style-type: none"> • Mining • Agriculture • Construction • Healthcare & Social Assistance 	3,964 Agricultural businesses	949 Construction businesses	621 Rental, Hiring and Real Estate Businesses

Western Queensland Alliance of Councils

The Western Queensland Alliance of Councils (WQAC) provides:

1. A mechanism to provide high level coordination for the 22 member councils of SWLGA, RAPAD and NWQROC to articulate, advocate and address the common, but unique issues affecting Western Queensland.
2. A unified voice to highlight Western Queensland's contribution to the State and National economies.
3. A collaborative platform to support and facilitate engagement across, and with, the three member ROCs; State and Australian Governments; the LGAQ and other relevant industry groups / interested parties.
4. A campaign vehicle for the three member ROCs to combine their efforts with other industry groups, representative bodies and interested parties to promote the interests of Western Queensland.



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Digital Connectivity

Digital technologies are transforming economies, industries and business models, across all industry sectors. Since the mid-2000s there has been explosive growth in demand for mobile data fuelled by affordable smart phones and tablets, enabling users to fully engage in the digital world while on the move. Yet despite the rapid acceleration of the digital economy, fuelled in part by COVID-19, some members of the community still face significant barriers to online participation, highlighting the critical importance of digital inclusion. High-speed data connectivity is now an essential prerequisite for households and businesses to function effectively. It is as essential as power, water and roads.

Digital technologies offer significant economic and social opportunities for Queensland, but the state's vast land mass and extreme population dispersion presents unique connectivity

challenges. While most Queenslanders are now digitally connected, when there is a lack of access to fixed broadband it is usually in regional areas. Further, regional populations are often disproportionately disadvantaged by lower education levels and incomes, an aging population, dependence on agriculture and lower socioeconomic status. Regional areas are also digitally disadvantaged due to the high costs of laying the infrastructure across dispersed and remote areas, which has led to regional Queensland's access and choice of service being consistently behind that available in South East Queensland. There remains significant room for improvement in providing frontier digital technologies and connectivity to regional communities and improving penetration in agriculture, healthcare and mining.

Connectivity

Regional Australians are evolving rapidly in their use of telecommunication services and increasing their demand for data, placing significant pressure on regional digital infrastructure. Estimates of growth vary widely from 30% to 80% per annum. Regional users are more likely to require mobile services for communication and safety, as they travel long distances and spend considerable periods of time outdoors. They also have higher dependency on the internet for access to entertainment, shopping and essential services, such as banking, education and healthcare. During natural disasters, regional users are more likely to be at greater risk of mass service disruptions due to damage to infrastructure.

Digital telecommunication infrastructure and applications need to be available equally to all, regardless of location. The pace of

change in technology and digital applications is rapid and infrastructure must keep up. Otherwise, those working and living in underserved rural areas will increasingly be disadvantaged and restricted from self-directing the development pathway of their regions economically, socially and culturally. The cost of backhaul is the main constraint identified by carriers wanting to extend mobile coverage in regional Australia. For regional businesses to continue to increase the economic contribution they make to their local community, the telecommunications infrastructure must be fit-for-purpose.

Connectivity (continued)

World class satellites are being deployed in pilot mode in regional Queensland, providing coverage over very wide areas. However, their long-term uptake is dependent on substantial cost reductions. Satellites can also quickly become oversubscribed, leading to significant congestion, data limitations, application constraints and reduced user satisfaction. They can also be limited in their suitability for certain applications (including voice), as well as having technical issues such as susceptibility to rain fade. Hence there is a need for further and more immediate supplementation if the economic opportunities that are available for the WQAC Region are to be fully realised.

Consequently, there is a critical need to adopt a strategic place-based approach and create regional digital plans to guide

targeted future telecommunications investments and unlock local, state and national goals. The Mobile Black Spot Program demonstrated that widespread coverage improvements are possible but it requires a shared strategic direction and co-investment. Similarly, the Central Western Queensland Digital Connectivity project demonstrated substantial social and economic benefits from enhanced digital connectivity enabled by cable infrastructure. Lessons must be taken from these programs to inform a strategic direction for digital connectivity in the WQAC Region.

Benefits for Regional Society and Services

Digital connectivity and technologies are a pathway to reducing economic and social inequities in the WQAC Region. Improving connectivity would benefit 8,578 businesses and 63,730 residents in the region, of which a high proportion are vulnerable groups, such as the ageing, indigenous and families without adequate internet access. The benefits of digital inclusion are significant, ranging from easier communication, information dissemination, convenience, free digital products, new forms of leisure and a profound sense of social connectedness and global community. Many essential services, such as health, education and government services, are adopting a digital-first model. It is critical for equity purposes that communication services are accessible to everyone.

Digital connectivity enables government to overcome limited administrative capacity, anticipate the community's needs, reach remote citizens, deliver greater information and services, as well as provide easier, faster and cheaper ways for regional business to engage with government. Digital technologies also assist government and community groups to build vibrant and prosperous regional and remote communities. Digital connectivity also benefits regional towns by facilitating the management and coordination of community groups, sporting groups and local events, such as gymkhanas,

shows and fundraisers. Reliable internet and mobile coverage also enable email, messages and phone calls to be made to disseminate information and marketing material about groups and events.

Good connectivity helps regions to create new job opportunities, as well as attract and retain population, particularly young people and families. Mobile phones and internet importantly expand people's social lives and retain them in the region by enabling them to connect with friends and family both in and outside the region, including children away at boarding school. Improved internet speed and reliability enable a wide range of activities including internet banking, shopping, entertainment, video streaming, education and social connection with friends and family. Streaming services such as Netflix and Youtube provide entertainment, as well as global social connection and engagement, enhancing regional culture, reducing feelings of isolation, and increasing community pride and sense of place. This improves the quality of life for regional communities, provides access to new products and services, delivers well-paying jobs, enables new economic ventures and enhances productivity, viability and resilience of existing businesses.

Benefits for Tourism

Digital connectivity is important for the further development of tourism in the WQAC Region. Estimates from Tourism Research Australia, combined with Census visitor estimates, suggest that there were about 2.5 Million visitors to the WQAC Region in 2020, staying 2.5 nights on average and spending \$139 per night – for a total estimated spend of \$882 Million per year in the WQAC Region. Tourism in regional Australia is showing great potential, with visitors increasing on average by 4% per annum. In addition, COVID has seen a further boom in regional tourism with domestic Australians seeking safe places to visit.

Tourists require digital connectivity to destinations both prior to visitation and while in region. The lack of connectivity can dissuade visitors from staying in the region. Digital connectivity can improve the perception of a destination being “liveable” and

enables tourists to connect with friends and family, manage businesses and share their experiences while travelling. Furthermore, connectivity improves travellers’ safety and well-being, enables for them to plan on the go and helps them to experience destinations before arriving in region. For local governments, visitors’ connectivity provides them with a rich source of data on travellers to their region, as well as the ability to better promote the region to targeted groups. For businesses, it enables them to promote their services to travellers, to take web-bookings and to tap into social media influence for marketing purpose.

Benefits for Education

Thirty-three percent of the residents in WQAC are 24 years or younger. Thus, a critical application of digital technologies in the region, and also one of the most data-intensive, is for education purposes. Education requires broadband access with fast upload and download speeds. Primary school students require at least 30GB per month during peak times to enable basic educational videoconferencing and lesson streaming. Digital connection enables primary schools to access a wider range of learning materials and experiences, such as web-based spelling, writing, mathematics, music and foreign language programs.

WQAC tertiary and vocational students face significant barriers in using distance education, innovative online education services or professional development courses, due to network speed and data costs inhibiting their participation in online lectures and seminars. This often results in students either abandoning their studies or moving to expensive urban areas to attend university. Faster internet

connection enables students to access courses, helping to retain residents in communities while still progressing their skills and careers.

“Connectivity is the silver bullet which will serve to provide the type of essential services such as education in rural and remote locations, which families expect and deserve.” [ICPA Australia submission]

There are 54 education and training businesses in WQAC that would benefit from improved digital connectivity. Improved connectivity can enable teachers to leverage massive open online courses (MOOCs) or online teaching tools, which can enable them to better utilise study time inside and outside the classroom to increase practice and discussion, as well as providing more dedicated one-on-one time to children who fall behind.

Benefits for Digital Work and Entrepreneurship

Digital innovation creates enormous economic value by improving productivity, increasing output and creating new industries. Digital technologies complement humans, allowing workers to be more efficient, productive and innovative by providing more time to think and innovate, as well as reducing information search and duplication of work. Businesses are improving output and safety, as well as competing on the world stage. In addition, managers and workers can connect with teams across different regions and countries and businesses can attract and hire more staff, become more efficient, provide better services to customers and improve profitability by saving costs and increasing turnover. Hence, digital connectivity is essential for unlocking digital and data innovation and for attracting and retaining residents and workers in the WQAC Region.

Without sufficient digital connectivity, businesses in the WQAC Region will be at a significant economic and competitive disadvantage. Businesses in regions with underserviced telecommunications cannot

operate effectively and efficiently, particularly as core business applications and services are increasingly migrated to online and cloud-based platforms (e.g., websites). Digital technologies offer businesses the opportunity to harness knowledge, learnings and relationships for collaboration, growth and competitive advantage.

A key barrier for entrepreneurs creating new businesses and scaling them in the WQAC Region is inferior internet and mobile phone coverage. Affordable advanced connectivity offers opportunity for new products and businesses to emerge. For example, connectivity investment will boost telco providers, who will install and service connectivity infrastructure. AgTech companies will also emerge, specialising in offering farmers innovative products that leverage technology and data to improve decision-making, yields and profitability, as well as reducing risk and costs.

Benefits for Agriculture 1 of 2

There are 3,964 Agricultural businesses in the WQAC Region, representing 46% of businesses in the region and 10% of all Queensland agricultural businesses. Global demand for food will continue to increase in line with global population growth. To feed the world in 2050, global food production must increase by 50%, which raises concerns for food security particularly given climate change, overuse of existing farmland and the lack of new agricultural land. Moreover, productivity growth in the agriculture has been sluggish relative to the rest of the economy.

Investment in and adoption of digital technologies in agriculture could provide massive potential productivity gains for the industry and the WQAC Region. Broadband-supported technology could increase economic activity in agriculture by between 5-17% per cent by 2030. Precision-farming is also predicted to grow at a compound average annual growth rate of

13% from 2020 to 2027. Similar growth rates could see the economic impact of agriculture in WQAC increase from around \$1.3 Billion to almost \$1.5 Billion by 2030.

Emerging digital technologies are transforming agriculture, providing new opportunities to improve the productivity and efficiency of the sector, optimise resource use, overcome seasonal labour shortages and minimise harmful impacts on the environment. AgTech can enable farmers to track livestock, manage herd information and reduce herd loss, as well as order parts and services, arrange transport, facilitate stock transactions, and support virtual fencing, drone monitoring and spatial planning and management. Farmers want to adopt automation, robotics and farm data management and analytics and this requires good connectivity in the homestead and paddock.

Benefits for Agriculture 2 of 2

Increased connectivity would enable agriculture to scale and become more precise and productive, as well as provide confidence to run applications that require reliability and responsiveness. Agricultural automation and sensors are expected to create 610 new businesses in Queensland by 2030 (up from 155), with the sector likely to support 2,637 direct and 10,984 indirect FTE jobs for Queenslanders. Over the same period, supply chain provenance tech firms are expected to grow from 107 businesses to 546 businesses and create 2,595 direct and 402 indirect FTE jobs. Improving productivity in the WQAC Region could see at least 10% of these businesses and jobs based in the region, representing some 130 new businesses and 1,760 FTE jobs.

Digital farm entrepreneurship is important for the ongoing sustainability and viability of farm businesses as it encourages

innovation and proactive thinking, enables farmers to leverage culture and region to diversify their business practices and fill voids during drought, seasonal and economic downturns. Farm entrepreneurs no longer need to just derive products from the land, but can leverage value-added services (such as tourism), connect with their communities and tap into global markets through the internet. Digital communication about farm products and services is increasingly important as consumers demand more information about where products are made and about farm businesses, particularly locally grown, organic and sustainable farming methods.

Benefits for Healthcare 1 of 2

There are 132 healthcare and social assistance businesses in the WQAC Region, with 32% of residents in the region being 50 years or older. Adequate healthcare is essential to resident wellbeing but regional communities often experience disadvantage when it comes to healthcare. In addition, a lack of digital technology means that rural hospitals struggle to deliver adequate services, meet demand for interventional digital services, and recruit and retain physicians. Digital connectivity for health applications needs to be reliable, stable, mobile and sufficient to enable remote patient monitoring and data intensive applications, such as video consultation and AI-intensive data services. For telehealth to be a reality in the WQAC region, digital infrastructure must be significantly upgraded. Having more reliable mobile coverage in rural and remote areas will support community workers and emergency services personnel to deliver vital services.

Telehealth is one of the great social benefits of improved digital connectivity, with CSIRO estimating* that it could halve mortality

rates. Emerging products in this space either focus on health providers (e.g., point of service data collection, disease surveillance, health campaigns and telemedicine) or on citizens (e.g., SMS vaccination or therapy reminders). Telehealth can assist patients to self-manage their health conditions, improve their health literacy and create closer relationships and communication between patients and healthcare providers. Healthcare providers are increasingly delivering online medical training and educational support to remote health workers. Telehealth would provide all residents of the WQAC Region with access to quality health care. Telemonitoring, such as 'telestroke' programs, have been estimated by CSIRO to save \$5 for every \$1 invested, taking into account reduced hospital inpatient and outpatient services, reduced visits to GPs, reduced visits from community nurses and reduced demand on increasingly scarce clinical resources.

*Alpha Beta and CSIRO Data61 (2018). Digital Innovation: Australia's \$315 B Opportunity. Available: <https://data61.csiro.au/~media/D61/Files/Digital-Innovation-Report.pdf>

Benefits for Healthcare 2 of 2

AI will play a critical role in the future of healthcare system. As a result the Queensland Government has made major investments into digital health. Artificial Intelligence businesses in Healthcare in Queensland are predicted to increase from 247 businesses to 577 in 2030, contributing 2,740 direct and 8,575 indirect FTE jobs. The volume, velocity and variety of healthcare data is growing rapidly, and the digitisation of medical records is making this data more accessible for quality and system improvements. Queensland is currently leading the national rolling out of integrated electronic medical records (ieMR) with over 14 hospitals and health centres onboarded. PwC estimated that ieMR rollout across five Queensland hospitals generated \$181 Million in financial and economic benefits.

Mental health is another area that stands to benefit significantly from telehealth. WQAC acknowledges that the federal government has recently announced \$11.4 Million of funding to help the mental health of drought-affected farmers and their families. This initiative will allow people in drought-affected areas to access counselling sessions on video conferencing, recognising the long distances and the cost of travel in money and time of rural people. In order to receive these services, people need a reliable internet connection. Lastly, health communication campaigns increasingly rely on audiences being digitally connected for improved health outcomes. Digital connectivity can also engage previously difficult to reach audiences through social media networking.

Benefits for Construction, Mining and Autonomous Vehicles

Improved broadband services and location-based technologies are supporting innovation in construction and mining in regional Queensland. WQAC is home to 949 construction businesses, representing 11% of businesses in the region. Construction is ripe for robotics and other digital technologies, with high potential for automation. Construction workers can be exposed to harsh work environments and potential safety risks (e.g., heavy lifting or precarious work environments). There are many construction tasks that could be actioned by a robot, thereby improving worker efficiency and safety. Construction Tech businesses in Queensland are expected to increase from 245 to 444 businesses between 2019 and 2030, creating 2,109 direct and 4,064 indirect FTE jobs.

There are 67 mining companies in the WQAC Region. Over the past two decades, productivity in mining has been declining and the sector is struggling to reverse the trend. Improved connectivity would enable mining companies to tap into the latest technologies being created to improve productivity. Moreover, the WQAC Region is home to 511 transport, postal and warehousing businesses, representing 6% of all businesses in the region. Digital infrastructure and connectivity will be important for the roll out of autonomous vehicles, unlocking significant potential for transport and mining, which could improve productivity, reduce labour costs for businesses and reduce remote accidents.

Benefits for Disaster Resilience and Safety

Queensland is the most disaster-prone state in Australia and these impacts are predicted to worsen as natural hazard events become more frequent with climate change. Moreover, regional communities are most at risk of environmental disasters, meaning that reliable telecommunications are essential for disseminating information, providing emergency services and building disaster resilience. Improved internet connection and mobile coverage enables the dissemination of information across multiple media to access hard to reach community members, the collection of real time data, preparation of safety plans and coordination of committees. Safety is significantly improved through digital connectivity, as it provides people with access to emergency services and friends and family.

Digital technologies offer improved preparation and management of emergencies and community safety incidents (e.g., fire, floods and accidents) by delivering new tools for pre-empting, responding and recovering from a disaster, with applications extending from robotics

to disaster imaging. Disaster resilience technologies aim to understand and forecast natural hazards to mitigate the impact on communities. Disaster resilience has been identified as a critical emerging tech sector for Queensland, with anticipated growth from 107 to 546 businesses by 2030, creating 2,595 direct and 402 indirect FTE jobs.

Natural disasters are a considerable cost for Australian insurers. Improved disaster resilience would assist insurance companies to manage risk, verify damages, and speed up recovery times for individuals and companies. Regional low-income households and businesses are often underinsured or uninsured meaning that they can be disproportionately disadvantaged in recovering from disasters. Reducing insured losses through improved disaster preparedness and mitigation could improve the affordability and accessibility of insurance for regional households and businesses, potentially reducing risk and premiums.

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