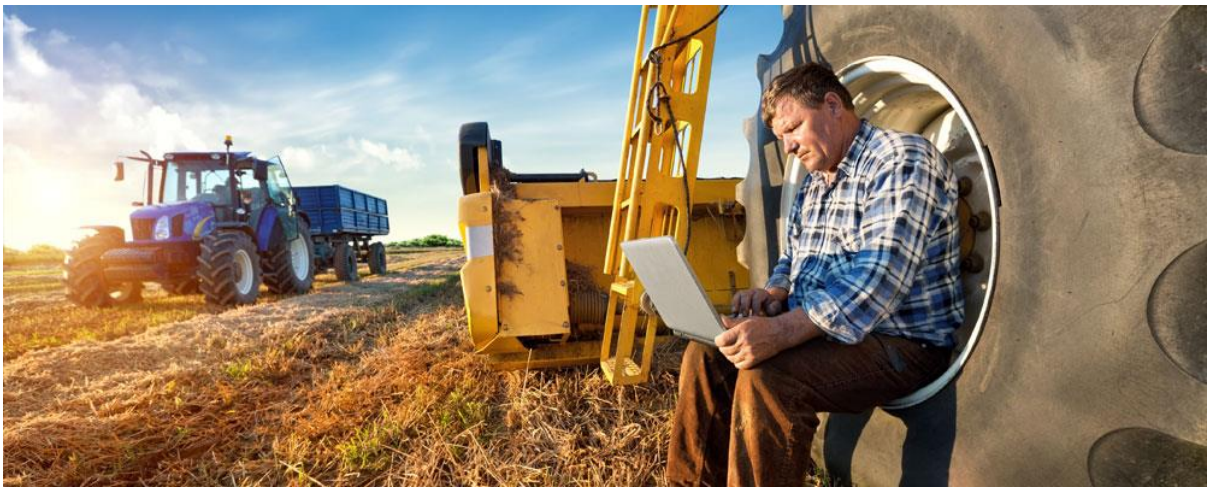
IoTAA Response to Regional Telecommunications Review 2021 Issues Paper



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Introduction

IoT Alliance Australia (IoTAA) is the peak Australian IoT industry body with over 500 participating organisations and 1000 individual participants working across 12 workstreams. We address deployment and uses of Internet of Things (IoT) devices and services in Australia. Our mission is to accelerate the adoption of IoT in Australia to improve our competitive advantage and benefit society.

IoTAA welcomes this opportunity to provide a response to the Regional Telecommunications Review 2021 Issues Paper

Regional and rural Australia generates approximately two thirds of our exports (DITRDC) and one third of our GDP (SGS Economics and Planning). Recent studies on the potential for IoT and digital technologies estimate significant potential productivity increases in the major regional industries of agriculture, fisheries and forestry, mining, healthcare, construction and manufacturing from $52 to $81b (Australia's IoT Opportunity: Driving Future Growth - An ACS Report)[1]

IoTAA agrees that connectivity play a key role in supporting the productivity and wellbeing of regional, rural and remote Australia and the significant contribution the bush makes to the nation. It is a fundamental and necessary building block of all IoT technologies and services, without which the above economic gains cannot be made. Further, the continuing investment in and evolution of fit-for-purpose connectivity is a primary indicator of the deployment of IoT and digital innovation – and thereby the economic success and social wellbeing of regional and rural communities.

Agri-tech technology solutions example: widespread adoption of digital agriculture is critical to lifting the value of Australian agriculture from $60 billion to $100 billion by 2030 (ABAC – AgriTech Expert Working Group Report June 2021)[i].

Significant new factors have added to the traditional challenges of distance and economies of scale in regional and rural economy communities, since the last Regional Telecoms Review:

- Increasing variability of weather due to climate change
- Advancement in the availability and improvement of solar and wind powered energy
- Increasing emergency response needs due to bushfires and floods with accompanying risks to telecoms infrastructure itself
- Rise in telehealth due to COVID-19
- Increased migration of urban population to regional areas during COVID
- Increased expectation (and need) of the citizens and businesses to be able to avail themselves of more sophisticated and higher speed digital services – including for itinerant workers for seasonal harvesting
- Availability of new communications technologies, including NB-IoT, LP-WAN technologies, IoT Satellite services and the nascent arrival of broadband 5G connectivity

[1] https://www.acs.org.au/insightsandpublications/reports-publications/iot-opportunity.html

- The continuing rise in availability and lower cost IoT services and technologies to enable remote management, asset management etc. to improve productivity, adaptability, innovation and liveability across all regional and rural industries.
- The advent and rapidly expanding range of newer wireless connectivity technology and service options with, at this stage sporadic and early stage deployment – this includes 5G (broadband), LoRaWan, SigFox, Satellite connectivity, CAT-M1, NB-IoT – which are critical in enabling new and innovative IoT deployments.
    - An consequential rise in demand for greater broadband backhaul capacity is expected, which will likely exacerbate already constrained regional and rural capacity.
- The recent Australian Broadband Advisory Council, Agritech Expert Working Group report of June 2021 attests to the persisting problem of "salt and pepper" telecoms coverage, that is patchy and non-contiguous, offering islands of connectivity that create a significant impediment to broader IoT and digital technology deployment

Recommendations

IoTAA recommends six reforms be considered to help accelerate the deployment of fit-for-purpose telecommunications and connectivity to enable regional Australia to realise the potential and critical economic and social benefits of IoT and digital transformation. These are:

1. Adopt a "place-based" approach to telecoms infrastructure planning, "smart regions" or digitally enabled regions and communities that takes a cross-sectoral view of the interrelated infrastructure and the amenity needs of a location (which is one of the three focus areas recommended by the recent Infrastructure Australia Infrastructure Plan 2021 [2]). Such an approach should consider enabling local communities to realise their own connectivity infrastructure by removing regulatory barriers and promoting locally driven wireless connectivity and broadband backhaul initiatives.
2. To address the "salt and pepper" connectivity challenge, complement a program for deeper national carrier deployments with accommodation and encouragement of multi-tiered market solutions including private wireless, LPWAN, satellite etc. (this aligns with the ABAC – AEWG recommendations)[3]. This could be achieved by, for example:
    a. Extracting greater value and use of spectrum for regional IoT connectivity through for example, more flexibility in spectrum rules for class licences and availability of mobile spectrum through a "use it or lose it" mechanism to encourage local initiatives.
    b. Encouraging innovative broadband backhaul solutions for sparsely populated areas.
    c. Ensure government funding and incentive arrangements actively encourage local communities and regions to aggregate digital service requirements and encourage local

[2] Page 21: https://www.infrastructureaustralia.gov.au/sites/default/files/2021-09/Exec%20Summary%20%28standalone%29.pdf
[3] https://www.infrastructure.gov.au/department/media/publications/agri-tech-expert-working-group-june-2021

place-based groups to attract carriers and other communications providers to meet digital connectivity improvements.

d. Encouragement and support of local, regional connectivity service providers.

3. Exploit non-carrier Infrastructure deployment which is recommended to be digital by default (Infrastructure Australia) by providing incentives for infrastructure providers to share connectivity – especially in rural and remote places.

4. Facilitate policy coordination across federal and state to support telecommunications policy, including non-carrier options and place-based outcomes.

5. Provide regular and more deeply distributed education and awareness of connectivity options for IoT especially with regard wireless technology and service provider choices.

6. Service resilience – as per Infrastructure Australia recommendation: a comprehensive response to natural disasters is needed that addresses the need for more resilient networks and redundancy options. “Connectivity in depth” should be considered for critical services such as health, utilities and high traffic areas.

IoTAA’s responses to the questions raised in the Issues Paper follow. The IoTAA would be welcome further discussion of this submission. Please contact Frank Zeichner, CEO IoTAA, [redacted]

Issues Paper Questions and responses

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?	Affordable telecommunications services for regional Australia are not adequate today, with patchy (salt and pepper) coverage delivering insufficient broadband penetration to address current data and voice requirements. There is accelerating demand for data and digital services to: • improve agriculture productivity through intelligent IoT enabled precision farming • support adaptation to climate change • deliver lower carbon distributed energy resources • meet growing remote health and telehealth services • respond to increasing community demand for more sophisticated and higher speed digital capabilities for current growing populations as people move from urban areas; and • attract itinerant seasonal workers.
2.	What changes in demand, barriers or challenges need to be addressed when it comes to telecommunications services in regional, rural and remote Australia?	Australia is at a significant inflection point where the demand for digital communications has accelerated dramatically with rural and remote communities needing a step-change in access for their work, industry and community. The COVID-19 pandemic is compounding a convergence of basic needs for people living outside cities. These communities are experiencing the following pressures which digital technologies, enabled through advanced broadband communications can address: • increasing variability of weather due to climate change • advances in the availability of improved solar and wind powered energy • increasing emergency response needs due to bushfires and floods with accompanying risks to telecoms infrastructure itself • a significant rise in telehealth requirement from the COVID-19 pandemic • increased migration of urban population to regional areas • accelerating expectations (and needs) of the citizens and businesses to be able to avail themselves of more sophisticated and higher speed digital services – including for itinerant workers for seasonal harvesting • continuing rise in availability and lower cost IoT services and technologies to enable remote asset management, for example, to improve productivity,

		adaptability, innovation and liveability across all regional and rural industries and people. For example, better insurance products through data in regional areas[4] • anticipated phase out of 3G mobile services – it is especially critical to support the regional voice footprint being at a minimum better than today.
3.	How have the Government's policies and programs affected telecommunications service outcomes in regional, rural and remote Australia? How can these be improved?	Government policies and programs can be improved by adopting a "place-based" approach to telecoms infrastructure planning, "smart regions" (digitally enabled regions) that takes a cross-sectoral view of the interrelated infrastructure and amenity needs of a location (in accordance with the recommendation in the recent Infrastructure Australia Infrastructure Plan 2021[5]). Such an approach would include enabling local communities to realise their own connectivity infrastructure by removing regulatory barriers and promoting locally driven connectivity and broadband backhaul initiatives so communities can work with digital communications infrastructure providers to ensure they are delivered the services they need. To address the "salt and pepper" connectivity challenge, a complementary program for deeper national carrier deployments which encourages and enables multi-tiered market solutions including private wireless, LPWAN, Satellite etc (this aligns with the ABAC – AEWG recommendations)[6]. Accordingly, the IoTAA recommends: 1. Extracting greater value and use of spectrum for regional IoT connectivity through, for example, more flexibility in spectrum rules for class licences and availability of mobile spectrum through a "use it or lose it" mechanism to encourage local initiatives. 2. Encouraging innovative broadband backhaul solutions for sparsely populated areas. 3. Ensure government funding and incentive arrangements actively encourage local communities and regions to aggregate digital service requirements and encourage local place-based groups to attract

[4] https://myriota.com/2021/09/02/iag-backs-myriotas-industry-first-iot-insurtech-solution/
[5] Page 21: https://www.infrastructureaustralia.gov.au/sites/default/files/2021-09/Exec%20Summary%20%28standalone%29.pdf
[6] https://www.infrastructure.gov.au/department/media/publications/agri-tech-expert-working-group-june-2021

		carriers and other communications providers to meet digital connectivity improvements. 4. Encouragement and support of local, regional connectivity service providers
4.	How do service reliability issues impact on regional communities and businesses? How do outages, including in natural disasters, impact on communities and businesses?	The Royal Commission into National Natural Disaster Arrangements report identified loss of mains power as the cause for 88% of mobile service outages during the 2019–20 bushfires[7]. Major outages during these bushfires put communities in danger and affected business services for extended periods. Apart from the immediate impact on community safety, the service outages impact business reliability and create economic loss.
5.	How might such impacts be addressed to ensure greater reliability? How can the network resilience be addressed in regional areas?	Service resilience – the 2021 Australian Infrastructure Plan[8] recommends: a comprehensive response to natural disasters is needed that addresses the need for more resilient networks and redundancy options. "Connectivity in depth" should be considered for critical services such as health, utilities and high traffic areas; and Building community resilience to all hazards by considering systemic risks, interdependencies and vulnerabilities in infrastructure planning and decision-making.
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?	The use of digital services increased during COVID due to several factors: • The increased need for work at home and consequential remote on-line management • The introduction of telehealth • Increased population due to migration from cities • Increased application of IoT and digital technologies for farm management, contact tracing, supply chain tracking. These changes are placing increasing pressure on rural and regional communities as they, like the rest of Australia, focus on being more self-sufficient and adjust to growing populations as more people move into the regions to pursue lifestyle and remote working options.

[7] Royal Commission into National Natural Disaster Arrangements Report. 28 October, 202, Paragraph 9.20, p.229.

[8] Page 13, https://www.infrastructureaustralia.gov.au/sites/default/files/2021-09/Exec%20Summary%20%28standalone%29.pdf

		For many communications infrastructure and service providers, the growing digital expectations on communications infrastructure, the advancement of internet enabled infrastructure, services and devices is improving business cases for better digital connectivity. More flexible approaches are needed to accommodate these changes including a structured examination of the barriers to delivering digital infrastructure outside cities, so innovation and new products and services are encouraged.
7.	What can be done to improve the access and affordability of telecommunications services in regional, rural and remote Indigenous communities?	Adopt a "place-based" approach to telecoms infrastructure planning, "smart regions" (digitally enabled regions) that takes a cross-sectoral view of the interrelated infrastructure and amenity needs of a location. Such an approach would include enabling local communities to realise their own connectivity infrastructure by lowering economy of sale barriers and promoting locally driven connectivity initiatives. Complement a program for deeper national carrier deployments with accommodation and encouragement of multi-tiered market solutions including lower cost private wireless, LPWAN, Satellite etc. (this aligns with the ABAC – AEWG recommendations). An examination of the barriers to these service offerings would ensure delivery is as open and cost efficient as possible. Provide Federal Government incentives for new backhaul systems that are key for broadband connectivity. Fibre is always preferred, however microwave based or hybrid solutions in regional areas can be more cost effective and fit for purpose. Allocate AWL spectrum for shared commercial 4/5G networks and private purposes e.g. regional Neutral Host (e.g. 5G 600-900MHz) and also private network use (e.g. 5G 3.7-4.2GHz) for industry.
8.	How can investment in telecommunications infrastructure work with other programs and policies to encourage economic development in regional Australia?	Adopt a "place-based" approach to telecoms infrastructure planning, "smart regions" (digitally enabled regions) that takes a cross-sectoral view of the interrelated infrastructure and amenity needs of a location. Such an approach would include enabling local communities to realise their own connectivity

		infrastructure by removing regulatory barriers and promoting locally driven connectivity initiatives Ensure government funding and incentive arrangements actively encourage local communities and regions to aggregate digital service requirements and encourage local place-based groups to attract carriers and other communications providers to meet digital connectivity improvements. Provide further Federal Government telecommunication incentives for 4/5G infrastructure investors and Wireless Carriers, to enhance recent regional initiatives, such as RCP, Black Spots and DRNSW Mobile Project. Facilitate Policy coordination across federal and state to support Telecommunications policy, including non-carrier options and place-based outcomes
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?	Innovation, new business models, mechanisms to encourage investors are important to address the "salt and pepper" connectivity challenge, complement a program for deeper national carrier deployments with accommodation and encouragement of multi-tiered market solutions including private wireless, LPWAN, Satellite etc. (this aligns with the ABAC – AEWG recommendations). This could be achieved by, for example: 1. More flexibility in spectrum rules for class licences 2. Enable innovative broadband backhaul solutions for sparsely populated areas 3. Ensure government funding and incentive arrangements actively encourage local communities and regions to aggregate digital service requirements and encourage local place-based groups to attract carriers and other communications providers to meet wireless connectivity and broadband requirements. 4. Establishing regional data centres to allow better distribution of applications, data analysis and data storage – to enhance response times and better manage backhaul constraints 5. Promoting deeper 5G penetration through innovative spectrum licensing options – such as "use it or lose it" to release and exploit unsused spectrum that effectively locked away These approaches will enable local communities to realise their own connectivity infrastructure by removing

	regulatory barriers and promoting locally driven connectivity initiatives. Exploit use of non-carrier owned infrastructure, such as State/Federal government and Utilities and private assets to enable additional backhaul, 4/5G services, e.g. roads, towers, power, rail, pipelines, duct systems, buildings and energy networks fibre deployment, which is recommended to be digital by default (Infrastructure Australia) by providing incentives for infrastructure providers to share connectivity – especially in rural and remote places.
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?	New technologies will enable significant change in the delivery of telecommunications services over the next 10 years. They will decrease the cost of delivering data, increase mobile broadband connectivity, enable cheaper, lower cost and longer life battery powered IoT devices. Consideration should be given to investment and deployment of 5G OpenRAN technologies; as recently announced at the Quad nations Leaders' Summit on 25 September. OpenRAN fosters choice, collaboration and promotes a diverse, resilient, and secure telecommunications ecosystem that is futureproof. The barriers to accessing these technologies are primarily persistent constraints in: • Coverage • Broadband backhaul capacity and resilience • The commercial model and incentives for public and private service providers to provide connectivity services
11. How can Government better support the rapid rollout of and investment in new telecommunications solutions in regional areas?	Adopt a "place-based" approach to telecoms infrastructure planning, "smart regions" (digitally enabled regions) that takes a cross-sectoral view of the interrelated infrastructure and amenity needs of a location (as recommended by the recent Infrastructure Australia Infrastructure Plan 2021) to help build economies of scale and prioritise investment. Anecdotally, there is considerable confusion regarding wireless and mobile options in regional and remote areas. There is a real need to provide greater regular education and awareness of connectivity options for IoT.

12. How can different levels of Government, the telecommunications industry and regional communities better co-ordinate their efforts to improve telecommunications in regional Australia?	Facilitate Policy coordination across federal and state to support telecommunications policy, including non-carrier options and place-based outcomes.
13. What changes to Government investment programs are required to ensure they continue to be effective in delivering improved telecommunications?	See answers to questions 8 and 11
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.	There is a real need to provide greater regular education and awareness of connectivity options for IoT. These would be better achieved through government, industry and user associations rather than being solution provider specific to support greater transparency and insights.
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?	Anecdotally, there is considerable confusion regarding wireless and mobile options in regional and remote areas. There is a real need to provide greater regular education and awareness of connectivity options for IoT A collective place-based, aggregated understanding of service (especially data needs) is missing. Individual customers are often confronted by high-cost solutions that serve their needs only and few alternatives are readily visible.
16. What other matters should the Committee consider in its review and why are they important?	The Committee could seek specific assistance with looking at the barriers to expanding digital infrastructure in rural and regional areas and how these barriers can be overcome and the benefits of removing them.