Submission to Regional Telecommunications Independent Review 2021

Queensland Department of Communities, Housing and Digital Economy

Introduction

We welcome the opportunity to make this submission to the Regional Telecommunications Review Independent Committee on behalf of the Queensland Department of Communities, Housing and Digital Economy (DCHDE).

As the Department responsible for managing a number of programs, such as Mobile Black Spots Program, Strengthening Telecommunications Against Natural Disasters, and Regional Connectivity Program, DCHDE has a good understanding of the needs of regional Queensland and how government programs can assist in improving services.

Answers have been provided below to all of the relevant questions, with some general comments at the end of the document.

Mobile, Broadband and Fixed Voice

Questions

1. What telecommunications services are required in regional Australia to meet current and future needs? Are there any things regional communities and businesses need to do, but can't, on their existing services?

   a. Metro equivalence in performance, reliability and pricing should be the starting point for regional communities, noting that in remote locations full metro equivalence may not be possible.

   b. The current practice of providing 'thin' services to regional areas is no longer acceptable (e.g. single backhaul with no redundancy, limited backhaul capacity, lower NBN speeds, limited power arrangements).

   c. Businesses and residents cannot operate and live in regional communities without broadband capable of good quality video conferencing, and mobile coverage to allow messaging, calling and mobile broadband. Now that digital is such a critical part of our lives, especially post COVID, the digital divide is no longer acceptable. The most important attribute is metro-equivalence (or as close as possible).

   d. Currently, in many cases, video conferencing is difficult or impossible, downloads are very slow and sometimes impossible, streaming is difficult or impossible, and remote learning, telehealth services (including mental health) do not work because they require symmetrical services.

   e. This also applies to the use of Telehealth and planned growth in Virtual health services that require good connectivity at the health facility and at the consumer's home.

   f. The statistic that 99.5 per cent of Australia's population has mobile coverage does not apply when people are moving around due to emergency situations, so the effective coverage during a disaster can be much lower.

   g. Remote communities need multicarrier resilience (NBN minimum capability and an additional carrier to enable continuity and service diversity).

2. What changes in demand, barriers or challenges need to be addressed when it comes to telecommunications services in regional, rural and remote Australia?

   a. Relatively small populations

   b. Relatively long distances

   c. High degree of exposure to natural disasters

   d. Lack of infrastructure competition (for example, Queensland Health recently had an example on Mornington Island where an outage to a single backhaul service caused an outage to multiple sites across several days)

   e. Lack of competition at the service level i.e. services only provided by the infrastructure provider

   f. Limited local resources to support digital technologies and services

   g. Increased demand due to COVID and general movement of people to regional areas

h. Telecommunications backhaul services are usually a single link or service and are susceptible to regular failure – consideration for multipath, carrier diverse backhaul solutions is required.

3. How have the Government's policies and programs affected telecommunications service outcomes in regional, rural and remote Australia? How can these be improved?

a. Government programs generally contribute to improvements in telecommunications in regional areas, where commercial carriers are less inclined to invest due to lower populations and revenue, coupled with higher costs.

b. Joint Federal-State programs have achieved some very good outcomes for regional areas, as have many State-funded projects, however jointly-funded programs are more equitable.

c. The Mobile Black Spots Program has provided good outcomes in Queensland.

d. Strengthening Telecommunications against Natural Disasters (STAND) is improving resilience. During natural disasters, the continued performance of telecommunications services is a life-and-death issue. Fixed services are important but mobile services are critical, and if fixed services start to fail the load on the mobile network increases accordingly. Mobiles are critical because they support emergency messaging, they can be used during the evacuation phase, and are used by emergency services. Fixed Wireless services at evacuation centres are providing benefits to the community. Mobile WiFi Services would also be beneficial as these can be deployed once the immediate threat has abated and may not be damaged by the disaster event.

e. Regional Connectivity Program is supporting network extensions and upgrades which are critical in supporting new access networks delivered by the NBN, mobile carriers, and new Wireless Internet Service Providers (WISPs).

f. While government programs have increased the amount of coverage provided by NBN fixed networks and mobile networks, the quality of coverage is often limited through:

i. Lower nbn speeds

ii. Lower data caps

iii. Lower mobile internet speeds

iv. More frequent drop-outs and call failures

v. Non metro-equivalent services

vi. Services are often consumer grade and not the robust enterprise grade needed to support healthcare applications.

Service Reliability

Questions

4. How do service reliability issues impact on regional communities and businesses? How do outages, including in natural disasters, impact on communities and businesses?

a. During natural disasters, the continued performance of telecommunications services is a life-and-death issue. Fixed services are important but mobile services are critical, and if fixed services start to fail the load on the mobile network increases accordingly.

b. Interruptions to healthcare facilities and services which are supported by telecommunication services (Telehealth, phone services and Clinical Systems) put health and safety of patients at risk - this includes the Ambulance services which are often collocated with the health facility.

c. Mobiles are critical because they support emergency messaging (eg Australian Warning System), can be used during the evacuation phase, and are used by emergency services

d. Disruption to services places increased cost on emergency services and other organisations because they need to provide alternative solutions to contact people.

e. Triple Zero voice calls do roam ("camp-on") to available networks, however Advance Mobile Location (AML) data (device location) does not handover with the 000 call – AML data must roam and accompany a 000 call irrespective of the carrier.

f. Blackspots affect the response times, coordination and notification of emergency service staff.

g. The increase in use of the telecommunications system by emergency service organisations places a high demand on rural and remote areas with limited connectivity and capacity.

5. How might such impacts be addressed to ensure greater reliability? How can the network resilience be addressed in regional areas?

a. There are a number of factors that currently impact on network resilience:

   i. Thinly engineered networks. Networks are sometimes engineered without the robustness of metro networks, due partly to higher costs and lower revenues.

   ii. Limited diversity. Many networks use a single backhaul feed – any equipment failure may disable all services in the region, which may be over half of the area of the State. For example, one carrier's mobile coverage in the north of the state has been lost completely due to the failure of the network in Central Queensland.

   iii. Power failures usually cause telecommunications failures after the backup power, if available, has been exhausted. This cause has been rightly recognised by the STAND (Mobile Hardening) program, however, power outages can last for days after a major event.

   iv. The design of the NBN (Multi Technology Mix) locates vulnerable active equipment in many at-risk locations which are difficult to protect from threats. Most of these sites rely on the local electrical power supply and are almost impossible to back-up.

   v. There is limited infrastructure competition and therefore limited diversity in routes, technologies and suppliers.

   vi. Limited resources (spares and people) to rectify faults quickly, despite considerable commitment by carriers.

vii. Few local engineering resources. Many carrier planning engineers and technicians have been moved to more centralised locations so local knowledge has been lost.

b. Effective regionalisation and growth in the digital economy in regions will drive improvements in telecommunications infrastructure through increases in demand.

COVID-19

Questions

6. How did the use of digital services change for regional consumers and businesses during the response to the COVID-19 pandemic? What insights for future service delivery does this provide?

a. COVID-19 increased the focus on remote learning, remote schooling, telehealth and virtually all other remote activities.

b. The use of Telehealth services increased significantly and up to 70 per cent of outpatient appointments were conducted this way. New models of care were also introduced with remote monitoring at home, mental health services and health education sessions delivered by Microsoft Teams to patients. In the near future more health services are expected to be delivered using virtual models of care to deliver healthcare services closer to or at home.

c. Services were required at home as well as in schools, hospitals and official premises.

d. In many ways the use of remote activities highlighted a national capability that was not widely recognised – the ability to keep functioning without widespread travel and movement.

e. However, the crisis also highlighted some shortcomings in national infrastructure and skills:

i. Limitations in telecommunications and digital infrastructure.

ii. Limitations in consumer access to suitable devices and services in some cases.

iii. Limitations in the skills required to use remote services in some cases.

f. Digital inclusion is not just a technology issue. A range of measures beyond connectivity need to be established to build broader community resilience and counteract the negative consequences of affordability.

g. The importance of digital infrastructure, services and skills should be recognised more widely as a *critical* issue, beyond its current status as arguably *important*.

h. The COVID-19 pandemic also exposed the vulnerability of the nation to cyber security attacks, due to our more complete reliance on telecommunications and digital technology for remote operation.

Indigenous Australia

Questions

7. What can be done to improve the access and affordability of telecommunications services in regional, rural and remote Indigenous communities?

    a. Culturally sensitive approaches need to be utilised as main stream solutions may not provide the improvements needed.

    b. The only solution to improving access and affordability of telecommunications services in indigenous communities is more investment in upgrading capacity and coverage.

    c. Consideration could be given to making telecommunications services free to the consumer if they are using their own devices – for example Telehealth services using consumer mobile internet connections or remote monitoring services.

    d. Mobile services in particular, are important due to the transient culture of some of the indigenous populations in these areas.

    e. Improving services in community allows people to stay in community and not have to leave to continue their education and access health care.

    f. Digital skills and digital inclusion also need to be addressed to make achieve the best outcomes from the investment in infrastructure.

    g. The resilience of services is critical in remote indigenous communities due to their typical remote locations in disaster-prone areas in Far North Queensland.

    h. Opportunities for skills transfer to local communities to install, maintain, and operate services should be maximised to prevent the heavy reliance on fly-in fly-out skills that leave the local community lacking in self-sufficiency and economic opportunities.

Regional Development

Questions

8. How can investment in telecommunications infrastructure work with other programs and policies to encourage economic development in regional Australia?

    a. Economic development and benefits do not flow automatically from infrastructure investment. Investment is also required in digital skills and digital inclusion for individuals, digital adoption for business, and digital transformation to maximise the use and leveraging effect of the infrastructure investment.

    b. Investing in digital skills and digital inclusion allows individuals and communities to participate more actively in the digital economy and maximise the personal economic and social benefits.

    c. Encouraging businesses to adopt digital technology improves their economic outcomes and adds to the local economy.

    d. Digital transformation improves the efficiency of interactions between parties who deal with governments and official agencies.

e. For example delivering healthcare services remotely reduces the need for individuals to travel large distances and take significant time away from work and family commitments, improving the economic wellbeing of the community.

f. More government support for decentralisation – made possible by digital investment – helps to grow regional economies by increasing incomes in regional areas, and by providing career paths for younger people, reducing the need to move to capital or coastal cities to find jobs.

9. What role could innovation, including new models, alternative investors or new ways of doing business, play to encourage investment in regional telecommunications infrastructure? What are the barriers?

a. Innovation in digital technology is starting to change the traditional model used to provide telecommunications and data processing in particular.

b. The trend towards edge processing data centres to support innovative use of Internet of Things (IoT) and smart community applications is starting to subtly change the architecture of networks and this may assist competition and reduce some costs.

c. New virtual models of care using Internet of Medical Things (IoMT) are expected to grow including remote monitoring of patients at home or in hospitals to provide real time information on the health of patients.

d. The current work by carriers on 5G mobile infrastructure sharing (Radio Access Network sharing and Neutral Host) will also help to drive competition and reduce costs.

Emerging Technologies

Questions

10. To what extent will new technologies enable significant change to the delivery of telecommunications services in regional Australia over the next 5-10 years? Are there any barriers to accessing these technologies?

a. The most significant changes are likely to be:

i. 5G

ii. Satellite – Low Earth Orbit (LEO) services

iii. Internet of Things (IoT) services.

b. New technologies such as LEOs are capable of providing much improved services in regional and remote Queensland, but need to be underpinned by national regulation. They also need to be placed within the context of a national plan for future communications and connectivity to ensure investment is not wasted. These new technologies provide a platform for the converging all digital

services. In the future there should be no need for a satellite TV service, satellite phone based service and a satellite internet service.

c. Next Generation Triple Zero (NG000) has commenced the initial stages of implementing ''messaging to 000' which will enable non-voice contact with 000 – will require support from mobile data and broadband services across Australia. This future service depends upon emerging technologies and is capable of supporting domestic and family violence victims, hearing impaired, non-sim calls, non-english speaking and those who are not wanting to talk to an emergency call taker.

11. How can Government better support the rapid rollout of and investment in new telecommunications solutions in regional areas?

a. Government programs should always encourage innovation and alternative technologies, within the scope of providing standardised services that are generally available to users.

b. A focus on local suppliers is arguably more likely to drive innovative responses, because local companies have a greater awareness of the needs of the community, especially in Aboriginal and Torres Strait Island communities.

c. In the case of Telecommunicaitions Act (000) ensure that future legislation is agile enough to adapt to emerging and changing technologies eg non-voice means of contacting 000, non-sim card devices etc.

Maximising Outcomes

Questions

12. How can different levels of Government, the telecommunications industry and regional communities better co-ordinate their efforts to improve telecommunications in regional Australia?

a. Improvements are required in mapping infrastructure. Existing mapping of carrier mobile coverage is inadequate and misleading, showing coverage where there is often little or no ability to use a mobile service. The availability of a low level radio signal is often taken as an indication of the service being available and this is sometimes not the case. Areas that do not provide a *usable service* should not be shown within the coverage area.

b. Similarly the recording of black spots is not well mapped and needs to be revisited.

c. The combination of a. and b. means that investment decisions are occurring without adequate information.

d. Increased emphasis needs to be placed on using the Australian Infrastructure Plan to provide guidance and direction for where services need to be improved and investments need to be made.

13. What changes to Government investment programs are required to ensure they continue to be effective in delivering improved telecommunications?

a. The current focus on *coverage* for fixed and mobile services should be replaced with a *service availability* metric, that indicates the usefulness of the service (i.e. what is the data throughput, what is the reliability, what is the survivability in a natural disaster, is it good value to the user). Such a metric would take some time to implement, however it would drive much more efficient investment decisions.

b. Commercial carriers should bear more of the burden for improving service levels. In areas of sparse population there is a good argument for government intervention, however in populous areas the carriers should deliver their services equitably to all residents and businesses.

Education

Questions

14. How can regional consumers be better supported to identify, choose and use the best connectivity options for their circumstances, as well as to understand and use their consumer rights?

a. Pressure should be applied to carriers to improve the accuracy of information provided to consumers and simplify the product offerings to foster understanding.

b. Service offerings need to be culturally aware and not contain consumer traps in the fine print.

c. Telecommunications is one of the few products where performance is only *estimated* and there is sometimes no redress for inadequate performance.

d. Unlike fixed line services, satellite and fixed wireless services are not subjected to the same scrutiny or oversight by ACMA.

Public Information

Questions

15. To what extent is public information on connectivity options, including predictive coverage data and speeds, sufficient to help regional customers make informed decisions? What other information is needed?

a. The information available currently is incomplete, misleading and of little use to consumers and businesses. Often the only way to test the service it order and pay for it and seek compensation (where possible) if it is not adequate.

b. There are high population areas in major regional cities where services are shown as available but are virtually non-existent. Some of these locations are also used by significant numbers of tourists.

General Comments and Feedback on Programs

NBN Satellite

The more remote areas of Queensland require substantial investment. The disadvantage suffered by NBN satellite-served citizens will grow without targeted national investment and a coherent strategy for this proportion of the community.

Currently the adequacy of these services is not measured by the Australian Government whose focus is on fixed NBN infrastructure. There should be measurement of satellite service performance to allow a full understanding of the performance being provided by NBN satellite—rather than relying on anecdotal experience.

The Digital Divide is set to grow with NBN Co ensuring 75% of homes and businesses on the fixed line network will have 1Gbps by 2024, while there is still uncertainty whether the most disadvantaged are receiving the Statutory Infrastructure Provider minimum of 25/5Mbps. This is a 40 times difference in throughput performance, and the higher latency of a satellite service would slow the apparent response even further. This is a major driver of the digital divide. Further there has been no discussion on how this growing divide will be mitigated.

Satellite service performance is important for Telehealth services where the delay and latency of the service impacts the usability of the service.

NBN Adoption Rates

The rates of adoption of NBN services is still lower than ideal. As at 9 September, the ratio of premises ready-to-connect and premises activated is approximately 27 per cent for Satellite, 57 per cent for Fixed Wireless, and 71 per cent for Fixed (brownfields). The adoption rates for Fixed services may be explained by the availability of other options in those areas. However, the low adoption rates for Satellite and Fixed Wireless, where alternatives are not readily available, suggest that many people are simply not connected.

If this is the case, there is a need for more programs to encourage adoption and use of digital services. Queensland is embracing digital transformation in many areas, as are most states and the Federal Government, however, the success of digital transformation relies heavily on high levels of connection and use of digital services.

Coordination of Programs

In addition to RTIRC , ideally, Australia should use the Australian Infrastructure Plan to document need and guide future investments.

Experience with the joint Commonwealth-State programs has demonstrated that:

- the timeframes allowed by the Australian Government are usually challenging

- it can be difficult for the State to respond within the timeframe given the need to seek funding and approvals

- the selection criteria do not always achieve the best possible outcomes, especially given the decentralised nature of Queensland.

The collaboration process could be improved by considering a number of changes:

- Allowing more time for responses by the states, to give the best chance of complete participation in the programs.

- By ensuring states have an opportunity to seek funds through a formal budget process before applications close for new funding programs.

- Focusing on outcomes that maximise benefits to citizens, rather than on measurable outcomes that ensure that there are is no overlap in coverage i.e. focus on lifting the lowest served, rather than equalising service standards across the board.

Access to RBBP Fibre

The Regional Backbone Blackspot Program Fibre is a valuable asset in the provision of optical fibre backhaul to outback Queensland. Access to capacity on this fibre can be restrictive due to the commercial terms applied to its operation.

Access to capacity on this fibre should be made available at enabling-not fully commercial rates, just as Queensland has enabled access to the State's telecommunications assets through QCN Fibre.

Infrastructure Competition vs Service Competition

In a state like Queensland, it does not make economic sense to insist on infrastructure competition in all locations, because the cost is too high, and the return on investment too low. This approach limits the geographical spread of new infrastructure. The sharing of infrastructure by multiple service providers is arguably a better approach because it avoids wasted duplication of infrastructure in remote areas.