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# REGIONAL DIGITAL STUDY

## Wide Bay Burnett, Banana and Gladstone

December 2022

CRESC
CENTRE FOR REGIONAL ECONOMIES AND SUPPLY CHAINS

Regional Development Australia

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**Project leader**: *Prof. Delwar Akbar*

Centre for Regional Economies and Supply Chains (CRESC), CQUniversity, Rockhampton, Qld 4702
Email: d.akbar@cqu.edu.au

**Research team:**

- *Prof. Delwar Akbar*
- *Prof. John Rolfe*
- *Dr. Darshana Rajapaksa*
- *Dr. Trang Nguyen*

**Project Partners:**

- Centre for Regional Economies and Supply Chains (CRESC), CQUniversity
- Regional Development Australia Wide Bay Burnett (RDA WBB)

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# List of Acronyms

| | |
|---|---|
| ABS | Australian Bureau of Statistics |
| ACMA | Australian Communications and Media Authority |
| ADII | Australian Digital Inclusion Index |
| CRESC | Centre for Regional Economies and Supply Chains |
| IC | Indigenous Council |
| NBN | National Broadband Network |
| LGA | Local Government Area |
| QLD | Queensland |
| RC | Regional Council |
| RDA | Regional Development Australia |
| SC | Shire Council |
| WBB | Wide Bay Burnett |
| WBBBG | Wide Bay Burnett, Banana and Gladstone |

# EXECUTIVE SUMMARY

Digital access in regional Australia is low in comparison to major cities resulting to digital inequalities which is reflected in the Australian Digital Inclusion Index (ADII). The digital inequality has been identified as one of the main obstacles to thrive regional development. Most of the local government areas (LGAs) within the Wide Bay Burnett, Banana and Gladstone (WBBBG) regions, (except for Gladstone), are below state and national averages. Therefore, identification of challenges and priorities to develop digital infrastructure is utmost important for the regional development.

This regional digital study aims to address three main objectives across the geographic area which includes the local governments of Banana, Gladstone, Bundaberg, Fraser Coast, Cherbourg, Gympie, North Burnett, and South Burnett, and the major regional centres of Biloela, Gladstone, Bundaberg, Gympie, Hervey Bay and Maryborough:

(1) examining the digital landscape where current and future digital demands may lie;

(2) identifying connectivity technology and infrastructure opportunities related to internet carriage services in the region; and

(3) proposing a digital action plan through relevant stakeholder engagement, and identifying funding programs and support from different entities, to invest in and improve internet carriage services across the WBBBG regions.

The study employed mixed methodologies which were designed to achieve research objectives, including desktop review, analysis of secondary data, stakeholder survey, and stakeholder workshops.

The report features major findings related to current digital connectivity status in the WBBBG regions, the importance, current use, and potential use of digital technologies, digital infrastructure gaps and needs, digital service quality, technology adoption, leadership, as well as the region's digital issues and challenges. It is suggested that the levels of digital connectivity in urban and rural WBBBG are currently quite mixed.

The proposed digital action plan includes two groups of actions for the WBBBG regions in relation to three fundamental dimensions of digital inclusion, namely access, affordability and (digital) ability, has also been provided, including:

**Ongoing actions** to improve digital connectivity in the WBBBG regions are associated with four strategic areas, including: infrastructure upgrade; investment; digital knowledge; and collaboration.

**Proposed actions** to improve digital connectivity in the WBBBG regions are associated with infrastructure upgrade; planning; digital cost; digital knowledge; collaboration; and governance & leadership.

# 1. INTRODUCTION

Digital connectivity remains a critical factor in the creation of a digital economy, which provides great opportunity for Australia's regional economies to diversify, improving the regions' chances for workforce attraction and retention, and enabling global economic participation and competitiveness. Deloitte Access Economics estimates that Australia's GDP was 6.5% or $126 billion larger in 2019 due to productivity benefits from digital technologies.

Enhanced levels of digital connectivity also have significant social impacts in terms of digital inclusion. Digital inclusion is about "ensuring that all Australians can access and use digital technologies effectively" (Australian Digital Inclusion Index (ADII), 2022, p.1). We are now "experiencing an accelerating digital transformation in many aspects of economic and social life, and we all should have the opportunity to benefit from digital technologies" to manage our health, access education and services, participate in cultural activities and civic life, organise our finance, follow news and media, as well as connect with family, friends, and the wider world (ADII, 2022, p.1). Digital access also allows regional businesses to unlock innovation and compete on a world stage, and enables economic, community and social growth.

Digital inclusion is deeply intertwined with social inclusion (Helsper, 2008). According to the ADII (2018), digital inclusion is not only about the internet or technology, but also people's digital connectivity opportunities as a channel to enhance the quality of life. Digital exclusion, thus, can have substantial social exclusion consequences for residents, businesses and communities. Digital inclusion is therefore important for a fair and equitable society (Marshall et al., 2021). The COVID-19 pandemic has also exacerbated some key challenges and brought about a greater reliance on telecommunications and digital connectivity for social inclusion activities including work arrangements, job opportunities, and other social services (Mabbott et al., 2020; Marshall et al., 2021). Gravelroad (2021), for example, suggests that Australia's data volume demand was up 80% or more at some points of the pandemic. The Australian Communications and Media Authority (ACMA) estimated that almost half of the National Broadband Network (nbn) plan upgrades in 2020–2021 were to better support people working from home (ACMA, 2021).

Developed digital infrastructure and technologies are key to ensuring high-speed reliable digital connectivity in regional and rural areas. Nevertheless, not all Australian regions are well connected to the nbn or other types of internet carriage services. Remote Australia often experiences digital disadvantages (Afshar Ali et al., 2020) and the remoteness is among critical issues causing digital inequality (Park, 2017). Many regional residents, businesses and communities in Australia in general and Queensland in particular, are still disadvantaged without adequate access to digital connectivity, mainly to due to limited or lack of digital infrastructure and services (Marshall et al., 2019).

As such, the digital divide between Queensland's urban and rural areas may be deepening which will increase social and economic inequalities (Gravelroad, 2021, Marshall et al., 2021). It is important to note that Queensland is the only truly decentralised state in Australia, in which more than half the population live outside of its capital city Brisbane (Marshall et al, 2019), and many are experiencing digital disadvantages. Development of digital infrastructure and technologies in regional Queensland is thus, an urgent need. Ensuring enhanced and sustainable connectivity infrastructure is not just for now but essential in the coming decades (Gravelroad, 2021).

The ADII in WBBBG regions (with the exception of Gladstone), are below national and state averages of 71.1 (ADII, 2022). Regional Development Australia Wide Bay Burnett (RDA WBB) has identified an opportunity to increase the region's Digital Inclusion Index Rating through

improving existing digital infrastructure and enhance the community's ability to access digital technologies and information through a regional digital study.

In partnership with the CRESC of CQUniversity and RDA WBB, this digital study has been prepared to provide key information to RDA WBB to plan for the development of digital connectivity infrastructure and services throughout the WBBBG region. The study aims to examine the digital landscape where current and future demands may lie, identify gaps in digital connectivity, and seek agreement on recommendations to address the gaps for the region. The study focuses on technology, technology mixes and infrastructure solely related to internet carriage services. Thus, mobile telephone networks are out of its scope.

The study will enable RDA WBB's Board to use its findings to advocate for future government and non-government investment that funds the upgrade or transformation of digital infrastructure and services.

Specifically, the study addresses three main objectives:

## Objectives

- Examining the digital landscape where current and future digital demands may lie in the WBBBG region.
- Identifying connectivity technology and infrastructure opportunities related to internet carriage services within communities in the region.
- Proposing a digital action plan for the region through relevant stakeholder engagement, and identifying funding programs and support from different entities, to invest in and enhance internet carriage services across the region.

# 2. METHODOLOGY

To support the development of a digital study and infrastructure prioritisation, the study employed mixed methodologies which were designed to achieve its research objectives. The approaches included conducting a desktop review of existing literature, data and information, as well as taking additional analysis and extrapolation of data gathered from secondary sources, including a stakeholder survey and stakeholder workshops. Details of methodologies applied to assess digital landscape, main digital connectivity, technology and infrastructure gaps, and actions needed to be taken, are outlined below.

## 2.1. Digital landscape and connectivity analysis

Local Government areas within Wide Bay Burnett and Surrounds region were included in the demographic and digital connectivity analysis.

Digital connectivity analysis included technology, technology mixes and infrastructure solely related to internet carriage services.

First, existing materials about digital connectivity were reviewed to draw an overview of the digital situation in the region. Secondary data about regional population and connectivity data and information were collected from available online sources such as Australian Bureau of Statistics (ABS), nbn Local, and other governmental sources.

Second, an online survey was developed to collect stakeholders' opinions about current/future digital/infrastructure issues and needs. The survey questionnaire was designed through a co-design process with RDA representatives using Qualtrics' online platform. A list of stakeholders' email addresses was provided by RDA WBB. The online survey link was sent to relevant stakeholders of diverse expertise, background and work experience, accompanied by an information sheet and consent form. The survey remained opened for eight weeks to maximise survey responses. In the end, a total 290 survey responses were received, and among which 159 responses were completed and usable which are suitable to the study conditions and parameters.

## 2.2. Proposing a digital action plan

A participatory action research method was used to collect data (as mentioned earlier) about digital issues and challenges and preparing a digital study for the WBBBG regions.

Three stakeholder workshops (one face-to-face and two online) were organised at the end of the survey. Information about the workshop time and location was provided in an email sent to stakeholders. Twenty-seven stakeholders from the state government as well as different local government areas within the WBBBG regions and the university (in total) engaged in the first two workshops (please see the list of participating organisation in Appendix D). A further 19 engaged in a third workshop specific to business and industry and facilitated by RDA WBB.

The survey results were presented in the workshops, which were followed by discussions by participants about technology and infrastructure gaps, current challenges, the region's priorities, abilities and affordability in terms of digital connectivity, as well as actions needed for digital development in the region. The workshops lasted approximately 1 to 2.5 hours. Workshop data was analysed using a thematic analysis approach.

## 2.3. Sources of potential grants and support

This task was completed through a stakeholder survey, stakeholder workshops, and desktop review, that enabled researchers to identify information about existing programs, funding, and resource support available at the time of the study. It must be noted that a new Australian Government had just been elected during the time of the study and therefore the commitment of former government funding opportunities was not provided.

# 3. STUDY CONTEXT: WIDE BAY BURNETT, BANANA, and GLADSTONE

## 3.1. Demographic and socio-economic overview

The Wide Bay-Burnett and Surrounds stretches from the fertile soils of the Banana and Burnett areas to the beautiful coastal areas of Gladstone, Bundaberg and the Fraser Coast, south to Gympie (RDA WBB, 2019). The WBBBG regional area consists of regional councils, one Aboriginal council, and one shire council (Figure 1) which includes regional cities, towns, and remote areas, namely: Gympie Regional Council, Cherbourg Aboriginal Shire Council, North Burnett Regional Council, South Burnett Regional Council, Fraser Coast Regional Council, Bundaberg Regional Council, Gladstone Regional Council, and Banana Shire Council. Among them, Fraser Coast is the largest by population. The major regional centres are Biloela, Gladstone, Bundaberg, Gympie, Hervey Bay and Maryborough.

The Wide Bay-Burnett and Surrounds also has the largest population outside of Southeast Queensland, and its population is expected to reach over 400,000 in the next 20 years (Infrastructure Australia, 2022). It was also estimated that more than 33% of Australian population live in outside of major cities and half of the population in Queensland live in regional cities and remote areas outside of the state's capital city, Brisbane.

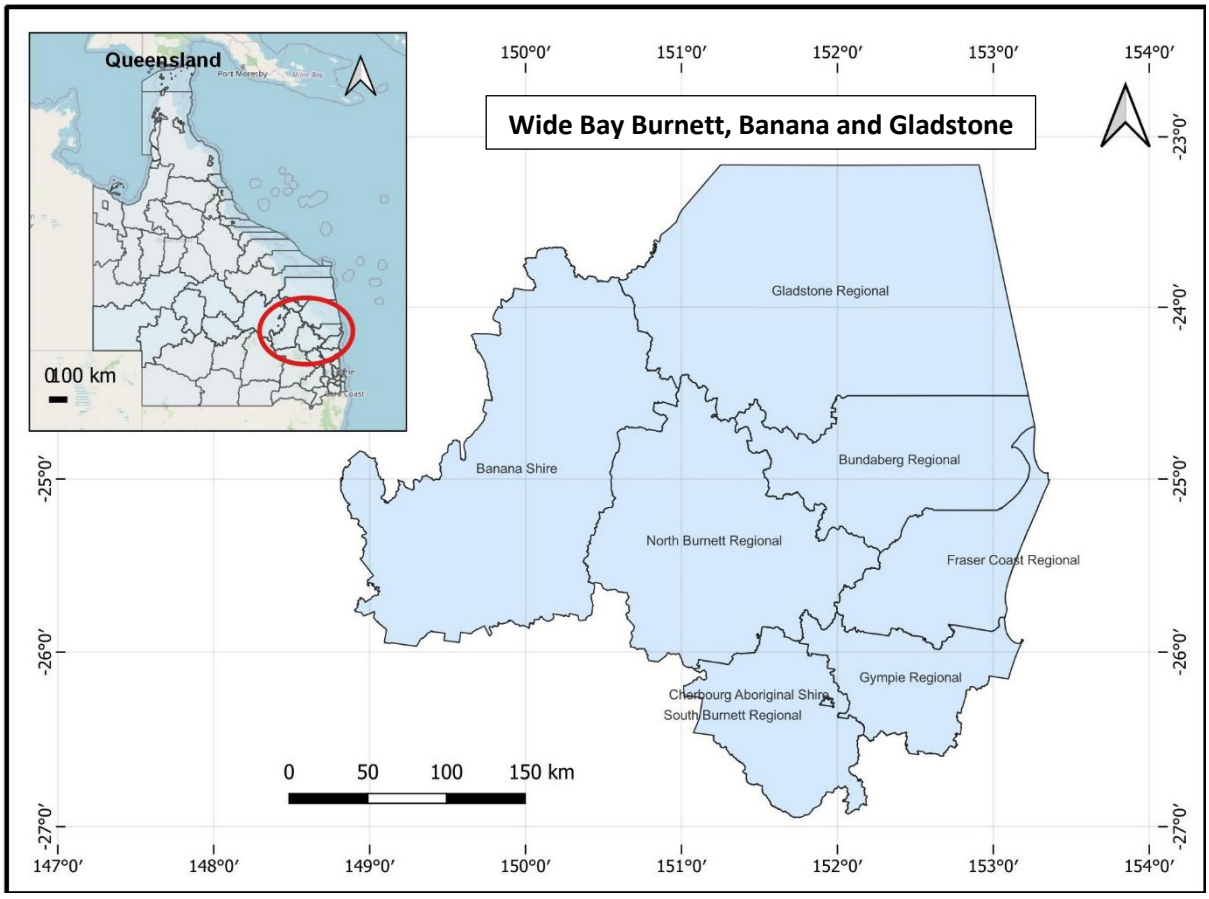



*Figure 1: Study area*

Table 1 provides socio-economic profiles of different local government areas in comparison to Queensland's average. Most of the socio-economic indicators, i.e., education, average income and working age population are below the state's average. Global studies have shown the correlation between socioeconomic factors (such as education, age, and income levels) and digital access (Campos et al., 2017; Lindblom & Räsänen, 2017; Yu et al., 2017), claiming the attention to provide equal digital opportunities. Most of the population in regional areas receive relative disadvantages in terms of socio-economic factors. As Afshar Ali et al. (2020) points out, socio-economic disadvantages are indeed an important determinant of digital access in Australia.

*Table 1: Socio-demographic profile of WBBBG*

| QLD/ LGA | Working age pop. (%) | Aboriginal and TSI (%) | Renter (%) | # of Businesses | Total number of employment | Weekly median HH income ($) | Bachelor degree (%) | Unempt (%) |
|---|---|---|---|---|---|---|---|---|
| Queensland | 64.5 | 4.6 | 33.1 | 460,807 | 2,444,090 | 1,675 | 21.9 | 4.6 |
| Gympie RC | 58.3 | 4.4 | 22 | 4,608 | 20,351 | 1,115 | 10.3 | 6.3 |
| Cherbourg IC | 61.0 | 96.4 | 99 | 4 | 185 | 793 | 2.2 | 10.8 |
| North Burnett RC | 57.6 | 7.0 | 23.6 | 1,699 | 4,250 | 1.021 | 8.6 | 5.3 |
| South Burnett RC | 56.8 | 6.2 | 25 | 3,197 | 12,182 | 1,045 | 9.5 | 7.4 |
| Fraser Coast RC | 55.1 | 5.1 | 24.4 | 6,002 | 37,531 | 1,062 | 11.0 | 7.3 |
| Bundaberg RC | 57.9 | 4.5 | 27.1 | 6,612 | 38,815 | 1,157 | 11.7 | 6.0 |
| Gladstone RC | 64.8 | 6.2 | 33.4 | 3661 | 28,565 | 1,639 | 12.0 | 5.8 |
| Banana SC | 62.9 | 5.1 | 30 | 2,457 | 7,053 | 1,766 | 10.0 | 2.9 |

Source: ABS, 2021

The proportion of Aboriginal and Torres Strait Islander people in WBBBG regions, in addition, is higher than the state average. Despite the socio-demographic differences, the pandemic restrictions imposed by governments have resulted in citizens accessing social services through digital media, more frequently than ever (Babacan et al., 2020).

The WBBBG regions are predominant in agriculture-based industries, and its health and social assistance, tourism and manufacturing sectors are also important contributors to its regional economy.

## 3.2. A snapshot of current digital connectivity

All LGAs in WBBBG (with the exception of Gladstone) averaged a 2021 Australian Digital Inclusion Index (ADII) score of 63.3 (ranging from 61 to 66), which is lower than the Queensland and national average. The region's digital connectivity is varied, with higher density coastal areas being reasonably well serviced, while there remain black spots with unused dark fibre in inland areas (Infrastructure Australia, 2022). Currently Gympie, Maryborough, Hervey Bay, Bundaberg and Gladstone are business fibre zones.

The region faces multiple digital connectivity challenges to overcome isolation and social disadvantage. Infrastructure Australia (2022) observed that the capability and capacity of the region's current network needs to be sufficient to attract technology-reliant businesses to WBBBG's regions. Stakeholder feedback received during the consultation phase of this project indicated that there are consumer concerns in relation to the reliability of telehealth services in and intermittent services on K'gari (Fraser Island) during extreme weather events (Infrastructure Australia, 2022).

In order for industries to thrive and grow in the region, disparities in digital access need to be addressed. It is suggested in a recent draft WBB regional plan (Queensland Government, 2022) that prioritising planning and delivery of digital infrastructure in key sectors such as education, health, and manufacturing and upgrading networks will allow economies of scale and digital efficiencies to be better met.

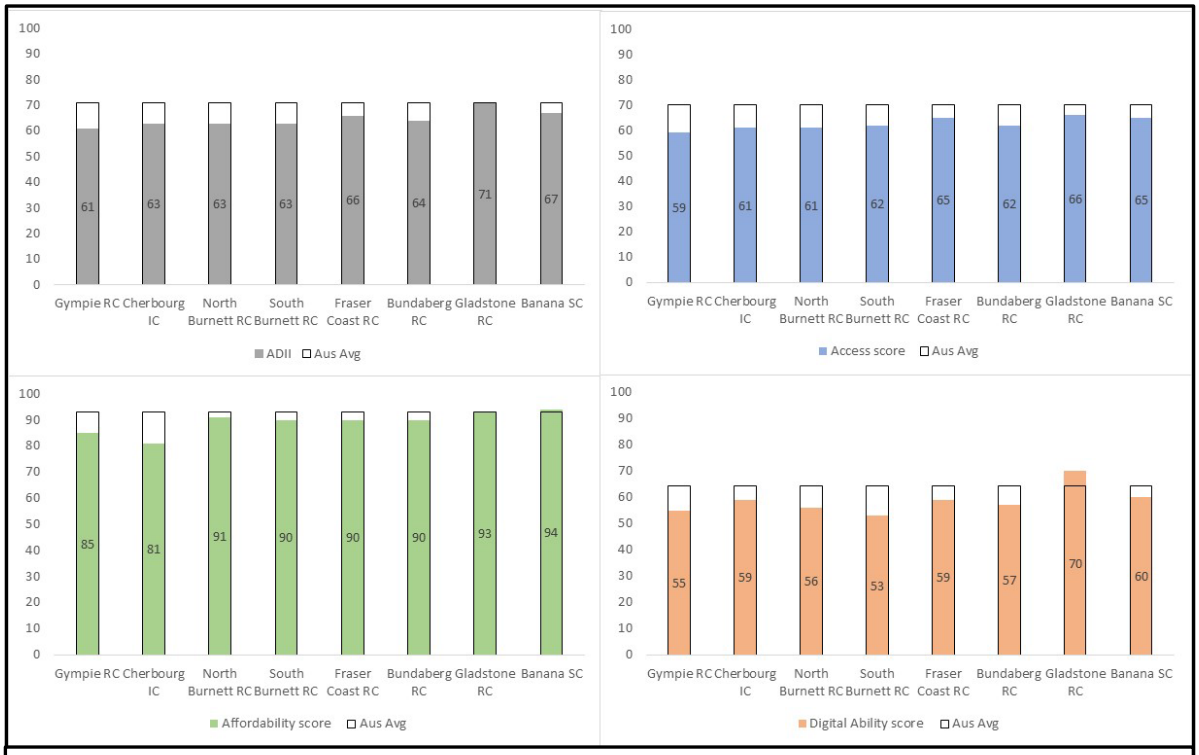
# 4. CURRENT STATUS OF THE DIGITAL LANDSCAPE

## 4.1 Digital connectivity in WBBBG

The Australian Digital Inclusion Index (ADII) uses survey data to measure digital inclusion across three dimensions of access, affordability and digital ability. A detailed measure of digital inclusion for Australia would allow us to identify critical barriers to inclusion, which may relate to accessing networks, costs of devices or data, or skills and literacies. The Index can help shape initiatives to increase digital inclusion in Australia. The Australian average of ADII shows an increasing trend towards digital inclusion but still there are some disadvantaged areas, particularly areas in regional Australia (Thomas et al., 2021; Afshar Ali et al., 2020). Marshall et al., (2020) also found that the digital ability of rural communities, especially of primary producers, is below the national average, and may adversely impact on implementing advanced digital technologies in the region.

As previously indicated, almost all the region's (with the exception of Gladstone) ADII is currently below the national average as well as the Queensland average (Figure 2).

Particularly, the digital access score is below the national average for the whole region, validating the importance of developing digital infrastructure.




Australia (QLD) averages: ADII score = 71.1(70), Access score = 70(69), Affordability score = 93.1(93), Digital ability score = 64.4(64)

*Figure 2: Australian Digital Inclusion Index (ADII) and its three main dimensions*
Source: ADII, Available at https://www.digitalinclusionindex.org.au/

Additionally, internet access from dwellings was examined to understand regional differences and disadvantages. Internet access from dwellings is highly varied between areas as well as within the region (Figure 3), and below Queensland's average. Aboriginal and Torres Strait Islander Councils (i.e., Cherbourg) and far remote councils (i.e., North and South Burnett) are at a higher disadvantage with a lack of digital infrastructure identified as a barrier to digital connectivity development.

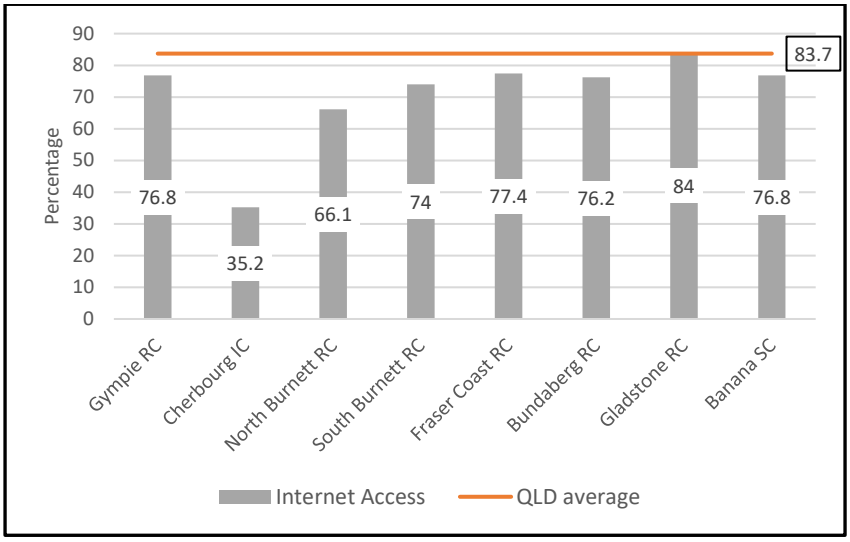



*Figure 3: Internet access by dwelling*
Source: Census data 2016, ABS.

## 4.2. Importance, current use, and potential use of digital technologies

Digital technologies provide the basis for innovation in almost all other sectors such as education (Department of Education, 2021), agriculture (Rotz et al., 2019), or health (Campbell et al., 2020; Beaunoyer et al., 2020). One issue examined through the stakeholder survey (mentioned earlier) is the importance of digital services for different sectors in the region. Survey respondents identified that digital connectivity was important for communication within and between businesses, accessing government and healthcare services, and online teaching and learning (Figure 4).

However, access to social media and private communication was less of a priority, perhaps due to the targeted cohort of survey participants. Workshop participants, in their survey result discussions, also highlighted the biasness of the survey cohort, which may have an impact on the results. Different from the present study, however, the importance of digital access to social networking sites to developing social connectivity has been mentioned in several studies, such as the study on social media in Queensland by Tiwari et al. (2019).

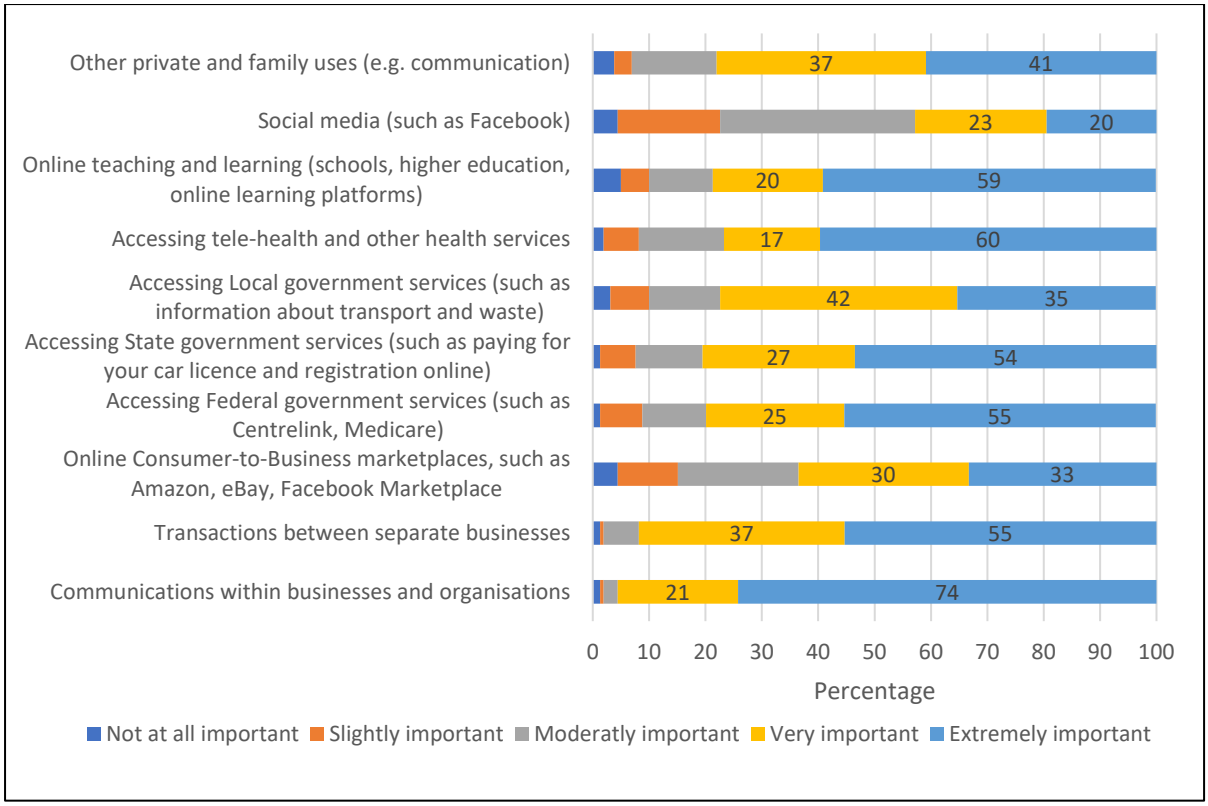



*Figure 4: Importance of digital connectivity for different services*

Survey respondents also shared their observation about the current uses of internet for different purposes in the region (Figure 5). Results showed that businesses, education and accessing services are the main uses of digital technologies in the region.

Moreover, of the respondents, 37% believed that the internet is often used to access social media, such as Facebook. Additionally, the respondents were asked to identify priority areas that would benefit from better internet connection. Telehealth and online education were identified as the potential areas to grow with better digital connectivity (Figure 6).

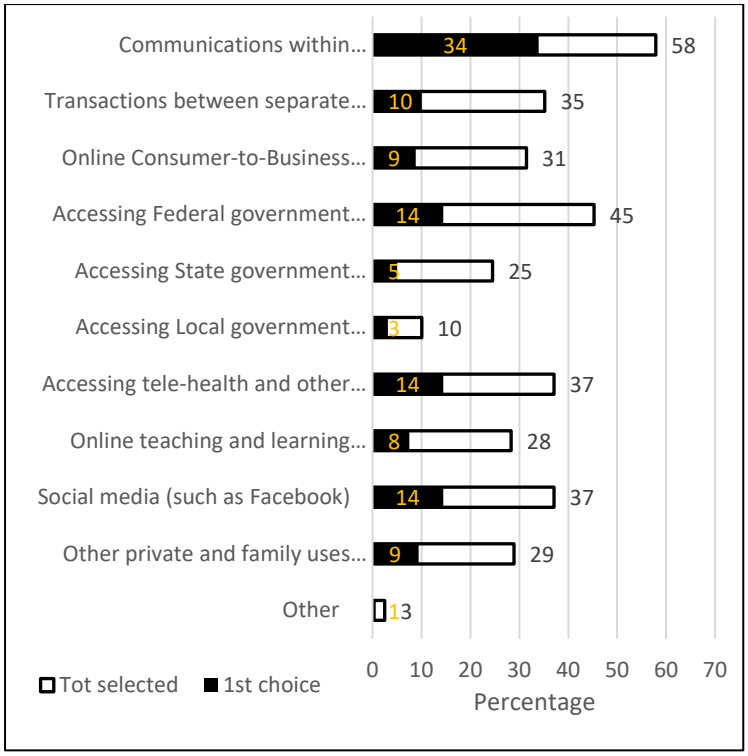



*Figure 5: Current uses of internet*
Note: Respondents were asked to select 3 most important categories and rank them. The graph indicates respondents' selection as well as their first choice.

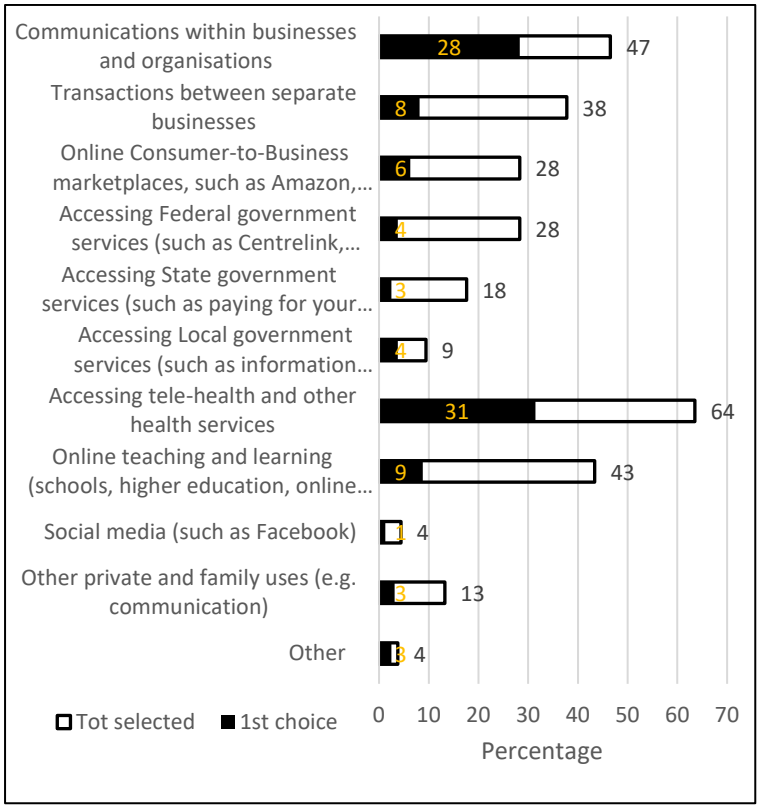



*Figure 6: Potential sectors of benefited with improved digital connectivity*
Note: Respondents were asked to select 3 most important categories and rank them. The graph indicates respondents' selection as well as their first choice.

# 5. DIGITAL NEEDS AND CHALLENGES

Regional stakeholders as well as communities' perceptions are important to identify regional needs and priorities in development projects. The stakeholder survey was also used to identify digital infrastructure gaps, needs and challenges.

## 5.1. Digital infrastructure gaps

The level of digital services available across the region differs significantly. Most of the areas in the region were equipped with different combinations of digital accessible services.

Of the respondents, 43% reported that the fixed wireless was dominated in the region followed by fibre connections (36%). Satellite was also observed to be a way of providing service to the region. However, 3% of the respondents reported that some areas in the region had no services available (Appendix A).

The majority of respondents agreed that services across the region were not sufficient and required upgrade (Figure 7).

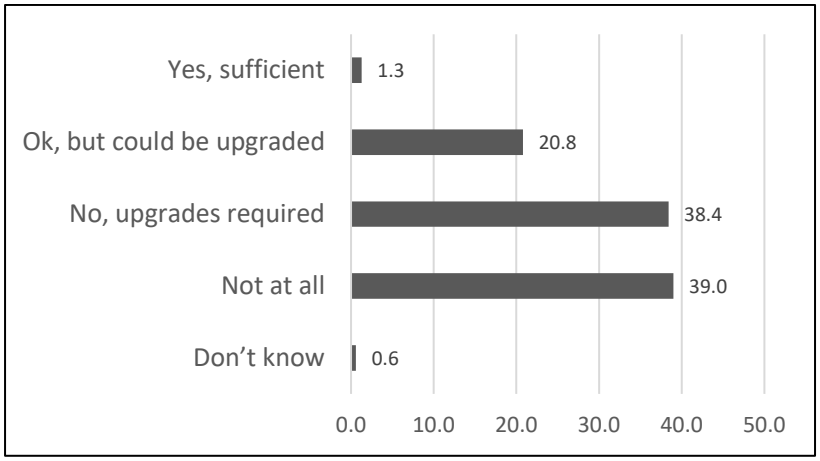



*Figure 7: Needs of digital infrastructure improvement in WBBBG*

It was suggested that all geographical areas, including the rural and remote ones, as well as small businesses and households needed to improve their digital connectivity. Most survey respondents were, however, concerned about improving the digital connectivity for rural and remote areas. A detailed analysis of survey responses indicated that high speed fibre for business premisses, rural fibre and fixed wireless, remote fixed wireless, and residential fibre connections were identified as priority needs for improving digital connectivity (Figure 8).

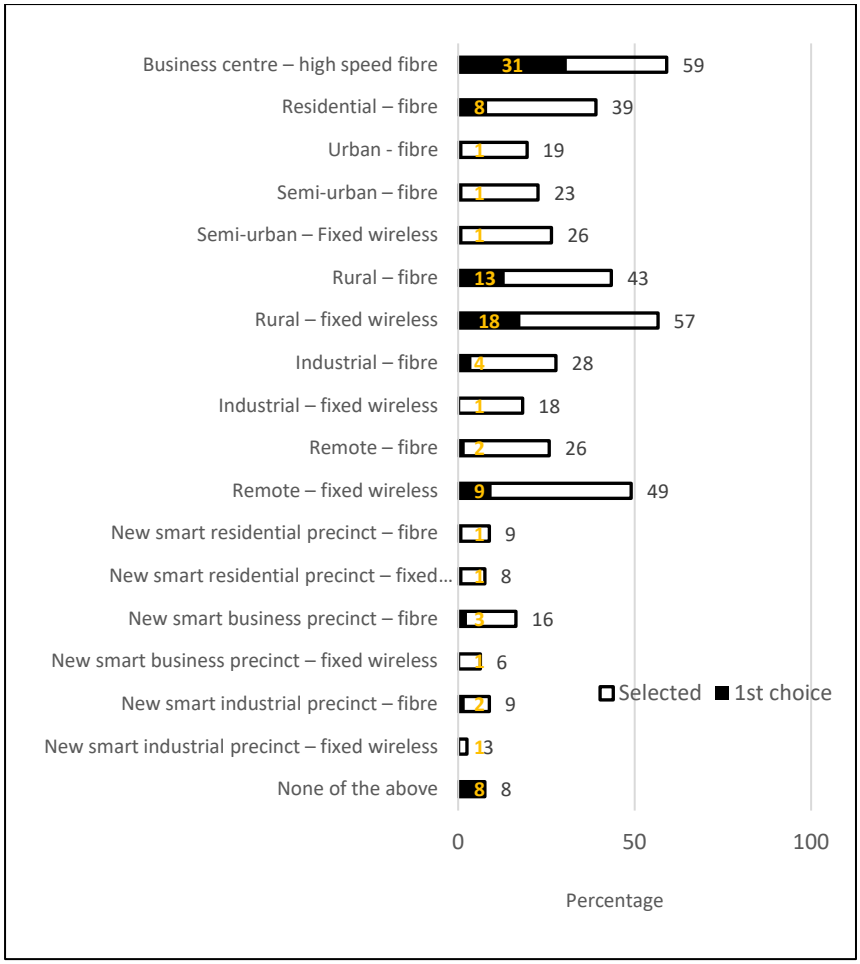



*Figure 8: Priority needs for digital connectivity improvement*
Note: Respondents were asked to identify 5 most important categories and rank them. The figure depicts the first choice as well as selected categories

## 5.2. Digital services and service quality in WBBBG

More than half of the respondents (54%) were not satisfied with the available internet services across the region (Figure 9). Only 3.1% respondents stated that they were extremely satisfied with the internet service, and this is possibly associated with fibre access areas.

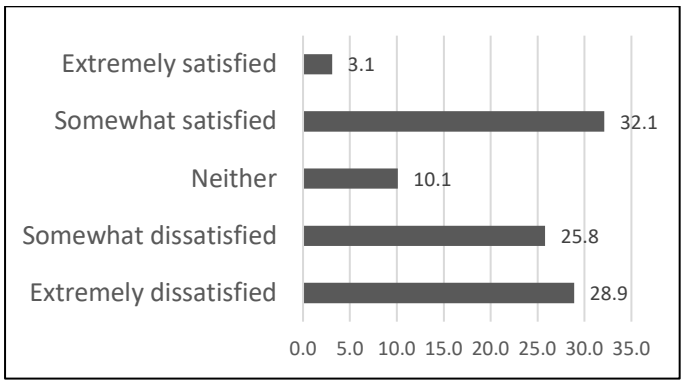



*Figure 9: Satisfaction about the digital services available in WBBBG*

Similarly, 57% reported that the availability of technical peripheral services was below average or very poor, whereas only 10% agreed that technical services are very good or good. This could be based on the respondents' personal experiences and their awareness (Appendix B). Lack of technical expertise was also identified as a constraint to developing digital connectivity in the region (Appendix C). Many respondents also believed that the available digital services in the WBBBG regions were not affordable (Figure 10).

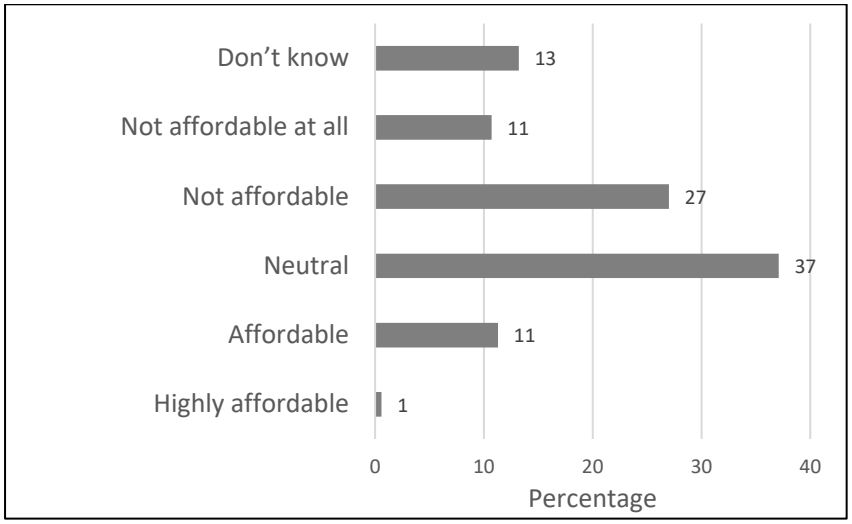



*Figure 10: Affordability of technical services*

## 5.3. Technology adoption and leadership

Regarding the region's technology adoption, only 29% of the respondents agreed that the region adopted new technologies quickly (or very quickly) whereas 46% stated that this adoption was slow (Figure 11).

However, it seems that the respondents trusted the region's leadership capacity, as many believed that the region had a necessary level of leadership for digital connectivity (Figure 12). This can be seen a positive aspect for the region's digital infrastructure development. Importantly, almost all respondents agreed that the region needed to give priority to developing digital infrastructure in comparison to other regions.

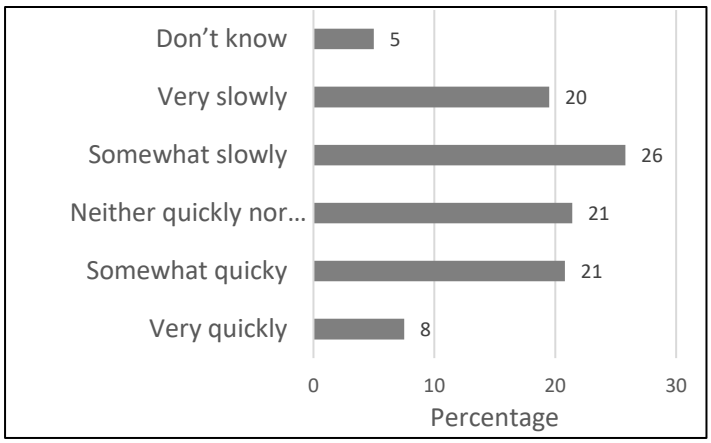



*Figure 11: Digital technology adoption in the region*

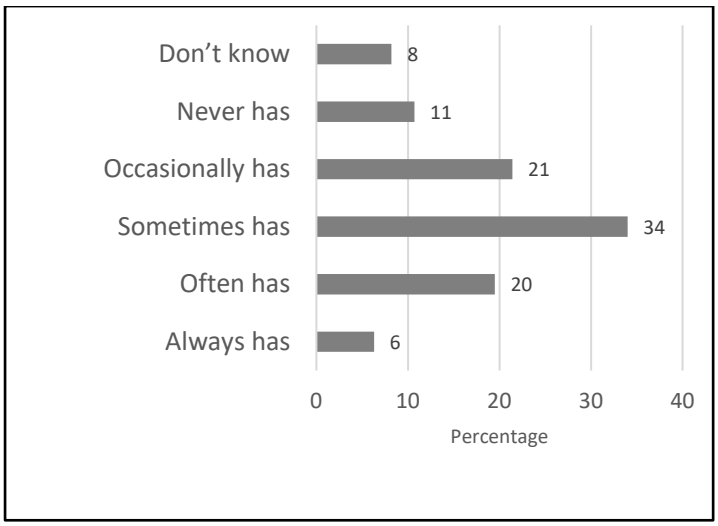



*Figure 12: Regional leadership*

## 5.4. Key issues and challenges

In addition to the needs and challenges identified from survey results, findings from the two workshop discussions suggest several issues and challenges related to digital connectivity in the region, that need to be carefully considered.

The key issues and challenges mentioned by the workshop participants, which reflect three fundamental dimensions of digital inclusion proposed by the ADII (2022), including access, affordability, and digital ability, can be briefly described as follows:

### Access

- Digital connectivity is still poor or limited in many areas because of poor internet connection & coverage, various speeds, regular dropouts, and black spots.
- Retrofitting of older estates with modern/latest fibre technologies during the upgrades and application remains a challenge for the industry.
- Access to local and responsive technological/technical services is limited.
- Infrastructure issues have been impacting on the deliverability of digital services such as telehealth and education.
- There has been an increase of online services, such as government-led services, that leads to an increasing need for digital connectivity. This may place more pressure on people with limited digital access.
- Affordability and equity of access to connectivity and hardware is an issue that leads to digital discrimination where vulnerable, elderly or digitally illiterate people may be excluded from accessing services or pay more for goods and services.
- The growth of the region's population and expansion of industries places pressure on infrastructure and services.

- There are currently issues related to unequal distribution of internet carriers and network facilities.

## Affordability

- Infrastructure, connectivity and input costs are still high (especially for small and medium sized businesses). All business fibre zones offer metro internet speed with metro prices.

- Digital connectivity affordability among residents, communities, and businesses, in general, is low in social-economically disadvantaged areas.

- Low affordability of technological hardware, internet services and equipment is a contributor to people's digital uptake and may result in digital exclusion.

## Digital Ability

- WBBBG regions have an older population, which may explain why the region has lower digital literacy and slower technology uptake.

- Low digital literacy is however common among younger people, as many of them cannot navigate online applications and basic digital functions due to accessibility and affordability issues.

- The economic and social costs associated with low digital literacy needs consideration with many social services (e.g., banking, training or government services) are scaling back face to face services and are uplifting online services which is problematic for people with limited digital access or literacy and may result in digital exclusion in certain demographics

- Digital literacy among some small businesses, or in socio-economic disadvantaged groups/areas, is lower than the state's average.

- Due to low digital literacy, especially in poor and lowly-educated areas, digital upgrades may not bring direct and immediate benefits, as they may be underutilised.

- More education and training is required for people struggling with technologies and digital services that enable people to embed knowledge and use of digital technologies.

- There have been behavioural changes/shifts in utilising digital services (e.g., use of online market and services in socio-economic disadvantaged areas).

- There is a lack of leadership for digital connectivity from industries, manufacturing, businesses and other fields, and who will be in the position to lead digital connectivity projects is still in question.

## Access, Affordability, Digital Ability

- There is still a lack of future planning that embeds technological adoption, integrated infrastructure designs, investment in infrastructure upgrades, and digital education.

- Resilient and reliable digital services and disaster management plans for digital connectivity are still limited.

- Information sharing among businesses in terms of digital connectivity is still not common.

# 6. PROPOSED ACTION PLAN

The suggested action plan for the WBBBG regions was designed to address three combined fundamental dimensions of digital inclusion, including: access, affordability, and digital ability.

Access is related to attaining connections and devices, affordability means the ability to sustainably afford devices and connections, and digital ability refers to having the appropriate skills and knowledge to put devices and connections to good use (Marshall et al., 2021).

## 6.1 Proposed actions

Recommendations for the WBBBG regions in relation to **access**, **affordability** and (digital) **ability** including two groups of actions are presented in Tables 2 and 3.

Table 2: *Ongoing actions to improve digital connectivity in the WBBBG regions* are associated with four strategic areas, including: infrastructure upgrade; investment; digital knowledge; and collaboration.

Table 3: *Further actions to improve digital connectivity in the WBBBG regions* are associated with infrastructure upgrade; planning; digital cost; digital knowledge; collaboration; and governance & leadership.

There is also a suggested priority level for the actions, include:

- Already prioritised (ongoing)
- Immediate priority (needs to be taken in the next 2 years)
- Medium priority (needs to be taken in the next 5 years)
- Future priority (needs to be taken in the next 10 years or more).

It is important to note most of the recommended actions below relate to all of the WBBBG regions, as they draw on stakeholders' perspectives from across the regions. It was observed that digital connectivity is, geographically, a regional issue rather than a local issue (perhaps except for Indigenous/Aboriginal Shire Councils). In the two tables below, we also provide suggestions on which action should be associated with which types of geographical area(s), including:

- Whole WBBBG
- Coastal WBBBG
- Inland WBBBG; and
- Specific LGAs in WBBBG.

**Table 2**: Ongoing actions to improve digital connectivity in the WBBBG region

| Digital inclusion dimension | Strategic area | Action | Priority level | Targeted area | | | |
|---|---|---|---|---|---|---|---|
| | | | | Whole WBBBG | Coastal WBBBG | Inland WBBBG | Specific LGA in WBBBG |
| **Access** | **1. Speeding up fibre infrastructure and technology upgrades in the region.** | 1a. Encouraging early adoption of new technologies through policy, financial or personnel support (e.g., by governments of different levels).<br><br>Note: Fibre technology upgrades currently underway through a variety of technologies across the region by the nbn. The nbn and the Commonwealth Government have committed $750m to upgrade fixed wireless towers across the country by the end of 2025 which will provide improved services to customers. More than $1b is also being spent to upgrade fixed line services over the next two years (Source: nbn Local).<br><br>1b. Providing manufacturing and technical support for infrastructure upgrades (e.g., by businesses and industries).<br><br>Note: The fixed line upgrades by the nbn (mentioned above) will help improve the quality of digital technologies and infrastructure, that will further enhance services for end users and businesses across remote, rural and regional areas (Source: nbn Local). | *Already prioritised*<br><br>*Already prioritised* | √<br><br>√ | √ | √ | |
| **Access** | **2. Building investments regarding digital distribution.** | 2a. Considering investments for different targeted areas in terms of manufacture, technology, or infrastructure (e.g., by LGA planning departments).<br><br>Note: The WBBBG region already has established Business Fibre Zones in Gympie, Hervey Bay, Maryborough, Bundaberg and Gladstone. nbn Local is also working to expand new | *Already prioritised* | | √ | √ | Gympie, Hervey Bay, Maryborough, Bundaberg, Gladstone |

| | | | | | | | |
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| | | business fibre zones in the areas of demand (Source: nbn Local). | | | | | |
| **Ability** | **3. Improving digital knowledge and enhancing community engagement in terms of digital connectivity** | 3a. Organising active digital attraction campaigns to enhance digital awareness in the community.<br><br>Note: nbn Local's Community Ambassadors group, through partnerships with Local Government, organisations, and communities, has provided a variety of activities such as drop-in sessions, presentations, events, and digital literacy programs (no cost) to help enhance the community's digital awareness and knowledge (Source: nbn Local).<br><br>3b. Providing place-based programmes appropriate for each of communities and engaging community members themselves in digital education and campaigns.<br><br>Note: Many nbn Local's digital literacy programs (mentioned above) are place-based, which help enhance the community's digital awareness and knowledge, and contribute to enhancing community engagement, to a certain extent. | *Already prioritised*<br><br>*Already prioritised* | √<br><br>√ | | | |
| **Access, affordability, ability** | **4. Developing collaboration for improved digital connectivity** | 4a. Developing effective collaboration and coordination across governments, businesses, industries and communities for different digital connectivity purposes, such as: utilisation of internet access, improved digital literacy, affordability and access, funding application, or research and development (e.g., doing regional case studies).<br><br>Note: nbn Local is working with stakeholders, researchers and all levels of governments to understand current digital gaps and opportunities in the region, prioritise upgrade areas, improve digital literacy and access, and assist grant development to apply for funding from different sources. | *Already prioritised* | √ | | | |

**Table 3**: Proposed actions to improve digital connectivity in the WBBBG region

| Digital inclusion dimension | Strategic area | Action | Priority level | Targeted area | | | |
|---|---|---|---|---|---|---|---|
| | | | | Whole WBBBG | Coastal WBBBG | Inland WBBBG | Specific LGA in WBBBG |
| **Access** | **1. Continuing speeding up demand-based and strategic fibre infrastructure and technology upgrades in the region** | 1a. Identifying targeted and priority (geographical and technical) areas that need to be: (1) invested, (2) adopted, (3) upgraded, or (4) newly developed, through a detailed feasibility study including household and business demand analyses and digital provider consultations. Managing to meet customer expectations of digital services (in terms of reliability, accessibility, hardware, set up etc). | *Immediate priority and being actioned in the region through NBN Local* | | √ | √ | |
| | | 1b. Identifying types of digital technologies that are needed in each geographical area; and offering greater choice and flexibility to purchase services in alignment with business needs. High speed fibre for business premisses, rural fibre and fixed wireless, remote fixed wireless, and residential fibre connections may be among priority needs for improving digital connectivity. | *Immediate priority and being actioned in the region through NBN Local* | | √ | √ | |
| | | 1c. Maintaining substandard and reliable digital infrastructure across the region, and importantly, prioritising key infrastructure for essential services such as health networks, hospitals, education facilities, industrial zones, and network access for working from home. | *Immediate priority and being actioned in the region through NBN Local* | √ | | | |
| | | 1d. Providing more wide-area networks, as well as more wifi connection and mobile connectivity options at public/university/library spaces. | *Immediate priority* | √ | | | Gympie |
| | | 1e. Reducing pressure on digital infrastructure, as well as optimising and providing access to shared infrastructure | | √ | | | Fraser Coast, Gympie |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | among different providers and areas through strategic digital planning, design, and collaboration. | *Immediate to medium priority* | | | | |
| **Access** | **2. Building more strategic plans regarding digital infrastructure, precinct, and distribution.** | 2a. Having conditional development strategies for different targeted areas and clear planning of future digital projects or precincts through governments – industries collaboration.<br><br>2b. Providing relevant grants, subsidies and incentives for encouraging and investing in digital connectivity, especially for low social-economic groups and small businesses (e.g., by governments of different levels).<br><br>2c. Ensuring an equitable distribution across the region in terms of infrastructure and cost, through surveys, demand analyses, digital provider consultations and planning. | *Immediate to medium priority*<br><br>*Immediate to medium priority*<br><br>*Immediate to medium priority* | √<br><br>√<br><br>√ | <br><br>√ | | |
| **Affordability** | **3. Enhancing digital and service equity across the region by ensuring reasonable costs and user charges.** | 3a. Managing to meet customer expectations of affordability by maintaining reasonable costs for students, socio-economic disadvantaged groups, small and medium-sized enterprises and industrial zones.<br><br>3b. Considering different strategies for co-sharing infrastructure, services, and digital training costs. | *Immediate to medium priority*<br><br>*Immediate to medium priority* | √<br><br>√ | | | |
| **Ability** | **4. Reducing digital discrimination and improving digital skills and knowledge among stakeholders involved in** | 4a. Providing consistent & integrated education and training programmes for improving digital literacy, and for enhancing skills and knowledge about digital security and data value (e.g., by state governments and/or industry peak bodies).<br><br>4b. Ensuring the adoption of digital training services appropriate for governments, industries, stakeholders, communities, local small and medium-sized local small and | *Immediate to medium priority*<br><br>*Immediate to medium priority* | √<br><br>√ | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | **digital connectivity projects and people in the community.** | medium-sized enterprises, commercial organisations, and schools.<br><br>4c. Providing more place-based programmes appropriate for each of communities and better engaging community members themselves in digital education and campaigns. | <br><br>*Immediate to medium priority* | | √ | √ | Cherbourg |
| **Access, affordability, ability** | **5. Developing more effective collaboration for improved digital connectivity.** | 5a. Facilitating and developing different forms of digital connectivity collaboration, where people are brought together to shape a clear vision with agreed actions and solutions, such as: regional digital advocacy groups, regional manager coordination networks, broad system links among governments, LGA partnerships with industries, industry-to-industry or business-to-business, chamber of commerce networks, from-trade-to-innovative services and connection forums, or connectivity reference groups across the region.<br><br>5b. Providing effective platforms/mechanisms for infrastructure sharing, as well as information/data sharing and optimising.<br><br>5c. Preparing collaborative funding applications, where different governments/parties in the region are placed on the same page. | *Immediate to medium priority*<br><br>*Immediate to medium priority*<br><br>*Immediate to medium priority* | √<br><br>√<br><br>√ | | | |
| **Access, affordability, ability** | **6. Building effective governance and leadership.** | 6a. Building improved infrastructure planning for new digital developments and upgrades to maximise efficiency, reduce cost, and future-proof the region's digital assets/infrastructure and capacity. In the region's new projects, for instance, digital infrastructure needs to be factored into the planning phases.<br><br>6b. Developing a governance model in which those who will monitor the action plan are made clear (e.g., by local governments and regional digital connectivity groups). | *Medium to future priority*<br><br>*Immediate to medium priority* | √<br><br>√ | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | 6c. Investigating effective mechanisms to collate funding for digital connectivity in the region (e.g., funding leverage between agencies and university partners).<br><br>6d. Improving network resilience through strategic digital planning, design, governance, and collaboration (e.g., all government levels and industries).<br><br>6e. Having clear and effective social planning in relation to increasing population, industrial growth, digitally skilled workforce, employment (e.g., creating high-paid jobs), that can be a factor for fostering digital development in the region.<br><br>6f. Enhancing coordinated leadership and advocacy for governments, education departments and industry leaders, and those who are involved in different stages of the region's digital connectivity development, such as: designing government – industry education curriculums, or managing digital issues through evidence-based actions and enabling solution-focused transformation. | *Medium priority*<br><br>*Medium to future priority*<br><br>*Medium to future priority*<br><br>*Medium to future priority* | √<br><br>√<br><br>√<br><br>√ | | | |

## 6.2. Funding opportunities to support the action plan

The action plan for improving digital connectivity in the WBBBG region can be implemented with support from different funding sources. The survey respondents suggested that reallocation of Australian Federal government funding was the best way to improve regional digital infrastructure, followed by the State government spending (Figure 13). The survey findings were validated in the workshop discussions, in which workshop participants agreed that the Australian government should play the major role in financially supporting regional digital connectivity projects.

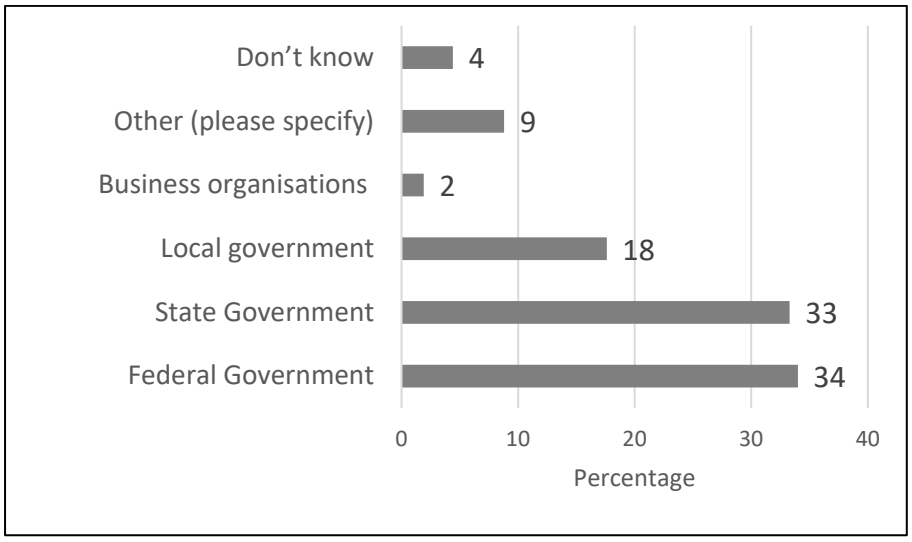


*Figure 13: Potential funding sources for developing digital infrastructure*
Note: 1-4 represent most preferred to least preferred

The workshop participants pointed out possibilities to access Australian Government funding allocations for regional development. Most LGA participants agreed, the proposal should be developed considering all areas in the region or a group of LGAs rather than being confined to a single LGA boundary.

Some funding sources and resource support (mainly from Australian and Queensland governments) which the WBBBG region can consider include:

- The Regional Connectivity Program (Department of Infrastructure, Transport, Regional Development and Communities) https://www.infrastructure.gov.au/media-communications-arts/internet/regional-connectivity-program

- The Strengthening Telecommunications Against Natural Disasters (Australian Government), https://business.gov.au/grants-and-programs/strengthening-telecommunications-against-natural-disasters

- The GoDigitalQld strategy (Queensland Government), https://www.chde.qld.gov.au/services/digital

- The Building our Regions project (Queensland State Development, Infrastructure, Local Government and Planning) https://www.statedevelopment.qld.gov.au/regions/economic-development/building-our-regions

- The Queensland Disaster Resilience Fund (Queensland Reconstruction Authority), https://www.qra.qld.gov.au/qdrf

- The Queensland Business Portal (Business Queensland), https://www.business.qld.gov.au/running-business/digital-business

It is, however, important to note that as some of these sources and resource support are initiatives of previous government, with regional funding programs currently under review and/or in progress.

# 7. CONCLUSION AND WAY FORWARD

The present study has examined the digital landscape where current and future digital demands in the WBBBG regions may lie, identified opportunities in digital connectivity and, sought agreement on recommendations to address the gaps in the region. Drawing on stakeholder survey results and stakeholder workshop findings, it has also presented a suggested digital study which different stakeholders in the WBBBG regions can utilise to advocate for future government and non-government grants to fund the upgrade or transformation of digital infrastructure.

Findings suggest that the levels of digital connectivity in urban and rural areas within the WBBBG regions are currently quite mixed. They would benefit from a clearly articulated vision and strategy to enhance its digital connectivity and capability, enabling government to identify how best to prioritise investment into the region.

Without the necessary improvements in digital infrastructure and connectivity, the region may not be able to maximise growth opportunities (Marshall et al., 2021). Therefore, this report suggests 10 strategies associated with 28 actions of different priority levels, which the region may consider in developing its own digital connectivity plan (see Tables 2 and 3).

Local governments, and government agencies should work in partnership to implement the action plan (Tables 2 and 3) within the WBBBG region, leveraging public and private support with implementation of immediate priority actions as soon as possible. Local, State, and Australian government agencies should work in partnership with the digital industry to improve digital infrastructure in the WBBBG region. Particularly, Australian and Queensland governments should support local governments and industry to develop both soft and hard digital infrastructure through different research and development grant programs. In order to effectively put the digital action plan into practice, interested stakeholders should also build a detailed implementation plan where the suggested actions are reviewed and adapted to suit different regional contexts and purposes. In addition, a unified commitment from all levels of government, communities and industry is important to deliver the best connectivity and infrastructure solutions for the future of the WBBBB regions.

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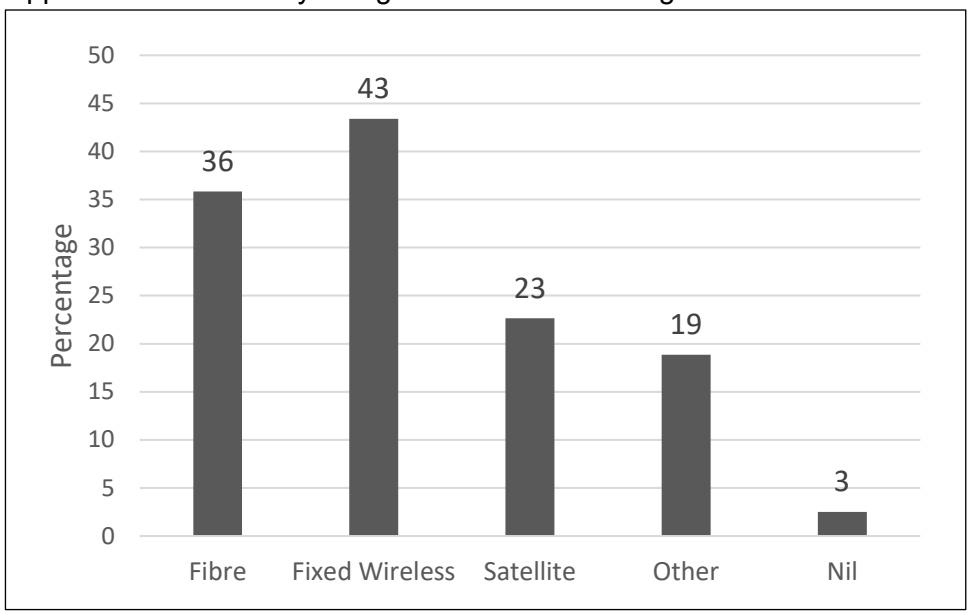
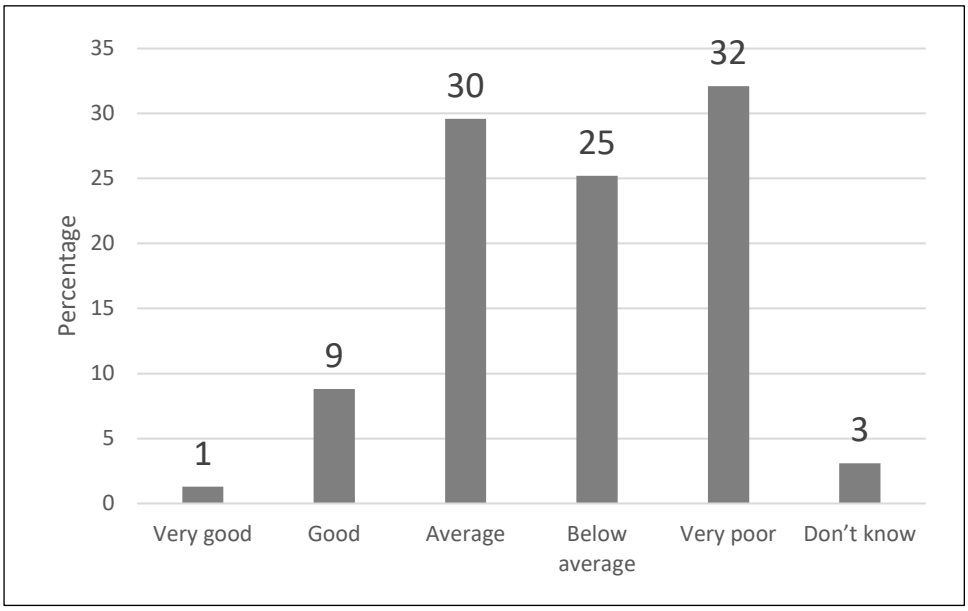
# APPENDICES

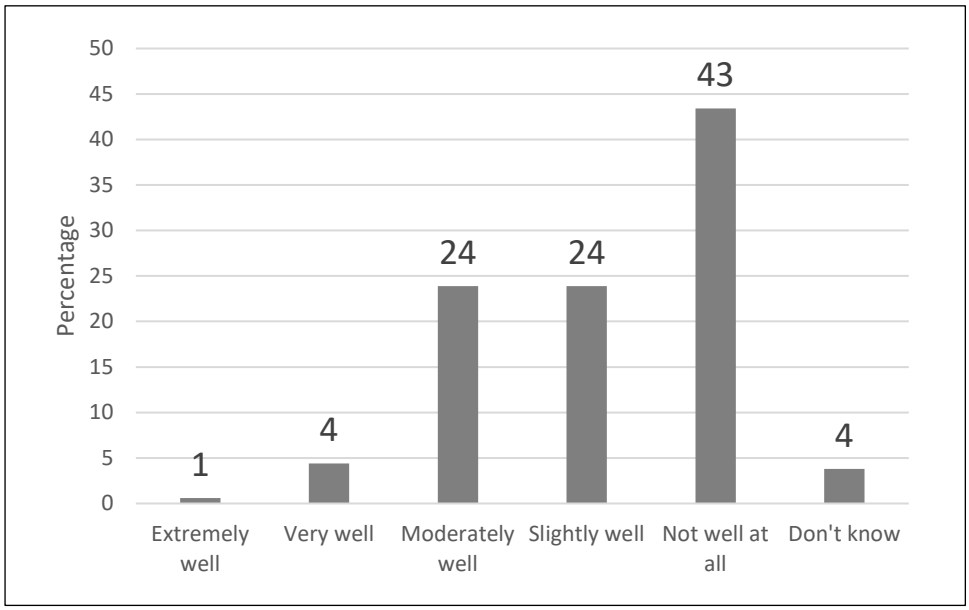
Appendix A: Availability of digital services in the region




Appendix B: Availability of technical services within the region



Appendix C: Quality of technical services in the region




Appendix D: List of participating organisations in the Workshops 1 & 2

- *Group A: Australian Government*
  - Regional Development Australia Wide Bay Burnett
  - National Indigenous Australian Agency

- *Group B: Queensland Government*
  - Department of Regional Development, Manufacturing and Water
  - Department of Recreation, Sprots and Arts
  - Department of State Development, Infrastructure, Local Government and Planning
  - Department of Communities, Housing and Digital Economy
  - Department of Employment, Small Business and Training
  - Department of the Premier and Cabinet
  - Aboriginal and Torres Strait Islander Partnerships, Department of Seniors, Disability Services and Aboriginal and Torres Strait Islander Partnerships

- *Group C: Local Government*
  - Bundaberg Regional Council
  - Banana Shire Council
  - Cherbourg Aboriginal Council
  - Gympie Regional Council
  - Fraser Coast Regional Council
  - South Burnett Regional Council

- *Group D: Education, Industry & Community Organisation*
  - CQUniversity Australia
  - NBN Local
  - Burnett Inland Economic Development Organisation